PLN-8991-103

DMS-100* FAMILY

ALL PRODUCT COMPUTING-MODULE LOADS

Volume 6 of 15

RETIRED ENGINEERING MANUALS

97Q4 Standard 05.03 December 1997

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RLCC COMMON CP NTNX14MA

RATING: MD. Replaced by the NTNX14LA.

ABBREVIATION NAME:

ENGINEERING DESCRIPTION: The RLCC Common CP provides the always provided circuit packs for the RMM,HIE and the LCA shelves.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US

NTNX14MA EMR2-16-RLCC-2 CHANGE HISTORY

Engineering Manual Section Change History

DATE	DOCUMENT	REASON
--------	----------	Previous history not available
92 10 29	ECM 415 04	This EMS is being MD'd and retired. This PEC does not exist. Current documentation supports only the NTNX14LA.

The RLCC Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Face Plate 2.22 IN.	NT0X50AG		1	33	9	AP
Filler Face Plate .875	NT0X50AA		2	33	12,13	AP
Link Control CP	NT6X73AA		2	33	17,18	AP
DS1 Interface CP	NT6X50AA		2	33	19,20	AP
Pwr Converter -5VOLT,12V	NT2X70AE		2	33	22,25	AP
Power Converter 5V/15V CP	NT6X53AA		2	5,19	1	AP
LCM Processor CP	NT6X51AB		2	5,19	4	AP
Digroup Control CP	NT6X52AA		2	5,19	5	AP
Desig. Label (NT6X51AB)	P0701604		2			AP
Desig. Label (NT6X52AA)	P0633542		2			AP
Desig. Label (NT6X53AA)	P0633543		2			AP
Desig. Label (NTNX14MA)	P0712989		1			AP

FLAGS:

NOTES:

RULES:

AP 1) When PEC NTNX14MA is ordered, these items are provided.

INTEGRATED ACCESS CONTROLLER CP FILL NTBX40BA

RATING: MD. On new jobs replace by NTBX40BC.

ABBREVIATION NAME: IAC

ENGINEERING DESCRIPTION: The NTBX40BA is the common circuit pack fill for the Integrated Access Controller (IAC) when it is configured for Basic Rate Access.

REFERENCE DOCUMENTATION: N/A

The Integrated Access Controller Circuit Pack Fill is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Face Plate	NT0X50AA		5	X+14	01-05	AP
DS-30A Interface CP	NT6X48AA		2	X+14	06,07	AP
LGC/DTC Processor CP	NT6X45AC		1	X+14	08	AP
ISDN Sig Term Buffer CP	NTBX43AA		1	X+14	09	AP
MP Memory Plus CP	NT6X47AB		1	X+14	10	AP
SP Memory Plus CP	NT6X46AB		1	X+14	11	AP
Com Periph Ctlr BP Paddlebd	NT6X1205		1	X+14	11R	AP
LGC/DTC Processor CP	NT6X45AC		1	X+14	12	AP
Filler Face Plate	NT0X50AA		1	X+14	13	AP
Time Switch CP	NT6X44AA		1	X+14	14	AP
Filler Face Plate	NT0X50AA		3	X+14	15-17	AP
CPCE Tone Generator CP	NT6X79AA		1	X+14	19	AP
Channel Supervision Mgs CP	NT6X42AA		1	X+14	20	AP
Speech Bus Formatter CP	NT6X41AA		1	X+14	21	AP
DS-30 Network I/F CP	NT6X40AB		1	X+14	22	AP
Filler Face Plate	NT0X50AA		2	X+14	23,24	AP
Power Converter	NT2X70AD		1	X+14	25	AP
Designation Strip	P0677839		1			AP
Desig Label (NT0X50AA)	P0578498		1			AP
DS-1 Interface CP	NT6X50AB		1	X	01	AP
Filler Face Plate	NT0X50AA		4	X	02-05	AP
DS-30A Interface CP	NT6X48AA		2	X	06,07	AP
LGC/DTC Processor CP	NT6X45AC		1	X	08	AP
ISDN Sig Term Buffer CP	NTBX43AA		1	X	09	AP
MP Memory Plus CP	NT6X47AB		1	X	10	AP
SP Memory Plus CP	NT6X46AB		1	X	11	AP
Com Periph Ctlr BP Paddlebd	NT6X1205		1	X	11R	AP
LGC/DTC Processor CP	NT6X45AC		1	X	12	AP
Filler Face Plate	NT0X50AA		1	X	13	AP
Time Switch CP	NT6X44AA		1	X	14	AP
Filler Face Plate	NT0X50AA		3	X	15-17	AP
CPCE Tone Generator CP	NT6X79AA		1	X	19	AP
Channel Supervision Mgs CP	NT6X42AA		1	X	20	AP
Speech Bus Formatter CP	NT6X41AA		1	X	21	AP
DS-30 Network I/F CP	NT6X40AB		1	X	22	AP
Filler Face Plate	NT0X50AA		2	X	23,24	AP
Power Converter	NT2X70AD		1	X	25	AP
Designation Strip	P0677839		1			AP

NOTE:

1) In SHF POS, "X" is equal to 18 for the IAC module.

RULE:

AP 1) When PEC NTBX40BA is ordered, these items are provided.

INTEGRATED ACCESS CONTROLLER CP FILL NTBX40BB

RATING: MD. On new jobs replace by NTBX40BC.

ABBREVIATION NAME: IAC

ENGINEERING DESCRIPTION: The NTBX40BB is the common circuit pack fill for the Integrated Access Controller (IAC) when it is configured for Basic Rate Access or Primary Rate Access.

REFERENCE DOCUMENTATION: N/A

The Integrated Access Controller Circuit Pack Fill is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Face Plate	NT0X50AA		2	X+14	04,05	AP
LGC/DTC Processor CP	NT6X45AC		1	X+14	08	AP
ISDN Sig Term Buffer CP	NTBX43AA		1	X+14	09	AP
MP Memory Plus CP	NT6X47AB		1	X+14	10	AP
SP Memory Plus CP	NT6X46AB		1	X+14	11	AP
Com Periph Ctrl BP Paddlebd	NT6X1205		1	X+14	11R	AP
LGC/DTC Processor CP	NT6X45AC		1	X+14	12	AP
Filler Face Plate	NT0X50AA		1	X+14	13	AP
Time Switch CP	NT6X44AA		1	X+14	14	AP
CPCE Tone Generator CP	NT6X79AA		1	X+14	19	AP
Channel Supervision Mgs CP	NT6X42AA		1	X+14	20	AP
Speech Bus Formatter CP	NT6X41AA		1	X+14	21	AP
DS-30 Network I/F CP	NT6X40AB		1	X+14	22	AP
Filler Face Plate	NT0X50AA		2	X+14	23,24	AP
Power Converter	NT2X70AD		1	X+14	25	AP
Designation Strip	P0693207		1	X+14		AP
LGC/DTC Processor CP	NT6X45AC		1	X	08	AP
ISDN Sig Term Buffer CP	NTBX43AA		1	X	09	AP
MP Memory Plus CP	NT6X47AB		1	X	10	AP
SP Memory Plus CP	NT6X46AB		1	X	11	AP
Com Periph Ctrl BP Paddlebd	NT6X1205		1	X	11R	AP
LGC/DTC Processor CP	NT6X45AC		1	X	12	AP
Filler Face Plate	NT0X50AA		1	X	13	AP
Time Switch CP	NT6X44AA		1	X	14	AP
CPCE Tone Generator CP	NT6X79AA		1	X	19	AP
Channel Supervision Mgs CP	NT6X42AA		1	X	20	AP
Speech Bus Formatter CP	NT6X41AA		1	X	21	AP
DS-30 Network I/F CP	NT6X40AB		1	X	22	AP
Filler Face Plate	NT0X50AA		2	X	23,24	AP
Power Converter	NT2X70AD		1	X	25	AP
Designation Strip	P0693207		1	X		AP

NOTE:

1) In SHF POS, "X" is equal to 18 for the IAC module.

RULE:

AP 1) When PEC NTBX40BB is ordered, these items are provided.

INTEGRATED ACCESS CONTROLLER COMMON CP

PEC CODE:	NTBX40BC
CPC CODE:	B0229593
RATING:	MD
REPLACES:	N/A
REPLACED BY:	None
ABBREVIATION NAME:	IAC
ENGINEERING DESCRIPTION:	The NTBX40BC is the common circuit pack fill for the Integrated Access Controller (IAC) when it is configured for Basic Rate Access or Primary Rate Access.
REFERENCE DOCUMENTATION:	SLBX40BC
MARKETS:	Applicable markets: US Canada

ISSUE AUTHOR: NTI: Steve Martin Dept. 3471 (PPK)

MAIN CONTACT: NTI: Steve Martin Dept. 3471 (PPK)

NTBX40BC EMR2-17-IAC-4 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history unavailable
95 07 11	ECM 616 36	MD and Reformat EMS.

The Integrated Access Controller Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Face Plate	NT0X50AA		2	X+14	04,05	AP
LGC/DTC Processor CP	NT6X45AC		1	X+14	08	AP
ISDN Sig Term Buffer CP	NTBX43AA		1	X+14	09	AP
MP Memory Plus CP	NT6X47AB		1	X+14	10	AP
SP Memory Plus CP	NT6X46BA		1	X+14	11	AP
LGC/DTC Processor CP	NT6X45AC		1	X+14	12	AP
Filler Face Plate	NT0X50AA		1	X+14	13	AP
Time Switch CP	NT6X44AA		1	X+14	14	AP
CPCE Tone Generator CP	NT6X79AA		1	X+14	19	AP
Channel Supervision Mgs CP	NT6X42AA		1	X+14	20	AP
Speech Bus Formatter CP	NT6X41AA		1	X+14	21	AP
DS-30 Network I/F CP	NT6X40AB		1	X+14	22	AP
Filler Face Plate	NT0X50AA		2	X+14	23,24	AP
Power Converter	NT2X70AD		1	X+14	25	AP
Desig. Label (NT6X46BA)	P0698315		1	X+14	11	AP
Designation Strip	P0693207		1			AP
LGC/DTC Processor CP	NT6X45AC		1	X	08	AP
ISDN Sig Term Buffer CP	NTBX43AA		1	X	09	AP
MP Memory Plus CP	NT6X47AB		1	X	10	AP
SP Memory Plus CP	NT6X46BA		1	X	11	AP
LGC/DTC Processor CP	NT6X45AC		1	X	12	AP
Filler Face Plate	NT0X50AA		1	X	13	AP
Time Switch CP	NT6X44AA		1	X	14	AP
CPCE Tone Generator CP	NT6X79AA		1	X	19	AP
Channel Supervision Mgs CP	NT6X42AA		1	X	20	AP
Speech Bus Formatter CP	NT6X41AA		1	X	21	AP
DS-30 Network I/F CP	NT6X40AB		1	X	22	AP
Filler Face Plate	NT0X50AA		2	X	23,24	AP
Power Converter	NT2X70AD		1	X	25	AP
Desig. Label (NT6X46BA)	P0698315		1	X	11	AP
Designation Strip	P0693207		1			AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) For the IAC module X = 18.

RULES:

AP 1) When PEC NTBX40BC is ordered, these items are provided.

INTEGRATED ACCESS EQUIPMENT FRAME

PEC CODE: NTBX40AA

CPC CODE: B0223261

RATING: MD

REPLACES: N/A

REPLACED BY: None

ABBREVIATION NAME: IAE

ENGINEERING DESCRIPTION: The Integrated Access Equipment Frame houses one (1) Integrated Access Controller (IAC) and two shelves of Signaling Terminal (ST) cards. The IAC combines the functions of Line Trunk Controller (LTC) and Message Switch Buffer (MSB) to terminate ISDN trunks and Line Concentrating Modules. The ST cards are equipped to handle the 'D' channels on the ISDN lines/trunks.

REFERENCE DOCUMENTATION: MSBX40AA 00 06

MARKETS: Applicable markets:

US
Canada

ISSUE AUTHOR: NTI: Steve Martin Dept. 3471 (PPK)

MAIN CONTACT: NTI: Steve Martin Dept. 3471 (PPK)

NTBX40AA EMR2-17-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history unavailable
95 07 11	ECM 616 36	MD and Reformat EMS.
95 10 19	ECM 616 39	MD NTBX40BD.

The Integrated Access Equipment Frame is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Signaling Terminal Shelf	NT6X08AA	STG1	1	65		AP
Signaling Terminal Cards	NTBX45AA			65	04-11, 17-24	RUL2
Signaling Terminal I/F CP	AR			65	12,13, 15,16	RUL3
Power Converter	NT2X70AD			65	01,25	RUL4
Filler Face Plate	NT0X50AA			65	04-24	RUL5
Filler Face Plate	NT0X50AE			65	01,25	RUL4
Signaling Terminal Shelf	NT6X08AA	STG0	1	51		AP
Signaling Terminal Cards	NTBX45AA			51	04-11, 17-24	RUL2
Signaling Terminal I/F CP	AR			51	12,13, 15,16	RUL3
Power Converter	NT2X70AD			51	01,25	RUL4
Filler Face Plate	NT0X50AA			51	04-24	RUL5
Filler Face Plate	NT0X50AE			51	01,25	RUL4
Frame Supervisory Panel	NT0X28AP	FSP		45		AP
Int Access Ctrlr CP Fill	NTBX40BA	IAC		18		RUL6
Int Access Ctrlr CP Fill (BRA/PRA	NTBX40BB	IAC		18		RUL6
Int Access Ctrlr Shf Assy	NTBX4011		1	32		AP
DS-1 Interface CP	NT6X50AB			32	1-3	RUL7
DS-30A Interface CP	NT6X48AA			32	6,7	RUL8
Univ. Tone Receiver CP	NT6X92BB			32	15-17	RUL9
Filler Face Plate	NT0X50AA			32	1-3,6, 7,15-17	RUL14
CPP Message Protocol CP	NT6X69AA			32	18	RUL10
Int Access Ctrlr Shf Assy	NTBX4011		1	18		AP
# Int Access Ctrlr CP Fill	NTBX40BA	IAC		18		RUL6
# Int Access Ctrlr CP Fill	NTBX40BB	IAC		18		RUL6
# Int Access Ctrlr CP Fill	NTBX40BC	IAC		18		RUL6
# IAE SP Memory Upgrade Kit	NTBX40BD			18		RUL15
DS-1 Interface CP	NT6X50AB			18	1-5	RUL7
DS-30A Interface CP	NT6X48AA			18	6,7	RUL8
Univ Tone Receiver CP	NT6X92BB			18	15-17	RUL9

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Face Plate	NT0X50AA			18	1-7, 15-17	RUL14
CPP Message Protocol CP	NT6X69AA			18	18	RUL10
DC Fan Cooling Unit	NT3X90AC			04		RUL11
Desig. Label (NTBX44AC)	P0675078					RUL12
Desig. Label (NTBX44AD)	P0675079					RUL12
Desig. Label (NTBX45AA)	P0675080					RUL12
Desig. Label (NT2X70AD)	P0664133					RUL12
Desig. Label (NT6X48AA)	P0626877					RUL12
Desig. Label (NT6X48AA	P0626877					RUL12
Desig. Label (NT6X92BB)	P0676183					RUL12
Desig. Label (NT6X50AB)	P0690976					RUL12
Desig. Label (NT6X68AC)	P0647823					RUL12
Desig. Label (NT6X68AD)	P0647824					RUL12

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NTBX40BA	MD	NTBX40BC
NTBX40BB	MD	NTBX40BC
NTBX40BC	MD	No Replacement
NTBX40BD	MD	No Replacement

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) The IAC has twenty peripheral ports which are assigned as follows:

P-Side Port	DS-30A Slot	DS-1 SH-Slot	BRA Application	PRA Application
0	7	18-05	DS-30A to LCEI	DS-1 PRA Port
1	7	18-05	DS-30A to LCEI	DS-1 PRA Port
4	7	18-04	DS-30A to LCEI	DS-1 PRA Port
5	7	18-04	DS-30A to LCEI	DS-1 PRA Port
8	7	18-03	DS-30A to LCEI	DS-1 PRA Port
9	7	18-03	DS-30A to LCEI	DS-1 PRA Port
12	7	18-02	DS-30A to LCEI	DS-1 PRA Port
13	7	18-02	DS-30A to LCEI	DS-1 PRA Port
16	7	18-01	DS-1 to PH	DS-1 PRA Port
17	7	18-01	DS-1 to PH	DS-1 PRA Port
2	6	32-05	DS-30A to PHI	DS-30A to DCH
3	6	32-05	DS-30A to DCH	DS-30A to DCH
6	6	32-04	DS-30A to DCH	DS-30A to DCH
7	6	32-04	DS-30A to DCH	DS-30A to DCH
10	6	32-03	DS-30A to DCH	DS-1 PRA Port
11	6	32-03	DS-30A to DCH	DS-1 PRA Port
14	6	32-02	DS-30A to DCH	DS-1 PRA Port
15	6	32-02	DS-30A to DCH	DS-1 PRA Port
18	6	32-01	DS-30A to DCH	DS-1 PRA Port
19	6	32-01	DS-30A to DCH	DS-1 PRA Port

Port Assignment

BRA

For BRA P-Side ports 16&17 are reserved for the Packet Handler Interface. Port 16 is assigned first and then Port 17 if necessary. Ports 0,1,4,5,8,9,12,13 are assigned as DS-30A port to incoming LCMI modules as required.

Port 2 is assigned to ST group 0 as a Packet Handler Interface. Ports 3,6,7,10,11,14,15,18 & 19 are assigned to DCH ST groups 1-9 respectively as required.

PRA

For PRA P-Side ports 2,3,6 & 7 are assigned to DCH ST groups 0-3 as required. These ports are permanently reserved for this purpose.

The remaining ports are used as DS-1 PRA Ports. They are assigned in the following order as they are equipped. 0,1,4,5,8,9,10,11,12,13,14, 15,16,17,18,19.

2) The IAC has 3-16 ports to the network. Each IAC requires four cables per plane to the Speech Link Connecting Panel. The four speech link cable groups are to be adjacent in one panel.

RULES:

AP 1) When PEC NTBX40AA is ordered, these items are provided.

RUL1 1) (Reserved for future use).

RUL2 1) Each Signaling Terminal Group Shelf NT6X08AA houses two separate signaling terminal groups. The even (lower) numbered group occupies the right hand side of the shelf - slot positions 15-27. This ST group is 'A' powered. The odd (higher) numbered group occupies slots 1-13 and is 'B' powered. The ST cards NTBX45AA are assigned as follows:

ST GROUP NUMBER	ST	LOCATION	ST GROUP NUMBER	ST	LOCATION
ODD	7	XX-04	EVEN	0	XX-17
	6	XX-05		1	XX-18
	5	XX-06		2	XX-19
	4	XX-07		3	XX-20
	3	XX-08		4	XX-21
	2	XX-09		5	XX-22
	1	XX-10		6	XX-23
	0	XX-11		7	XX-24

2) For BRA the ST cards are assigned one per line as D-Channel Handlers. ST group 0 is reserved as the Packet Handler Interface group.

For PRA the ST cards are assigned one per D-Channel on the PRA trunks.

RUL3 1) The Signaling Terminal Interface Cards are assigned for each signaling terminal group when it is equipped.

2) For Basic Rate Access provide two (2) NT6X68AC Signaling Terminal Interface CP to be equipped in ST group 0 (shelf 51 slots 15&16).

The remaining STI cards are assigned as follows:

BRA

NO. OF ST GRPS USED AS DCH	PEC	CP POSITION
1	NTBX44AC NTBX44AD	51 - 12,13 65 - 12,13
2	NTBX44AC NTBX44AD	51 - 12,13 65 - 15,16
3	NTBX44AC NTBX44AC NTBX44AD	51 - 12,13 65 - 15,16 65 - 12,13
4 to 8 (equipped on STE)	NTBX44AC NTBX44AC NTBX44AC	51 - 12,13 65 - 15,16 65 - 12,13

PRA

NO. OF ST GRPS USED AS DCH	PEC	CP POSITION
1	NT6X68AC NT6X68AD	51 - 15,16 65 - 12,13
2	NT6X68AC NT6X68AC NT6X68AD	51 - 15,16 51 - 12,13 65 - 12,13
3	NT6X68AC NT6X68AC NT6X68AD	51 - 15,16 51 - 12,13 65 - 15,16
4	NT6X68AC NT6X68AC NT6X68AC NT6X68AD	51 - 15,16 51 - 12,13 65 - 15,16 65 - 12,13

RUL4 1) Provide one (1) NT2X70AD Power Converter for each ST group equipped as per the following:

PEC	POSITION	IF CP PROVIDED IN POSITIONS
NT2X70AD	51-01	51-04 to 51-11
NT2X70AD	51-25	51-17 to 51-24
NT2X70AD	65-01	65-04 to 65-11
NT2X70AD	65-25	65-17 to 65-24

2) Provide one (1) NT0X50AE for each unequipped power converter position.

RUL5 1) Provide Filler Face Plate NT0X50AA in unequipped positions on shelves 51 and 65.

RUL6 1) Provide one (1) NTBX40BC Integrated Access Controller CP fill to equip the IAC for BRA or PRA. This CP fill is required for all applications BCS-27 or higher.

2) Provide one (1) NTBX40BB Integrated Access Controller CP fill to equip the IAC for BRA or PRA.

RUL7 1) Provide one (1) NT6X50AB DS-1 Interface CP to provide two (2) DS-1 ports. Provide up to eight (8) NT6X50AB circuit packs for PRA applications as required. For BRA provide one (1) NT6X50AB for packet handler interface. It is assigned to shelf 18 slot 1 (Note this circuit pack is always provided if CP fill NTBX40BA is provided).

RUL8 1) Provide two (2) (one pair) NT6X48AA DS-30A Interface CP for ten DS-30A ports up to a maximum of four (4) (two pair) for twenty ports. For BRA provide four (4) NT6X48AA circuits packs (Note these circuit packs are always provided with NTBX40BA circuit pack fill). These are assigned for DCH ST groups and LCMI interface. For PRA provide one (1) pair in slot 6 for DCH ST groups.

RUL9 1) Do not provision NT6X92BB Universal Tone Receiver CP on IAC until further notice.

RUL10 1) Provide two (2) NT6X69AA CPP Message Protocol CP.

RUL11 1) Provide one (1) NT3X90AC DC Cooling Unit.

RUL12 1) Provide one Designation Label per each NTBX44AC, NTBX44AD, NTBX45AA, NT2X70AD, NT6X48AA, NT6X92BB, NT6X50AB, NT6X68AC and NT6X68AD provided.

RUL13 1) When customer requirements specify that Grilles, Frame Doors and(or) Frame Trim Panels are to be ordered for these frames, provide one NT0X08AH, one (1) NT0X71AB (without AC outlets) or one (1) NT0X71AD (with AC outlets at the base of the frame) and(or) two (2) NT0X72AB per frame as required.

RUL14 1) Provide filler face plates as required to fill unequipped slots.

RUL15 1) Provide NTBX40BD IAE SP Memory Upgrade Kit to upgrade IAC Common Circuit Pack Fills NTBX40BA or NTBX40BB to NTBX40BC. This change upgrades SP Memory from NT6X46AB to NT6X46BA as required for BCS-27 or higher applications. For field application only.
The NTBX40BD kit is at MD status.

ISDN COMMON PERIPHERAL CONTROLLER EQUIPMENT FRAME

PEC CODE: NT6X01AB

CPC CODE: B0227933

RATING: MD

REPLACES: None

REPLACED BY: NTZZ17AT (NT6X01AD)

ABBREVIATION NAME: CPEI

ENGINEERING DESCRIPTION: The ISDN Common Peripheral Controller Equipment Frame is a standard DMS frame which houses two dual shelf Peripheral Controller modules. Each module is housed in two adjacent shelves (ie. a pair of shelves on positions 65 and 51 and a pair of shelves on position 32 and 18).

REFERENCE DOCUMENTATION: MS6X01AB 00 34

MARKETS: Applicable markets:

Canada
CALA
Asia/Pacific
Europe
US

ISSUE AUTHOR: Barbara Berkley Dept. 3471 (PPK)

MAIN CONTACT: Barbara Berkley Dept. 3471 (PPK)

NT6X01AB EMR2-18-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
92 08 26	ECM 616 07	Re-release changes made via ECM 616 05
92 10 15	ECM 616 08	SMUI correction - changes maximum DS-1 Int. packs from 8 to 10 per SMUI EC 024-83370 - make P0638263 Connector Key Bracket provisionable. ET 14779 - Remove rules regarding application of CMR on LGCI, LTCI. ET 14009 - Add rules for upgrade of NT6X46, NT6X47 and NT6X69 CP's when LCME is subtending CPCI. TMS correction - changes provisioning of DS-1 CPs
92 12 18	ECM 616 09	ET-15229 - Correct RUL 21 In The NT6X01AB EMS. COCOS R. Minstry - Request NT6X01AB To Be MD'ed In Canadian Mkt. For SMUI Application Only.
93 02 25	ECM 673 01	EC 011-17434 - Introduction of DWS to the NT6X01AB. Introduces the NT6X01WC Wiring Option and the NTAX78AA Enhanced Time Switch to support Dialable Wideband Services.
93 04 15	ECM 616 10	EC01118087 - Add NT6X92BC/NTZZ02FB as a limited offering. - introduce NTBX02BA
93 07 12	ECM 616 12	Incorporates the following: - EC 024-88946 incorporated the Univ. FXPM Brkt NT6X02UF and A&M the NT6X02BU bracket. This will result in NTZZ17AA/KA/LA being MD'ed and replaced by NTZZ17AM/AN. - EC 022-15138 Modify Provisioning Rules for the NT6X46BB and NT6X46BA when used with the NT6X62AA and NT6X62AB on the DMS 250

Engineering Manual Section Change History

DATE	DOCUMENT	REASON
		Pack Fills NT6X02AI/LE. - Update RUL13 and 21 to require XPM Plus hardware and software at BCS-34
93 09 27	ECM 616 15	EC 011-17725 Add SMUI to list of field upgradeable modules for XPM PLUS.
93 11 10	ECM 616 16	EC 011-17426 Change Status to A&M ET 38113 - Add Wiring Req'mt For XPM Plus Upgrade Kit NT6X02XA ET 17259 - Change Status Of P0697919 From MD to STD.
93 12 01	ECM 673 06	Modified RUL11 to clarify the provisioning of the NT2X70AE Converter CP.
94 03 08	ECM 616 19	EC 011-20115 Add NT6X02XF XPM PLUS upgrade kit to the NT6X01AB frame. This will also remove the requirement for the NT6X02XA kit.
94 04 21	ECM 520 01	EC 011-20115 Add NT6X50EC for integrated echo cancellation.
94 05 02	ECM 616 21	Allow provisioning of new XPM+ modules in NT6X01AB.
94 06 13	ECM 468 06	Modify rules for EDCH and XPM+ in TMS. Allow DS512 interface from TMS to network. Clarify provisioning by explicitly covering TMS in most rules.
94 08 01	ECM 616 22	EC 011-20381 makes NT6X69 and NT6X80 provisionable, supports ADSI/SCWID feature of BCS-36+.
94 10 24	ECM 616 26	Add information about NT6X92BC per EC 024-92938. MD NT6X02EL per EC 024-92942.
95 03 02	ECM 616 30	Add information about NT6X02XG per

Engineering Manual Section Change History

DATE	DOCUMENT	REASON
		EC 011-21135. Update rule for NTBX02BA.
95 03 16	ECM 616 31	EC 024-93747 adds NT7X05AA and NTBX01BA. EC 11-19964 adds NT6X78AB to LGCI, LTCI, and DTCI; and adds NTBX02BA to SMUI.
95 04 04	ECM 328 19	Add NT2X70AF info per EC#024-93972. MD NT2X70AE.
95 05 04	ECM 678 20	Update per EC#024-94170 to provision one NT6X0250 with XPM+ field upgrade.
95 07 19	ECM 520 02	Document requirement for XPM+ with NT6X50EC, per product management.
95 08 01	ECM 616 37	MD NT6X02LE and RE, replaced by NT6X02LF and RF.
95 08 25	ECM 678 23	MD NT6X02IG and replace with NT6X02IH.
95 09 18	ECM 468 09	Add ETMS and OC ETMS.
95 10 19	ECM 616 39	show NT6X01AI as MD.
96 04 26	ECM 616 43	Introduce GTR NT6X92EA which will replace all NT6X92 versions of UTRs. Show NT2X70AY as an orderable item. EC 024-95240- Introduces NT6X40FB/AD which have enhanced diagnostic functionality. These will eventually replace NT6X40FA/AC. Show NT6X50AB as required for SONET I/F. This EC also removed NT2X70AF from NT6X02PK/IH/ET and NT6X02DU. As a result, these packfills are MD and replaced by NT6X02PL/CZ/EU/DV. Show NT6X40AC as MD. Add information about providing NT6X69AC/AD. Show NT6X80BA as MD and replaced by NT6X80BB.
96 06 14	ECM 678 26	SR RR63752 - Add NTMX70AB to equipment list and clarify its use.

Engineering Manual Section Change History

DATE	DOCUMENT	REASON
96 09 20	ECM 616 44	Clean-up of earlier script conversion. Per EC 024-96600 create BB's NTZZ17TH, NTZZ17TV, NTZZ17GK, NTZZ17SU, NTZZ17GJ, NTZZ17GL and NTZZ17SV so NTAX74AA and label P0800860 are available for ISDN LTC's LGC's and DTC's (to include DWS). MD BB NTZZ17GJ. Add NTAX74AA CP and Label P0800860 (NTZZ03AC) as provisionable in ISDN. Clarify the Notes for NTBX02'S, NT6X40FB and NT6X40AD CP's. ADD Large Tandem configuration note. Clarify NT6X01WC wiring per SR68097.
96 11 22	ECM 616 45	Add notes clarifying use of NT6X69AD. Add note re: history of NT6X0215 and NT6X0223 shelves (per SR RR69805). Per SR RR60487 add note for E911 applications on SMU.
97 01 07	ECM 616 46	Per EC 024-96669, MD NT6X01AB.
97 03 11	ECM 714 02	Clarify notes on NTAX74AA prov., clarify notes on NT6X02WB application.
97 04 01	ECM 714 03	EC 024 97224 MDs the NT6X02IH.
97 04 23	ECM 714 04	EC 024 97732 introduces new packfill NT6X02CX for ESMU, and associated upgrade kit. Change section to 'retired'.
97 05 30	ECM 714 05	ECD 024 97867 MDs the NT6X02XF, and NT6X02ES. Correct typo (NTBX02NA should be NTBX02BA).
97 08 26	ECM 714 06	Implement ECD 024-98354, which removes NTAX74AA provisioning from Domestic XPM host peripherals, except for DTCI in MCI ACD applications.

The ISDN Common Peripheral Controller Equipment Frame is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Universal Ground Point	NT6X0250	UGP		56		RUL22, RUL21
	Universal Fiber XPM Kit	NT6X02UF			18 32 51 65	22R 22R 22R 22R	RUL22
	Fiber Cable Conversion Kit	NT6X0251			18 32 51 65	22R 22R 22R 22R	RUL22
	Common Peripheral Controller	NT6X02NA	LGCI LTCI TMS/ETMS DTCI		X		RUL2
#	ISDN Contrl Modul for DMS-1U	NT6X02EL	SMUI		X		RUL2
#	ISDN Contrl Modul for DMS-1U	NT6X02EL	SMUS		X		RUL2
#	ESMU Packfill	NT6X02ES	SMUI		X		RUL2
	ESMU Packfill	NT6X02CX	SMUI(ESMU)		X		RUL2
#	DTC Common CP (DWS)	NT6X02IG	DTC		X		RUL2
#	DTC Common CP	NT6X02IH	DTC		X		RUL2
	DTC Common CP	NT6X02CZ	DTC		X		RUL2
#	DTC Common CP (DMS-250)	NT6X02AI	DTC		X		RUL2
#	DTC FXPM Common CP (DMS250)	NT6X02LE	DTC		X		RUL2
#	DTC FXPM ISDN Com CP(DMS250)	NT6X02RE	DTCI		X		RUL2
	DTC FXPM Common CP (DMS250)	NT6X02LF	DTC		X		RUL2
	DTC FXPM ISDN Com CP(DMS250)	NT6X02RF	DTCI		X		RUL2
	CPC Filler Plate Kit	NT6X02AB			X+14, X		RUL3
	ISDN Control’r Arry Shf Assy	NT6X0223	CPAI1	1	X+14		AP
	ISDN Control’r Arry Shf Assy	NT6X0223	CPAI0	1	X		AP
	Filler Face Plate 0.875	NT0X50AA			X+14, X	1-7	RUL4
#	D-Channel Handler CP	NTBX02AA			X+14, X	1-5	RUL5
	Enhanced D-Chn. Handler CP	NTBX02BA			X+14, X	1-5	RUL5
	DS-1 Interface CP	NT6X50AA			X+14,	1-5	RUL6

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	DS-1 Extend Frame Format CP	NT6X50AB			X+14, X	1-5	RUL6
	DS-1 Echo Cancelling	NT6X50EC			X+14, X	1-5	RUL6
	DS30A LCM Interface CP	NT6X48AA			X+14, X	6,7	RUL7
	XPM Processor CP	NT6X45BA			X+14, X	8,12	RUL12
	Unified Process CP	NTMX77AA			X+14, X	12	RUL21
	MCP Enhanced Processor	NTAX74AA			X+14, X	12	RUL21
	XPM PLUS Terminator PB	NTMX71AA			X+14, X	19R	RUL21
	Filler plate	NT0X50AA			X+14, X	8,9, 10,11	RUL12
	Master Proc Memory	NT6X47AC			X+14, X	10	RUL12
#	Master Proc Memory	NT6X47AB			X+14, X	10	RUL12
	Signal Proc Memory	NT6X46BB			X+14, X	11	RUL13
#	Signal Proc Memory Plus CP	NT6X46BA			X+14, X	11	RUL13
	Continuity Tone Detector CP	NT6X70AA			X+14, X	13	RUL16
	CLASS Modem resource CP	NT6X78AB			X+14, X	13	RUL20
	Time Switch CP	NT6X44AA			X+14, X	14	RUL13
	Time Switch CP	NT6X44CA			X+14, X	14	RUL13
	Enhanced Time Switch CP	NTAX78AA			X+14, X	14	RUL13
	Enhanced Time Switch CP	NTAX78AB			X+14, X	14	RUL13
	NTAX78AB Upgrade Kit	NT6X02CY			X+14, X	14	RUL24
#	Universal Tone Receiver	NT6X92BB			X+14, X	15	RUL14
#	Universal Tone Receiver	NT6X92BC			X+14, X	15	RUL14
	Global Tone Receiver	NT6X92EA			X+14, X	15	RUL14
#	ISDN Pre-Processor CP	NTBX01AA			X+14, X	16	RUL26

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
#	Enh. ISDN Pre-Proc. CP	NTBX01AB			X X+14,	16	RUL26
	Enh. ISDN Pre-Proc. CP	NTBX01BA			X X+14,	16	RUL26
#	Special Tone Receiver CP	NT6X62AA			X X+14,	16	RUL18
	Special Tone Receiver CP	NT6X62AB			X X+14,	16	RUL18
	Peripheral/Remote Loader CP	NT7X05AA			X X+14,	17	RUL25
#	CPP Msg Protocol & Tone CP	NT6X69AB			X X+14,	18	RUL13
	CPP Msg Protocol & Tone CP	NT6X69AC			X X+14,	18	RUL13
	CPP Msg Protocol & Tone CP	NT6X69AD			X X+14,	18	RUL13
	NT6X69AD Product Change Kit	NT6X02WB			X X+14,	18	RUL24
#	SMU Pad Ring Card	NT6X80BA			X X+14,	19	RUL23
	SMU Pad Ring Card	NT6X80BB			X X+14,	19	RUL23
#	DS30 Network Interface CP	NT6X40AC			X X+14,	22	RUL15
	DS30 Network Interface CP	NT6X40AD			X X+14,	22	RUL15
#	Connector Key Bracket	P0638263			X X+14,	22R	RUL22
#	DS-512 Network Interface CP	NT6X40CA			X X+14,	22	RUL15
#	DS-512 Network Interface CP	NT6X40FA			X X+14,	22	RUL15
	DS-512 Network Interface CP	NT6X40FB			X X+14,	22	RUL15
#	DS-512 Paddleboard	NT6X40DA			X X+14,	22R	RUL15
	DS-512 Paddleboard	NT6X40GA			X X+14,	22R	RUL15
#	Fiber I/F H/W Assembly	NT6X02BU			X X	22R	RUL22
	Filler Face Plate 0.875	NT0X50AA			X X+14,	13,19 15-17 23	RUL4
#	Power Conv +/-5V & 12V CP	NT2X70AD			X X+14,	25	RUL11
#	Power Conv +/-5V & 12V CP	NT2X70AE			X X+14,	25	RUL11

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Power Conv +/-5V & 12V CP	NT2X70AF			X X+14,	25	RUL11
	NT2X70AF Upgrade Kit	NT2X70AY			X X+14,		RUL11
	Desig. Label for NTAX74AA	P0800860			X X+14,	12	RUL21
	Desig. Label for NTBX02AA	P0697919			X X+14,	1-5	RUL8
	Desig. Label for NTBX02BA	P0737724			X X+14,	1-5	RUL8
	Desig. Label for NT6X50AB	P0690976			X X+14,	1-5	RUL8
	Desig. Label for NT6X50EC	P0735419			X X+14,	1-5	RUL8
	Desig. Label for NT6X48AA	P0626877			X X+14,	6,7	RUL8
	Desig. Label for NT6X47AC	P0711663			X X+14,	10	RUL8
	Desig. Label for NT6X46BB	P0711664			X X+14,	11	RUL8
	Desig. Label for NT6X78AB	P0731980			X X+14,	13	RUL8
	Desig. Label for NT6X44AA	P0698316			X X+14,	14	RUL8
	Desig. Label for NT6X44CA	P0707641			X X+14,	14	RUL8
	Desig. Label for NTAX78AA	P0737140			X X+14,	14	RUL8
	Desig. Label for NTAX78AB	P0803131			X X+14,	14	RUL8
#	Desig. Label for NT6X92BB	P0690565			X X+14,	14	RUL8
#	Desig. Label for NT6X92BC	P0737431			X X+14,	14	RUL8
	Desig. Label for NT6X92EA	P0835224			X X+14,	14	RUL8
	Desig. Label for NT6X62AB	P0711789			X X+14,	16	RUL8
	Desig. Label for NTBX01AB	P0735418			X X+14,	16	RUL8
	Desig. Label for NTBX01BA	P0713794			X X+14,	16	RUL8
	Desig. Label for NT6X69AC	P0710476			X X+14,	18	RUL8
	Desig. Label for NT6X69AD	P0800014			X X+14,	18	RUL8

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
#	Desig. Label for NT6X80BA	P0707642			X+14, X	19	RUL8
	Desig. Label for NT6X80BB	P0800015			X+14, X	19	RUL8
	Desig. Label for NT6X40CA	P0710477			X+14, X	22	RUL8
#	Desig. Label for NT6X40AC	P0695397			X+14, X	22	RUL8
	Desig. Label for NT6X40AD	P0834806			X+14, X	22	RUL8
	Desig. Label for NT6X40FA	P0729895			X+14, X	22	RUL8
	Desig. Label for NT6X40FB	P0834807			X+14, X	22	RUL8
	Desig. Label for NT7X05AA	P0808071			X+14, X	22	RUL8
	Desig. Label for NT2X70AD	P0664133			X+14, X	25	RUL8
#	Desig. Label for NT2X70AE	P0698943			X+14, X	25	RUL8
	Desig. Label for NT2X70AF	P0809960			X+14, X	25	RUL8
	DTC Wiring Option (NT6X01AB)	NT6X01WC			X+14, X		RUL17
	Frame Supervisory Panel	NT0X28EB	FSP	1	45		AP
#	Cooling Inverter Unit	NT3X90AA	CU		04		RUL9
#	Cooling Inverter Unit	NT3X90AB	CU		04		RUL9
	DC Cooling Inverter Unit	NT3X90AC	CU		04		RUL9
	Logic Return Cable Assy	NT0X0009					RUL10
	TOPS-TMS Label	P0709862					RUL1
#	CPCI ISDN Upgrade CP Kit	NT6X02ZA					RUL19
#	XPM PLUS Packfill Chg Kit	NT6X02XA					RUL21
#	XPM PLUS Packfill Chg Kit	NT6X02XF					RUL21
	XPM PLUS Packfill Chg Kit	NT6X02XG					RUL21
	XPM+ Paddlecard Upgrade Kit	NTMX70AB					RUL21

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT6X47AB	MD	NT6X47AC
NT6X46BA	MD	NT6X46BB
NT6X62AA	MD	NT6X62AB
NT6X69AB	MD	NT6X69AC
NT6X40CA	MD	NT6X40FA
NT6X40DA	RCP	NT6X40GA
P0710477	MD	P0695397
NT3X90AA	MD	NT3X90AB
NT3X90AB	MD	NT3X90AC
NT6X02ZA	MD	No Replacement
NT6X01AB	A&M	NTZZ17AT,NT6X01AD
NT6X02XA	MD	NT6X02XF
NT6X02XF	A&M	NT6X02XG
NTBX01AA	A&M	NTBX01AB
NTBX01AB	A&M	NTBX01BA
NTMX70AA	A&M	NTMX70AB
NT6X02EL	MD	NT6X02ES
NT6X02BU	A&M	NT6X02UF
P0638263	A&M	NT6X02UF
NT2X70AE	MD	NT2X70AF
NT6X02LE	MD	NT6X02LF
NT6X02RE	MD	NT6X02RF
NT6X02IG	MD	NT6X02IH
NT6X02IH	MD	NT6X02CZ
NT6X02AI	MD	No Replacement
NT6X40FA	STD*	NT6X40FB
NT6X40AC	STD*	NT6X40AD
P0695397	STD*	P0834806
P0729895	STD*	P0834807
NT6X92BB/BC	STD*	NT6X92EA
P0690565	STD*	P0835224
P0737431	STD*	P0835224
NT6X80BA	MD	NT6X80BB
P0707642	MD	P0800015
NT6X02ES	MD	NT6X02CX

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered. * Rate Change Pending. Check availability before ordering.

NOTES:

1) Refer to ECM-125 for DMS Common Equipment (e.g., Frame Door, Trim Panels, etc.) and EMI Hardware.

2) Support for the Analog Display Services Interface (ADSI) and the Spontaneous Call Waiting ID (SCWID) feature of BCS-36+ requires the NT6X78 Class Modem Resource (CMR) CPs, NT6X92 Universal/Global Tone Receiver (UTR/GTR) CPs, and the NT6X69AD Message Protocol and Tone CPs. ADSI and SCWID are line features and are not applicable to DTC modules. In the case of the SMS-R module, the necessary CPs to support the ADSI/SCWID feature must be provided in the Remote Switching Center (RSC) which is hosting the SMS-R, rather than in the SMS-R module itself. The NT6X69AD cannot be used in DMS-10 applications, SMSR applications, SMS with MP/SP (non-XPM+) with XPM03 or lower software loads, or with DTC's configured in a DMS250 or DMS200 LAT load application (including large tandem). (SMS will support NT6X69AD with XPM+ with BCS-36 and later).

3) For about 9 months the NT6X01AB (ISDN) was built with the NT6X0215 shelf (2 layer backplane). Then the NT6X0223 shelf (4 layer backplane) was introduced, and the NT6X01AB was built using the NT6X9223. The provisionable items are the same for both shelves.

4) Reserved for future use.

5) The NT6X01AB has been manufacture discontinued, and is replaced by the NT6X01AD (contained within the NTZZ17AD building block). This document will remain active to support field upgrades.

RULES:

AP 1) When PEC NT6X01AB is ordered, these items are provided.

RUL1 1) Provide one (1) P0709862 Label sheet for each TOPS TMS System application.

RUL2 1) If there is a LCME subtending the CPCI, the two NT6X46BAs, the four NT6X47ABs and the two NT6X69AB circuit packs must be replaced with two NT6X46BBs, two NT6X47ACs and two NT6X69AC (or NT6X69AD) packs respectively. See RUL12 and RUL13. The NT6X69AD cannot be used in DMS-10 applications SMSR applications, DMS250 or SMSR applications with MP/SP with XPM03 or lower. SMS will support NT6X69AD with XPM+ with BCS-36 and later.

2) Provision one (1) NT6X02XG XPM+ Product Change Kit, in addition to the appropriate packfill, to equip one new module to be mounted on an existing NT6X01AB CPCI Frame with the Unified Processor (XPM+) configuration. Refer to RUL21.

Note: XPM+ in TMS requires TOPS03.

3) Provide minimum one (1), maximum two (2) NT6X02CX SMUI Common on the NT6X01AB CPEI frame per customer requirements.

Note: There may be some firmware changes required in the DMS-1U itself to support the host SMUI module. Check with the Transmissions Customer Engineering when provision an SMUI interface for the DMS-1U.

Canadian Market:

When the SMUI application is required, use the NTZZ17AT (NT6X01AD) Frame only.

4) Provide DTC Common CP Fills (DMS-250) on the NT6X01AB Common Peripheral Equipment frame per customer requirements as follows (for Richardson application only):

	ISDN	NON-ISDN
FXPM	NT6X02RF	NT6X02LF
NON-FXPM		NT6X02AI

(MD)

5) One CPCI module is composed of two (2) shelves. Each CPEI can have up to two CPCI/DTCs. One CPCI module can be assigned to shelf mounting positions 65 and 51 (X=51) and the other to shelf mounting positions 32 and 18 (X=18). The two (2) bare shelf assemblies do not become a CPCI till they are equipped with one (1) CPCI Common CP. The shelf assembly becomes an ISDN Common Peripheral Array Shelf (CPAI) that can house up to twenty five (25) circuit packs.

Within each CPCI, the lower CPAI is CPAI 0 and the upper CPAI is CPAI 1.

6) One of six functional names can be associated with a CPCI module: LGCI, LTCI, TMS, DTCI, SMUI and DTC. The function of the CPCI module is determined by the ISDN access modes (BRI, PRI) and types of existing services (non-ISDN LCM, trunks) to be supported by the module. The supported access modes, the resulting name given to the CPCI module, and the planned BCS availability of each function are as follows:

Access Modes Supported By CPCI Module**	Resulting Module Name	Abbrev.	Proposed BCS Availability*
ISDN BRI, Non-ISDN LCM, DPN Access	ISDN Line Group Controller	LGCI	BCS-27
ISDN BRI, Non-ISDN LCM, DPN Access, Non-ISDN trunks	ISDN Line Trunk Controller	LTCI	BCS-28
ISDN PRI, Non-ISDN trunks	ISDN Digital Trunk Controller	DTCI	BCS-29
Non-ISDN trunks	Digital Trunk Controller	DTC	Now
ISDN BRA MBS Services	ISDN Subscr Module for DMS-1 Urban	SMUI	BCS-34

* - Confirm availability of software features before ordering.
**- Non-ISDN Trunks employ A/B bit signaling.

7) CPCI modules of various types may be combined on frames where required. The frame name will be derived from the bottom module within the frame:

Bottom Module	Resulting Frame Name	Abbreviation

LGCI	ISDN Line Group Equipment	LGEI
LTCI	ISDN Line Trunk Equipment	LTEI
TMS	ISDN Line Trunk Equipment	LTEI
DTCI	ISDN Digital Trunk Equipment	DTEI
DTC	non-ISDN Digital Trunk Equipment	DTE
SMUI	ISDN Subscriber Module Equipment	SMEI

Job engineering shall specify stamping requirements for the frame as follows:

LGEI XX
LTEI XX
DTEI XX
DTE XX
SMEI XX

where XX represents frame discrimination number.

8) When a module is designated LGCI, LTCI, DTCI, DTC or SMUI, the two shelves making up the module become LGAI, LTAI, DTAI, DTA or SMAI respectively.

9) The total current consumption of any shelf on the NT6X01AB frame is not to exceed 50 amps.

10) When the customer requests a DTC for DWS provide one NT6X02CZ pack fill. BCS-35 or later.

11) In the NT6X02CX packfill, slot 14 is provisionable. For DTA (digital test access) feature, provide two (2) NTAX78AB per NT6X02CX SMUI module; otherwise, provide two (2) NT6X44CA per NT6X02CX SMUI module.

RUL3 1) If the second module is not equipped on the last CPEI frame, provide one (1) Common Peripheral Controller Module Filler Face Plate, NT6X02AB.

RUL4 1) Provide one (1) Filler Face Plate 0.875 for each card position that is unequipped.

RUL5 1) Provide maximum nine (9) D-Channel Handler CP, either NTBX02AA D-Channel Handler (DCH) CP or NTBX02BA Enhanced D-Channel Handler CP, per LGCI or LTCI module, and maximum four (4) per SMUI module, in accordance with customer requirements and the following following conditions:

* EDCH hardware requires BCS-35, except TMS, which requires BCS-36. Always order NTBX02BA for all new jobs at these BCS levels and above.

* EDCH load requires the Unified Processor (XPM+) and the Enhanced ISDN Signaling Preprocessor (EISP). TMS does not use the DCH or the EDCH load; therefore TMS with BCS-36 can use EDCH without XPM+ or EISP.

* The EDCH CP may be combined with DCH CPs in a module, but in that case the DCH software load is required (rather than EDCH load) and the EDCH CP operates as if it is a DCH; i.e., the enhanced capacity of the EDCH CP is not utilized.

* A DCH may be spared with an EDCH circuit pack at BCS-35 and above (BCS-36 for TMS).

  NOTE:

  The NTBX02AA DCH has been changed to A&M status and replaced by the NTBX02BA. The DCH NTBX02AA and the EDCH NTBX02BA are both supported in XPM02, XPM03, XPM04 and XPM05. Only the EDCH NTBX02BA is supported in XPM06 and above.

2) Each NTBX02AA/BA supports up to 124 BRI D-Channels. The spare DCH CP should not be counted when determining the number of NTBX02AA/BA required to support D-channel traffic. (TMS does not use a spare DCH CP.)

3) Each NTBX02AA/BA DCH, including the spare, requires one peripheral port on the CPCI module. Assign NTBX02AA/BA cards to shelf and slot positions in the following order. The spare DCH should be assigned last: Assign

Shlf Pos	CP Pos	To Logical Port Number

1st	DCH/EDCH CP Provisioned:	X+14	1	19
2nd	DCH/EDCH CP Provisioned:	X	1	17
3rd	DCH/EDCH CP Provisioned:	X+14	2	15
4th	DCH/EDCH CP Provisioned:	X	2	13
5th	DCH/EDCH CP Provisioned:	X+14	3	11
6th	DCH/EDCH CP Provisioned:	X	3	09
7th	DCH/EDCH CP Provisioned:	X+14	4	07
8th	DCH/EDCH CP Provisioned:	X	4	05
9th	DCH/EDCH CP Provisioned:	X+14	5	03
10th	DCH/EDCH CP Provisioned:	X	5	01

Note: One vacant slot may be left between DCH/EDCH CPs and DS-1 CPs to facilitate extensions.

For the lower module in the frame, X=18 (i.e., shelf positions 18 and 32), and for the upper module in the frame X=51 (i.e., shelf positions 51 and 65).

4) DCH/EDCH CP are not required for DTCI (PRI) applications, nor where the CPCI supports only non-ISDN LCMs.

5) For TOPS Message Switch applications, provide four (4) DCH/EDCH CP in card slots 1 & 2 of shelf X & shelf X+14 (EDCH in TMS requires BCS-36). EDCH NOT REQUIRED IN OC ETMS.

RUL6 1) Provide maximum ten (10) NT6X50/AA/AB/EC per LGCI, LTCI, DTCI and DTC module as per customer requirements as follows:

* NT6X50AA - DS1 Interface CP is provisioned for Non-ISDN applications on the DMS-100/200/250.

* NT6X50AB - DS1 Extended Frame Format CP is provisioned for ISDN requirements in DMS-100/200/250 applications. Each NT6X50AB provides interfaces for up to two (2) T-1 spans used for links to RSC/RLCM/OPM/Convertible RLCM, links to packet handler, non-ISDN trunks and PRI trunks (depending on module type). The NT6X50AB must be used in applications where a fiber span (SONET) is used.

* NT6X50EC - DS1 Interface CP Echo Cancellation is provisioned for DMS 250 applications only when the Echo Cancellation feature is required. When the NT6X50EC is provided, the associated controller must be equipped with NTMX77 processors. The NT6X50EC is no longer supported with NT6X45BA packs.

2) Provide maximum ten (10) NT6X50AB DS-1 P-Side Extended Frame Format Interface, per SMUI module as per customer requirements.

3) The following table is a listing of DS-1 ports per NT6X50AA/AB/EC circuit pack location:

CP POS	5	4	3	2	1
SHF POS X+14	PORTS 2,3	PORTS 6,7	PORTS 10,11	PORTS 14,15	PORTS 18,19
SHF POS X	PORTS 0,1	PORTS 4,5	PORTS 8,9	PORTS 12,13	PORTS 16,17

For the lower module in the frame, X=18 (ie. shelf positions 18 and 32), and for the upper module in the frame X=51 (i.e., shelf positions 51 and 65).

The DS1 ports in the Trunk Member Table of the DMS switch are referred to as circuits. The DS1 port number equals the circuit number. For PRI applications, spreading of PRI trunk members over several peripherals is not allowed. All members must be on the same DTCI.

4) Assign the DS-1 hardware in the module such that the DS-1 ports (circuits) start from port 0 and increase in a sequential order (i.e. 0, 1; 2, 3; 4, 5; 6, 7; 8, 9; 10, 11; 12, 13; 14, 15; 16, 17; 18 and 19). Note that each DCH assigned to a shelf position in RUL5 physically makes two (2) DS-1 ports unavailable as per the above table. These ports cannot be assigned to DS-1.

5) Non-ISDN trunks can co-exist with PRI trunks on the same physical DS-1.

6) For TOPS Message Switch applications, NT6X50AB CP should be assigned as follows:
- Up to 64 operator positions, provide NT6X50AB in slot 5 of shelf X and shelf X+14.
- Up to 96 operator positions, provide NT6X50AB in slots 4 & 5 of shelf X and slot 5 of shelf X+14.
- For Database access (OIA with MP or MPX, DA with MP) provide NT6X50AB in slot 3 of shelf X and slot 4 of shelf X+14.

- If ORDB is used AND NTNX55AA is NOT used, provide an additional NT6X50AB in slot 3 of shelf X+14.

Refer to ECM-468 for information on DS-1 CP provisioning in TMS, ETMS, OC ETMS.

RUL7 1) For LGCI/LTCI applications, provide four (4) NT6X48AA, DS30A LCM Interface CP to interface links from LCME, LCMI, and/or LCM. For DTCI/TMS/SMUI applications provide four (4) NT0X50AA Filler Face Plates.

2) The NT6X48AA CP are assigned in pairs for reliability. One member of the pair interfaces the same DS30A ports as the other member. Each member of the pair occupies the same CP position, with one CP assigned to LGAI/LTAI 0 (lower shelf of the module) and the other assigned to LGAI/LTAI 1 (upper shelf of the module).

3) The two pairs of NT6X48AA provide interfaces for up to twenty (2 0) DS30A ports (links) from LCMEs, LCMIs, and/or LCMs. The following is a listing of DS30A ports per DS30A LCM Interface CP, NT6X48AA location.

	CP POS 6	CP POS 7
PORT	2	0
PORT	3	1
PORT	6	4
PORT	7	5
PORT	10	8
PORT	11	9
PORT	14	12
PORT	15	13
PORT	18	16
PORT	19	17

4) The ports for DS30A must be selected from the those ports that remain after assignment of port circuits to DCH in RUL5 and to DS-1 circuits in RUL6.

5) Assign ports to DS30A in the following sequence: 19, 17, 18, 16 , 15, 13, 14, 12, 11, 9, 10, 8, 7, 5, 6, 4, 3, 1, 2 and 0 (if unused by DCH or DS-1). In an extension job, when adding new DCH ports (RUL5), the DS30A ports may have to be reconfigured in accordance with this rule.

RUL8 1) Provide one (1) Designation Label for each CP supplied.

RUL9 1) Do NOT provision NT3X90AA or NT3X90AB on new jobs. This rule allows NT3X90AA or NT3X90AB to remain assigned to an existing NT6X01AA LGE/LTE/DTE/SME frame which has been upgraded to NT6X01AB CPEI by application of product change kits. On new jobs provision NT3X90AC DC Cooling Inverter Unit.

RUL10 1) Provide one (1) NT0X0009 Logic Return Cable Assembly per frame when extending existing offices not equipped with enhanced grounding per IS0X00.

2) For U.S. offices, this frame does not require the provisionable cable assembly when extending a non-ISG office with current grounding methods. Instead a provisionable switchboard cable is run from the NT0X9504 bus bar assembly in each frame to the PDC battery return plate. (Refer to CA drawings for details.)

RUL11 1) Provision two (2) NT2X70AF CPs per LGCI/LTCI/DTCI/DTC/TMS module. This rule only applies to the following modules: NT6X02NA, NT6X02EL, NT6X02AI, NT6X02LF, and the NT6X02RF.

Provision two (2) NT2X70AF CPs per SMUI and DMS-250 DTC/DTCI module.

2) The formerly provided NT2X70AE Power Converter CP has been changed to MD status and replaced by the NT2X70AF.

3) Provide one (1) NT2X70AY to upgrade an always provided NT2X70AE to NT2X70AF. The NT2X70AF is required for DTC+.

RUL12 1) Provision four (4) NT6X45BA CPs per LGCI, LTCI, DTCI, SMUI, TMS, DTC and DMS-250 DTC/DTCI module.

2) Provision four NT6X47AB CPs per LGCI/LTCI/DTCI/DTC/TMS and NT6X02AI/LE DMS-250 DTC module (slots 9 and 10) OR pro-

vision two (2) NT6X47AC CPs (slot 10) and two NT0X50AAs (slot 9).

If an LCME is subtending the CPCI, existing NT6X47ABs must be removed from slots 9 and 10, and two (2) NT6X47AC CPs must be provisioned in slot 10. Provide two (2) NT0X50AAs in slot 9.

3) Provision two (2) NT6X47AC CPs in slot 10 and two (2) NT0X50AA filler face plates in slot 9 of each SMUI and NT6X02RF DMS-250 DTCI module.

4) Refer to the NT6X02XG Engineering Manual section for additional provisionable filler face plates when the LTCI/LGCI/TMS/ DMS-250 DTCI is being upgraded to a Unified Processor.

RUL13 1) Provision two (2) NT6X46BB CPs per LGCI/LTCI/DTCI/DTC/TMS and NT6X02AI/LE DMS-250 DTC module.

If an LCME is subtending the CPCI, existing NT6X46BA circuit packs must be removed and two (2) NT6X46BB CPs must be provisioned in slot 11.

Provision two (2) NT6X46BB CPs per SMUI and NT6X02RF DMS-250 DTCI module.

2) When BCS-34 is applied to an office, the office must be equipped with XPM PLUS hardware per RUL21, instead of the NT6X46 CPs.

3) Provision two (2) NT6X44AA Time Switch CPs per NT6X02 for non-Dialable Wideband Service applications, or provide two (2) NTAX78 Enhanced Time Switch CPs per DTCI/DTC for Dialable Wideband Service applications. The NT6X44AA was never used in SMA applications. The NTAX78AB is required for TR303 and is used for new production.

4) Provision two (2) NT6X69AD CPP Msg Protocol & Tone CP for all new LGCI, LTCI, DTCI,TMS, and NT6X02AI DTC orders when the Analog Display Services Interface (ADSI) or the Spontaneous Call Waiting ID (SCWID) features of BCS-36+ are required or the office is BCS-36 or above. For offices at BCS-35 or below provide two (2) NT6X69ACs.

If an LCME is subtending the CPCI, existing NT6X69AB circuit packs must be removed and replaced by two (2) NT6X69AC or NT6X69AD CPs. BCS-36 is the minimum required to support NT6X69AD CPs. The NT6X69AD cannot be used in DMS-10 appli-

cations, SMSR applications, DMS250 applications, or SMSR applications or SMS with MP/SP with XPM03 or lower. SMS will support NT6X69AD with XPM+ with BCS-36 and later.

5) For SMUI with DTA (Digital Test Access), provide two (2) NTAX78ABs per NT6X02CX module; for SMUI without DTA, provide two (2) NT6X44CAs per NT6X02CX module.

RUL14 1) Provision two (2) NT6X92EA GTRs in slot 15 per module for applications in BCS-28 or later when analog (POTS) lines are to be supported on the CPCI (LGCI, LTCI), and whenever non-ISDN trunks (A/B bit signaling) are interfaced to the DTCI (BCS-29) or DMS 250 DTC. The GTR is the LSSGR/CCITT compliant tone receiver and provides 30 circuits per card. It replaces all NT6X92 versions of UTRs and is backwards compatible. At BCS-35 and above UTRs/GTRS may be used in the SMUI applications with minimum packfill NT6X02ES. Check availability date of GTR before ordering.

2) When the Analog Display Services Interface (ADSI) or the Spontaneous Call Waiting ID (SCWID) features of BCS-36+ are to be supported, provide two (2) NT6X92 UTR/GTR CPs in the module.

3) For extensions, GTRs and UTRs cannot exist in the same module. If any UTRs exist in a module in which GTRs are to be added, the customer must remove the UTRs and replace with GTRs.

4) Provide one GTR designation label per GTR CP as required.

5) For TMS applications provide two (2) NT0X50AA Filler Face Plates.

RUL15 1) Provision two (2) NT6X40AD Network Interface CP per LGCI/LTCI/DTCI/SMUI/DTC/TMS and NT6X02AI DMS-250 DTC module when DS30 copper interface to the network is required. The NT6X40AD eventually replaces the NT6X40AC. The NT6X40AD has enhanced diagnostic functionality when installed in both shelves of a module in offices with XPM05 or later load. If the office has XPM05 or later but mixes the NT6X40AD in a module with NT6X40AC, or if the office has XPM04 or earlier load, then the enhanced diagnostic capability cannot be utilized and the NT6X40AD acts like the NT6X40AC. The NT6X40AD has an enhanced loop-around test feature. The NT6X40AD will perform as a NT6X40AC when datafilled as a NT6X40AC. A mix of NT6X40AC and NT6X40AD in a module is acceptable when both are pro- visioned as a NT6X40AC.

2) Provision two (2) NT6X40FB DS-512 Network Interface CP, plus two (2) NT6X40GA DS-512 Paddleboard per LGCI/LTCI/DTCI/SMUI/DTC/TMS and NT6X02RF/LF DMS-250 module when DS-512 fiber interface to the network is required. The NT6X40FB eventually replaces the NT6X40FA. The NT6X40FB has enhanced diagnostic functionality when installed in both shelves of a module in offices with XPM04 or later load. If the office has XPM04 or later but mixes the NT6X40FB in a module with NT6X40FA, or if the office has XPM03 or earlier load, then the enhanced diagnostic capability cannot be utilized and the NT6X40FB acts like the NT6X40FA. The NT6X40FB has an enhanced loop-around test feature. The NT6X40FB will perform as a NT6X40FA when datafilled as a NT6X40FA. A MIX of the NT6X40FA and NT6X40FB in a module is acceptable when both are datafilled as NT6X40FA.

3) When assigning ports at the network it is recommended that CPCI ports be spread separately from other peripheral controller ports (e.g., LGC, LTC, DTC, IAC).

RUL16 1) Provision two (2) NT6X70AA Continuity Tone Detector CPs for each NT6X02AI and NT6X02LF (DMS-250) DTC and DWS DTC module required to handle CCIS/CCS7 voice trunking.

RUL17 1) Provision one (1) NT6X01WC DTC Wiring Option for NT6X01AB when the NT6X02AI or NT6X02LF DTC (DMS-250) are provided on the NT6X01AB CPCE frame. This option enables a wire strap to be added to the backpanel NT6X0103 Slot XX-12 between pins 7A and 8A to allow for modules used for non-ISDN applications.

2) Provide one (1) NT6X01WC Wiring Option Kit for each NT6X01AB when upgrading the NT6X01AB to handle DWS applications. This option enables a wire strap to be added to the backpanel NT6X0103 Slot XX-12 between pins 7A and 8A to allow for the modules used for non-ISDN applications. The kit includes a jumper wire which is installed on the backplane with is required to support DWS.

RUL18 1) Provide two (2) NT6X62AB, Special Tone Receiver CP, for each DTC module when Reorigination and/or Blue Fraud features are required. Mount circuit packs in slot 16 of the upper & lower shelves of the DTC.

2) The NT6X62AB STR/BBF CP is for DMS-250 applications only.

RUL19 1) No ISDN Upgrade kits will be utilized. The codes for these kits are being canceled and will not be available.

RUL20 1) Provide two (2) NT6X78AB CLASS Modem Resource (CMR) circuit packs to equip a LGCI, LTCI, DTCI or SMUI module to handle Calling Number Delivery. Mount these packs in slot 13 of each shelf. The NT6X78AB is NOT supported in SMSR applications.

2) When the Analog Display Services Interface (ADSI) or the Spontaneous Call Waiting ID (SCWID) features of BCS-36+ are to be supported, provide two (2) NT6X78AB CLASS Modem Resource (CMR) CP. The ADSI and SCWID features may only be supported in a module that has been upgraded to XPM+. The NT6X78AB is NOT supported in SMSR applications.

RUL21 1) One (1) NT6X02XG XPM+ Product Change Kit provides the NTMX77AA Unified Processor CPs, the NTMX71AA Terminator Cards, and the paddlecards and cables for the necessary backplane wiring modifications required to support the NTMX77AA, on one (1) module of an existing NT6X01AB CPCE Frame. When the NTMX77AA Unified Processor is used, the MP/SP processor combination (i.e., NT6X45 per RUL12, NT6X47 per RUL12, and NT6X46 per RUL13) is NOT used.

2) Provide one (1) NT6X02XG Product Change Kit, in addition to the appropriate packfill per RUL2, to provide XPM PLUS capability for a new module to be mounted in an existing NT6X01AB frame in the field which has an empty module position available. This rule applies only to the following modules:

o NT6X02NA (LGCI/DTCI/LTCI/TMS)
o NT6X02CZ (DTC)

Provide one (1) NT6X0250 Universal Ground Point for a field upgrade of a frame to XPM+. However, in the event there is already an NT6X0250 Ground Point on the frame from a previous fiber upgrade, a second Ground Point is NOT required.

3) For existing DMS 100 LGCI/LTCI/DTCI/TMS XPM peripherals to be changed to LGCI/LTCI/DTCI/TMS XPM PLUS peripheral modules, provide one NT6X02XG XPM PLUS Upgrade Kit. LGCI/LTCI's may be upgraded to XPM PLUS starting with BCS-34. DTCI's may be upgraded to XPM PLUS starting with BCS-35. TMSs may be upgraded to XPM PLUS starting with TOPS03.

4) For existing DMS 250 DTCI ISDN XPM peripheral modules to be changed to DTCI ISDN XPM PLUS peripheral modules, provide one NT6X02XG XPM PLUS Upgrade Kit. DMS250 DTCI's may be upgraded to XPM PLUS starting with BCS-34.

5) The SMUI may be upgraded to XPM PLUS at BCS-36 with the application of the NT6X02XG Upgrade Kit.

6) When the office already has the necessary NTMX77AA CPs and NTMX71AA Paddlecards stocked on site or when a new module with NTMX77AA CPs and NTMX71AA Paddlecards is being installed in an unequipped module position, provide one (1) NTMX70AB XPM Plus Paddlecard Kit.

   The NTMX70AB Kit does not contain NTMX77AA, NTMX71AA, nor P0735417 Designation Labels for NTMX77AA.

7) The NTAX74AA Enhanced Processor and Design. Label P0800860 may be used in place of the NTMX77AA on DTCI modules in MCI ACD applications, on SMA, and on ESMA. It is NOT provisionable on LGCI or LTCI modules, or on DTCI modules used for any application other than MCI ACD. Provides enhanced features such as TR303 in SMA, expanded memory for future load growth and real- time call processing capabilities. The NTAX74AA requires an "XPM PLUS Ready" cabinet baseline (which includes the NTMX71AA paddlecards). The NTAX74AA is initially supported in XLI (ISDN) XPM07 and require the NTBX01AC/BA or later. The NTAX74AA does not support the NT7X05AA Peripheral/Remote loader CP. The customer must remove the NT7X05AA prior to adding the NTAX74AA Enhanced Processor.

RUL22 1) Provide the NT6X02UF (Universal Fiber XPM Bracket) for either Copper or Fiber interface of XPMs to the ENET. This bracket shall be provisioned for all new frame installations and all office extensions where a new XPM is added to an existing frame. Maximum two (2) per Frame or one per module.

2) Always provide one NT6X0251 (Fiber Cable Conversion Kit) per NT6X02UF provisioned. Maximum two (2) per Frame or one per module.

3) Always provide one NT6X0250 (Universal Ground Point) per frame when the NT6X02UF is provided initially or provided on an extension, OR when a frame requires an XPM+ upgrade. Refer to RUL21. Only one per frame is ever required.

4) The formerly provided NT6X02BU FXPM Bracket Assembly and P0628263 Connector Key Bracket have been changed to A&M status and replaced by the NT6X02UF.

RUL23 1) Provide two (2) NT6X80BB SMU Pad Ring Cards per SMUI Module equipped with the NT6X02ES or later SMUI Packfill. The

formerly provided NT6X02EL SMUI Packfill contained two (2) NT6X80BA as stocklist items.

RUL24 1) For field application the NT6X02WB change kit can be applied to any peripheral which requires the messaging card to be upgraded to the NT6X69AD.

2) An existing SMUI module equipped with the NT6X02EL packfill is converted to NT6X02ES by the application of the NT6X02WB kit.

3) For field applications only, an existing SMUI module equipped with NT6X02ES packfill is converted to NT6X02CX with DTA by the application of the NT6X02CY kit.

RUL25 1) Provide two (2) NT7X05AA Peripheral/Remote Loader CPs when the PRL functionality is required. A module to be equipped with NT7X05AA CPs must also be equipped with NTMX77AA Unified Processor CPs (XPM+) per RUL21. The NT7X05AA is not compatible with the NTAX74AA. The NT7X05AA must be removed before the NTAX74AA is used.

RUL26 1) Provide two (2) NTBX01AB Enhanced ISDN Signal Pre-processor (EISP) CPs per LGCI, LTCI, DTCI, SMUI, TMS, and NT6X02RF DMS-250 DTCI module when the module is NOT equipped with the Unified Processor (XPM+) configuration. When the module IS equipped with the Unified Processor, provide two (2) NTBX01BA or NTBX01AB EISP CPs. Check availability before ordering NTBX01BA.

The formerly provided NTBX01AA ISDN Signal Pre-processor CP has been changed to A&M status and replaced by the NTBX01AB.

The NTBX01AA ISDN Signal Pre-processor CP is the original design and is still present in some existing peripheral modules equipped with the MP/SP processor combination (non-XPM PLUS). ISDN modules equipped with XPM PLUS must also be equipped with the NTBX01BA or NTBX01AB Enhanced ISDN Signal Pre-processor CP rather than the NTBX01AA ISDN Signal Pre-processor. An existing module being upgraded to XPM PLUS via RUL21 will require that one NTBX01BA or NTBX01AB EISP CP, with label, be provisioned as a replacement for each NTBX01AA ISP CP that is present in the module.

The NTBX01BA EISP CP will replace the NTBX01AB per manufacturing phase-in plan. Provide the NTBX01BA EISP for new XPM+ modules and for XPM+ upgrades when it becomes avail-

able. NTBX01BA is physically and functionally interchangeable with the NTBX01AB ONLY when used in an XPM+ equipped module. The NTBX01BA MUST ONLY be used in an XPM+ equipped module; therefore, the NTBX01BA CANNOT be used to replace the NTBX01AA except as part of an upgrade to XPM+.

The NTBX01AC/BA or later is required for the NTAX74AA Processor.

Note: EISP/XPM+ in TMS requires TOPS03.

ISDN ENHANCED LINE CONCENTRATING MODULE COMMON CP

PEC CODE:	NTBX31BA
CPC CODE:	B0229365
RATING:	MD
REPLACES:	Not applicable
REPLACED BY:	NTBX31BB
ABBREVIATION NAME:	LCME
ENGINEERING DESCRIPTION:	The ISDN Enhanced Line Concentrating Module Common CP equips the LCME module with always provided circuit packs. The LCME, when equipped, can accommodate up to 480 line cards in eight line drawers.
REFERENCE DOCUMENTATION:	SLBX31BA 00 01
MARKETS:	Applicable markets: Canada US CALA Asia/Pacific Europe

NTBX31BA EMR2-19-LCME-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-------- 94 08 28	---------- ECM 685 04	Previous history not available. Retire NTBX31BA. Show NTBX31BA as MD replaced by NTBX31BB.

The ISDN Enhanced Line Concentrating Module Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
LCMI Digroup Control CP	NTBX35AA		1	X+14	19	AP
LCMI Digroup Control CP	NTBX35AA		1	X+14	20	AP
LCME Processor CP	NTBX34BA		1	X+14	21	AP
LCME Power Converter	NT6X53CA		1	X+14	22	AP
LCME Battery & Ring. Router	NTBX72AA		1	X+14	25	AP
Slot Label (ISDN)	P0690637		1			AP
Designation Label (LCME)	P0709653		1			AP
LCMI Digroup Control CP	NTBX35AA		1	X	19	AP
LCMI Digroup Control CP	NTBX35AA		1	X	20	AP
LCME Processor CP	NTBX34BA		1	X	21	AP
LCME Power Converter	NT6X53CA		1	X	22	AP
LCME Battery & Ring. Router	NTBX72AA		1	X	25	AP
Slot Label (ISDN)	P0690637		1			AP
Designation Label (LCME)	P0709653		1			AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) One LCME Common CP can be assigned to shelf mounting positions 05 and 19 and the other to shelf mounting positions 40 and 54 (for one LCME X=05 and the other X=40).

RULES:

AP 1) When PEC NTBX31BA is ordered, these items are provided.

ISDN ENHANCED LINE CONCENTRATING MODULE COMMON CP

PEC CODE:	NTBX31BB
CPC CODE:	B0241272
RATING:	MD
REPLACES:	NTBX31BA
REPLACED BY:	NTBX31BC
ABBREVIATION NAME:	LCME
ENGINEERING DESCRIPTION:	The ISDN Enhanced Line Concentrating Module Common CP equips the LCME module with always provided circuit packs. The LCME, when equipped, can accommodate up to 480 line cards in eight line drawers.
REFERENCE DOCUMENTATION:	SLBX31BB 00 01
MARKETS:	Applicable markets: Canada US CALA Asia/Pacific Europe

ISSUE AUTHOR: NTI: Ron Hogan Dept. 3471 (PPK)

MAIN CONTACT: NTI: Ron Hogan Dept. 3471 (PPK)

NTBX31BB EMR2-19-LCME-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 08 28	ECM 685 04	Introduce NTBX31BB LCME Packfill.
96 02 09	ECM 685 10	Change rating to A&M. Replaced by NTBX31BC per EC 011-21510 and EC 011-21357.
97 03 07	ECM 685 12	Change status to MD per EC 024-97867 and EC 024-97180.

The ISDN Enhanced Line Concentrating Module Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
LCMI Digroup Control CP	NTBX35AA		1	X+14	19	AP
LCMI Digroup Control CP	NTBX35AA		1	X+14	20	AP
LCME Processor CP	NTBX34BC		1	X+14	21	AP
LCME Power Converter	NT6X53CA		1	X+14	22	AP
LCME Battery & Ring. Router	NTBX72AA		1	X+14	25	AP
Slot Label (ISDN)	P0690637		1			AP
Designation Label (LCME)	P0709653		1			AP
LCMI Digroup Control CP	NTBX35AA		1	X	19	AP
LCMI Digroup Control CP	NTBX35AA		1	X	20	AP
LCME Processor CP	NTBX34BC		1	X	21	AP
LCME Power Converter	NT6X53CA		1	X	22	AP
LCME Battery & Ring. Router	NTBX72AA		1	X	25	AP
Slot Label (ISDN)	P0690637		1			AP
Designation Label (LCME)	P0744678		1			AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NTBX34BC	MD	NTBX34CB

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) One LCME Common CP can be assigned to shelf mounting positions 05 and 19 and the other to shelf mounting positions 40 and 54 (for one LCME X=05 and the other X=40).

RULES:

AP 1) When PEC NTBX31BB is ordered, these items are provided.

ISDN LINE DRAWER NTBX32AA

RATING: MD. Replaced by the NTBX32BA.

ABBREVIATION NAME: LD

ENGINEERING DESCRIPTION: The ISDN Line Drawer houses up to forty-eight line cards in three 16-slot Line Sub Groups. A maximum of eight line drawers may be assigned to one LCMI module.

ISSUE AUTHOR NTC: Samuel Zhou Dept. S646 (BRW)

MAIN CONTACT NTI: Merdia Drummer Dept. 3471 (PPK)

CONTACT NTC: Sandy Kwan Dept. S644 (BRW)

REFERENCE DOCUMENTATION: MSBX32AA 00 02

MARKETS: Applicable markets:

Canada
US
CALA
Asia/Pacific
Europe

NTBX32AA EMR2-19-LD-1 CHANGE HISTORY

Engineering Manual Section Change History

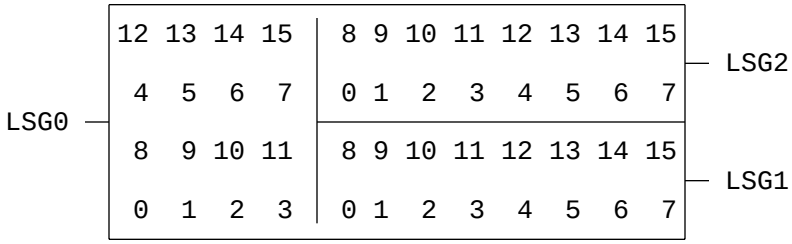
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
93 04 15	ECM 536 03	ECD 018-40092 - Change rating to MD.

The ISDN Line Drawer is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
ISDN Line Drawer Assy	NTBX3201		1			AP
Line Circuits	AR				00-15	RUL1
ISDN Line Drawer BIC	NTBX36AA				16	AP
Line Drawer Cutoff Strap	A0285591					RUL2

NOTES:

1) The line drawers are divided into three line sub groups having sixteen slots each as shown below:



RULES:

AP 1) When PEC NTBX32AA is ordered, these items are provided.

RUL1 1) The following line cards may be assigned to the ISDN Line Drawer:

DESCRIPTION	PEC	# SLOTS
ISDN 'U' Interface Line Card	NTBX25AB	2
ISDN 'S/T' Interface Line Card	NTBX26AA	2
Data Line Card	NT6X71AA	2
Data Line Card	NT6X71AB	2
Business Set Line Card	NT6X21AC	1
Standard Line Card Type A	NT6X17AA	1
Standard Line Card Type A	NT6X17AB	1
OPT Line Card Type A	NT6X17AC	1
Std Line Card Type B W/O +48V	NT6X18AA	1

Standard Line Card Type E	NT6X19AA	1
Message Waiting Power Convert.	NT6X20AA	2
Standard Line Card Type C	NT6X21AB	1
Asynchronous I/F Line Card	NT6X76AA	2
Enhanced Async I/F Line Card	NT6X76AC	2
World Line Card Type B	NT6X18BA	1
IBERT Line Card	NT6X99AA	2

Refer to Engineering Manual section EMA14-03-000 for descriptive information for non-ISDN line cards.

2) ISDN Line Cards may not be mixed with any other line cards within a Line Sub Group.

3) Provision IBERT for data path/ISDN loop testing. Provision only one per LCMI. The IBERT line card may not be equipped in a Line Sub Group with ISDN line cards.

4) A maximum of twenty (20) ISDN 'U' Line Cards NTBX25AB may be provisioned per line drawer.

5) A maximum of twenty-four (24) ISDN 'S/T' Line Cards NTBX26AA may be provisioned per line drawer.

6) A maximum of one (1) NT6X20AA Message Waiting Power Converter may be provisioned per line drawer. Any drawer containing NT6X19AA Type E Line Cards requires one (1) Message Waiting Power Converter. In BCS-28, Message Waiting Power Converters are restricted to LSG1 in each physical drawer (ie. logical drawers 1,4,7,10,13,16,19, and 22). In BCS-29, this restriction is removed; the Converter is permitted in any logical drawer. Type E Line cards and Message Waiting Power Converter are not permitted in a Line Sub Group containing ISDN line cards.

RUL2 1) Provide one (1) Cutoff Strap for each line drawer whose line cards are to be held simultaneously cutoff by this method.

2) Since straps can be re-used, the quantity to be provided is determined based on the maximum number of line drawers which are to be held simultaneiously in this state.

LCME PACKFILL UPGRADE KIT

PEC CODE:	NTBX31PA
CPC CODE:	B0232997
RATING:	A&M
REPLACES:	Not Applicable
REPLACED BY:	NTBX31PB
ABBREVIATION NAME:	Not Applicable
ENGINEERING DESCRIPTION:	One NTBX31PA LCME Packfill Upgrade Kit upgrades one NTBX31BA LCME Packfill to NTBX31BB LCME Packfill.
REFERENCE DOCUMENTATION:	SLBX31BA 00 01 SLBX31BB 00 01
MARKETS:	Applicable markets: US Canada Europe Asia/Pacific CALA

ISSUE AUTHOR: NTI: Ron Hogan Dept. 3471 (PPK)

MAIN CONTACT: NTI: Ron Hogan Dept. 3471 (PPK)

NTBX31PA EMR2-19-PCKIT-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 08 28 94 10 17 96 02 09	ECM 685 04 ECM 691 07 ECM 685 10	Introduce NTBX31PA PC Kit. Correct NTBX34BC label. Change status to A&M per EC 011-21510. Replaced by NTBX31PB.

The LCME Packfill Upgrade Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	LCME Processor CP	NTBX34BA		1	X+14	21	AP
REMOVE	Des Strip (NTBX31BA)	P0709653		1			AP
ADD	LCME Processor CP	NTBX34BC		1	X+14	21	AP
ADD	Des Strip (NTBX31BB)	P0744679		1			AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NTBX31PA is ordered, these items are provided.

INTERNATIONAL DIGITAL NETWORK INTERCONNECT

PEC CODE:	NTFX97AA
CPC CODE:	B0233407
RATING:	MD
REPLACES:	N/A
REPLACED BY:	NTNX97AA
ABBREVIATION NAME:	IDNI
ENGINEERING DESCRIPTION:	The IDNI provides a patch cord junctor cross-connect facility for interconnecting between the network junctor face ports of Network Modules in the same plane.
REFERENCE DOCUMENTATION:	MSNX97AA 00 01
MARKETS:	Applicable markets: CALA Asia/Pacific Europe

ISSUE AUTHOR: NTI: Jerry Palmer Dept. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NTFX97AA EMR2-20-IDNI-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
96 01 11	ECM 464 16	Update to required format. MD NTFX97AA per ECD 024-95039.

The International Digital Network Interconnect is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
IDNI Cabinet Assembly	NTNX25DB					AP
Anchor Kit E'qke Slab Flr	NTNX2540					RUL1
Anchor Kit E'qke Cmptr Flr	NTNX2578					RUL1
Anchor Kit Non E.Q. Slab	NTNX2579					RUL1
Anchor Kit Non E.Q. Cmptr	NTNX2580					RUL1
Right Door Ass'y (grey)	NTNX2513					RUL2
Left Door Ass'y (grey)	NTNX2515					RUL2
Right Door Label (grey)	P0699158					RUL3
Left Door Label (grey)	P0677704					RUL3
Cabinet Label (grey)	P0729028					RUL4
End Panel Left (grey)	NTNX2518					RUL7
End Panel Right (grey)	NTNX2517					RUL7
Right Door Ass'y (brown)	NTNX2552					RUL2
Left Door Ass'y (brown)	NTNX2550					RUL2
Right Door Label (brown)	P0695230					RUL3
Left Door Label (brown)	P0699464					RUL3
Cabinet Label (brown)	P0729029					RUL4
End Panel Left (brown)	NTNX2553					RUL7
End Panel Right (brown)	NTNX2546					RUL7
Bottom Baffle	P0728987					RUL8
Mounting Screws	P097F839					RUL8
Ntwk Junctor Connecting Panl	NTNX97AB	NJC		XX		RUL5
Junctor Patch Cords	AR					RUL6

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) The IDNI provides space to mount up to 16 Network Junctor Connecting Panels (NJC).

2) "XX" can be one of 02, 06, 09, 13, 16, 20, 23, 27, 30, 34, 37, 41, 44, 48, 51, and 55. Since cables enter the bottom of the cabinet in raised floor applications, the NJC Panels are assigned starting at the bottom of the cabinet and working upwards.

3) One IDNI cabinet is required for each 16 Network Modules (NM) per plane except for offices whose ultimate network size will not exceed 8 networks per plane and where floor space is at a premium. In this case, junctors of both planes may be combined on the same IDNI cabinet:

   Plane 0 shelf positions are as follows -

   30, 34, 37, 41, 44, 48, 51, 55

   Plane 1 shelf positions are as follows -

   02, 06, 09, 13, 16, 20, 23, 27

4) Maximum four (4) IDNI cabinets per system.

RULES:

AP 1) When PEC NTFX97AA is ordered, these items are provided.

RUL1 1) Provision one (1) Earthquake Anchor Kit when installing cabinet in ATC Zone 6 or 7, NEBS Zone 4 and UBC Zone R. Use NTNX2540 kit for slab-type flooring or NTNX2578 for computer flooring.

2) Provision one (1) Frame Mounting Kit when installing cabinet in a non-earthquake zone. Use NTNX2579 kit for slab-type flooring or NTNX2580 for computer flooring.

RUL2 1) When specifying a brown cabinet, provision two (2) NTNX2550 Left Door Assemblies and two (2) NTNX2552 Right Door Assemblies - one each for front and rear respectively.

2) When specifying a grey cabinet, provision two (2) NTNX2515 Left Door Assemblies and two (2) NTNX2513 Right Door Assemblies - one each for front and rear respectively.

RUL3 1) When specifying a brown cabinet, provision two (2) P0699464 Left Door Labels and two (2) P0695230 Right Door Labels - one each for front and rear respectively.

2) When specifying a grey cabinet, provision two (2) P0677704 Left Door Labels and two (2) P0699158 Right Door Labels - one each for front and rear respectively.

RUL4 1) Provide two (2) Cabinet Type Labels. When specifying a brown cabinet, use P0729029. When specifying a grey cabinet, use P0729028.

RUL5 1) Provide two (2) NTNX97AB Network Junctor Connecting Panels per NTNX40AA-type network; ie. one Panel per network plane.

RUL6 1) Junctor patch cords are selected according to the running distance between the two ports which are to be interconnected.

2) NOTE: DNI and SLC patch cords are not interchangeable.

3) The following network junctor patch cords are required when cross connecting between NTNX97AB-type NJC panels:

LENGTH (FEET)	LENGTH (METRES)	CONNECTOR COLOUR	PRODUCT CODE (PEC)	PRODUCT CODE (CPC)
2.0	.61	BK-W	NE-P4QDY	A0289622
3.0	.91	BK-Y	NE-P4QEA	A0289623
4.0	1.22	BK-O	NE-P4QEB	A0289624
5.0	1.52	BK-R	NE-P4QEC	A0289625
6.5	1.98	BK-G	NE-P4QED	A0289626
8.0	2.44	BK-BR	NE-P4QEE	A0289627
10.0	3.05	BK-W	NE-P4QEF	A0289628
15.0	4.57	BK-Y	NE-P4QEG	A0289629

RUL7 1) When end panels are required and brown color is specified order NTNX2546 and NTNX2553.

2) When end panels are required and grey color is specified order NTNX2517 and NTNX2518.

RUL8 1) When routing cable through top (inlet) of frame provide:

- one (1) P0728987 Bottom Baffle, and
- Four (41) P097F839 Mounting Screws.

INTERNATIONAL LGC/DTC COMMON CP

PEC CODE: NTFX33BA

CPC CODE: B0232343

RATING: MD

REPLACES: Not Applicable

REPLACED BY: NTFX33BH

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The NTFX33BA is a common circuit pack fill used in the International Cabinetized FCTM NTFX33AA.

The NTFX33BA is replaced by NTFX33BC.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Europe
Asia/Pacific
CALA

ISSUE AUTHOR: NTI: Ken Clisso Dept. 3471 (PPK)

MAIN CONTACT: NTI: Ken Clisso Dept. 3471 (PPK)

NTFX33BA EMR2-20-ILGC-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 04 08 95 04 03	ECM 646 03 ECM 646 10	Correct title. Change per ECD 024-93969. MD NTFX33BA

The International LGC/DTC Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Universal Time Switch CP	NT6X44EA		2	X+14,X	07	AP
Msg Protocol & Downld CP	NT6X69LB		2	X+14,X	10	AP
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	12	AP
SP Memory Plus CP	NT6X46BA		2	X+14,X	13	AP
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	14	AP
Filler Face Plate	NT0X50AA		2	X+14,X	15	AP
4 MB MP Memory CP	NT6X47AC		2	X+14,X	16	AP
SP Memory Plus CP	NT6X46BA		2	X+14,X	17	AP
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	18	AP
Filler Face Plate	NT0X50AA		2	X+14,X	20	AP
Channel Supervision Mgs CP	NT6X42AA		2	X+14,X	21	AP
Speech Bus Formatter CP	NT6X41AB		2	X+14,X	22	AP
Filler Face Plate	NT0X50AA		2	X+14,X	24	AP
Power Converter	NT2X70AE		2	X+14,X	25	AP
Designation Strip	P0714174		2	X+14		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) One Cabinetized Fiber ILGC/IDTC Common CP can be assigned on the cabinet to shelf mounting positions 47 and 33 (X = 33) and the other to shelf mounting positions 19 and 05 (X = 05).

2) For more information on the cabinet refer to the section on NTFX33AA.

RULES:

AP 1) When PEC NTFX33BA is ordered, these items are provided.

CABINETIZED FIBER INTERNATIONAL LGC/DTC COMMON CP

PEC CODE:	NTRX47AB
CPC CODE:	B0236014
RATING:	MD
REPLACES:	None
REPLACED BY:	NTRX47AC
ABBREVIATION NAME:	N/A
ENGINEERING DESCRIPTION:	The NTRX47AB is the common circuit pack fill used in the International CIDC (PDTC/PLGC/IDTC/ILGC).
REFERENCE DOCUMENTATION:	N/A
MARKETS:	Applicable markets: CALA Asia/Pacific Europe

ISSUE AUTHOR: Darrell Deeds Dept. 3471 (PPK)

MAIN CONTACT: Ken Clisso Dept. 3471 (PPK)

NTRX47AB EMR2-20-ILGC-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 12 14	ECM 660 01	Transfer from ECM-636.
95 04 05	ECM 660 05	NTRX47AB is changed to MD status per EC 024-93969.

The Cabinetized Fiber International LGC/DTC Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Universal Time Switch CP	NT6X44EA		2	X+14,X	07	AP
Msg Protocol & Downld CP	NT6X69LB		2	X+14,X	10	AP
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	12	AP
SP Memory Plus CP	NT6X46BB		2	X+14,X	13	AP
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	14	AP
Filler Face Plate	NT0X50AA		2	X+14,X	15	AP
4 MB MP Memory CP	NT6X47AC		2	X+14,X	16	AP
SP Memory Plus CP	NT6X46BB		2	X+14,X	17	AP
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	18	AP
Filler Face Plate	NT0X50AA		2	X+14,X	20	AP
Speech Bus Formatter CP	NT6X41AB		2	X+14,X	22	AP
Filler Face Plate	NT0X50AA		2	X+14,X	24	AP
Power Converter	NT2X70AE		2	X+14,X	25	AP
Designation Strip	P0729030		2	X+14,X		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) One Cabinetized Fiber International LGC/DTC Common CP can be assigned on the CIDC cabinet to shelf mounting positions 47 and 33 (X = 33) and the other to shelf mounting positions 19 and 05 (X = 05).

RULES:

AP 1) When PEC NTRX47AB is ordered, these items are provided.

INTERNATIONAL LGC/DTC COMMON CP

PEC CODE:	NTFX33BC
CPC CODE:	B0235249
RATING:	MD
REPLACES:	Not Applicable
REPLACED BY:	NTFX33BH
ABBREVIATION NAME:	N/A
ENGINEERING DESCRIPTION:	The NTFX33BC is the common circuit pack fill used in the International Cabinetized FCTM NTFX33AA. NTFX33BC replaces NTFX33BA. For Digital N5 applications use NTFX33BD instead of NTFX33BC.
REFERENCE DOCUMENTATION:	N/A
MARKETS:	Applicable markets: Europe Asia/Pacific CALA

ISSUE AUTHOR: NTI: Ken Clisso Dept. 3471 (PPK)

MAIN CONTACT: NTI: Ken Clisso Dept. 3471 (PPK)

NTFX33BC EMR2-20-ILGC-4 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 02 18	ECM 646 01	Created per ECD 011-16850
93 04 08	ECM 646 03	Correct title.
95 04 03	ECM 646 10	Change per ECD 024-93969. MD NTFX33BC

The International LGC/DTC Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Universal Time Switch CP	NT6X44EA		2	X+14,X	07	AP
Msg Protocol & Downld CP	NT6X69LB		2	X+14,X	10	AP
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	12	AP
SP Memory Plus CP	NT6X46BB		2	X+14,X	13	AP
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	14	AP
Filler Face Plate	NT0X50AA		2	X+14,X	15	AP
4 MB MP Memory CP	NT6X47AC		2	X+14,X	16	AP
SP Memory Plus CP	NT6X46BB		2	X+14,X	17	AP
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	18	AP
Filler Face Plate	NT0X50AA		2	X+14,X	20	AP
Channel Supervision Mgs CP	NT6X42AA		2	X+14,X	21	AP
Speech Bus Formatter CP	NT6X41AB		2	X+14,X	22	AP
Filler Face Plate	NT0X50AA		2	X+14,X	24	AP
Power Converter	NT2X70AE		2	X+14,X	25	AP
Designation Strip	P0734233		2	X+14		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) One Cabinetized Fiber LGC/DTC Common CP can be assigned on the cabinet to shelf mounting positions 47 and 33 (X = 33) and the other to shelf mounting positions 19 and 05 (X = 05).

2) For more information on the cabinet refer to the section on NTFX33AA.

RULES:

AP 1) When PEC NTFX33BC is ordered, these items are provided.

INTERNATIONAL LGC/DTC COMMON CP

PEC CODE:	NTFX33BD
CPC CODE:	B0235250
RATING:	MD
REPLACES:	Not Applicable
REPLACED BY:	NTFX33BJ
ABBREVIATION NAME:	N/A
ENGINEERING DESCRIPTION:	The NTFX33BD is the common circuit pack fill used in the International Cabinetized FCTM NTFX33AA for Digital N5 applications. For other than Digital N5 applications use NTFX33BC instead of NTFX33BD.
REFERENCE DOCUMENTATION:	N/A
MARKETS:	Applicable markets: Europe Asia/Pacific CALA

ISSUE AUTHOR: NTI: Ken Clisso Dept. 3471 (PPK)

MAIN CONTACT: NTI: Ken Clisso Dept. 3471 (PPK)

NTFX33BD EMR2-20-ILGC-5 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 02 18	ECM 646 01	Created per ECD 011-16850
93 04 08	ECM 646 03	Correct title.
95 04 03	ECM 646 10	Changes per ECD 024-93969. MD NTFX33BD

The International LGC/DTC Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Universal Time Switch CP	NT6X44EA		2	X+14,X	07	AP
Msg Protocol & Downld CP	NT6X69LB		2	X+14,X	10	AP
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	12	AP
SP Memory Plus CP	NT6X46BB		2	X+14,X	13	AP
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	14	AP
Filler Face Plate	NT0X50AA		2	X+14,X	15	AP
4 MB MP Memory CP	NT6X47AC		2	X+14,X	16	AP
SP Memory Plus CP	NT6X46BB		2	X+14,X	17	AP
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	18	AP
Filler Face Plate	NT0X50AA		2	X+14,X	20	AP
Speech Bus Formatter CP	NT6X41AB		2	X+14,X	22	AP
Filler Face Plate	NT0X50AA		2	X+14,X	24	AP
Power Converter	NT2X70AE		2	X+14,X	25	AP
Designation Strip	P0734231		2	X+14		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) One Cabinetized Fiber ILGC/IDTC Common CP can be assigned on the cabinet to shelf mounting positions 47 and 33 (X = 33) and the other to shelf mounting positions 19 and 05 (X = 05).

2) For more information on the cabinet refer to the section on NTFX33AA.

RULES:

AP 1) When PEC NTFX33BD is ordered, these items are provided.

INTERNATIONAL MTM SHELF

PEC CODE:	NT2X58BC
CPC CODE:	B0233029
RATING:	MD
REPLACES:	Not Applicable
REPLACED BY:	No Replacement
ABBREVIATION NAME:	IMTM
ENGINEERING DESCRIPTION:	The International Trunk Maintenance Module (IMTM) shelf is a blank shelf primarily intented to house standard IMTM circuit packs for international switches.
REFERENCE DOCUMENTATION:	MS2X58BC 01 01
MARKETS:	Applicable markets: Canada CALA

ISSUE AUTHOR: NTI: Steve Martin Dept. 3471 (PPK)

MAIN CONTACT: NTI: Steve Martin Dept. 3471 (PPK)

NT2X58BC EMR2-20-IMTM-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
96 09 12	ECM 601 34	MD per EC018-48743

The International MTM Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Maint Trk Mod Sh Assy	NT2X5828		1	X		AP
Common Circuit Pack(s)	AR			X		RUL1
Trunk Cards	AR			X		RUL1

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) "X": Please refer to the cabinet(s) where this shelf is used to determine the applicable shelf positions.

RULES:

AP 1) When PEC NT2X58BC is ordered, these items are provided.

RUL1 1) Please refer to the cabinet(s) where this shelf is used for information on the circuit packs which can be mounted on this shelf.

INTERNATIONAL LGC/DTC COMMON CIRCUIT PACK

PEC CODE:	NTNX33GB
CPC CODE:	B0232255
RATING:	MD
REPLACES:	Not Applicable
REPLACED BY:	Not Applicable
ABBREVIATION NAME:	N/A
ENGINEERING DESCRIPTION:	The NTNX33GB is the common circuit pack fill used in NTNX33GA International Cabinet LGE/DTE ISDN.
REFERENCE DOCUMENTATION:	SLNX33GB 00 02
MARKETS:	Applicable markets: Europe Asia/Pacific CALA

ISSUE AUTHOR: NTC: Bob Belvin Dept. 3471 (PPK)

MAIN CONTACT: NTC: Ken Clisso Dept. 3471 (PPK)

NTNX33GB EMR2-20-LGCI-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 08 31	ECM 649 04	Update per SLNX33GB 00 02 stocklist which added 2 NT0X50AA in CP slot 10 and 2 NT6X69LB in CP slot 18 to SLNX33GB 00 01 stocklist.
95 10 24	ECM 649 09	MD section per ECD 024-95247.

The International LGC/DTC Common Circuit Pack is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Faceplate	NT0X50AA		2	X+14,X	10	AP
Msg Prot & Download Tones CP	NT6X69LB		2	X+14,X	18	AP
Channel Supervision Msgs CP	NT6X42AA		2	X+14,X	20	AP
Speech Bus Formatter CP	NT6X41AB		2	X+14,X	21	AP
Filler Faceplate	NT0X50AA		4	X+14,X	23,24	AP
Designation Strip (NTNX33GA)	P0713212		2	X+14,X		AP

EQUIPMENT FLAGGED '#':

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MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) One NTNX33GB Common CP can be assigned on the cabinet to shelf mounting positions 47 and 33 (X = 33) and the other to shelf mounting positions 19 and 05 (X = 05).

2) For more information on the cabinet refer to the section on NTNX33GA.

RULES:

AP 1) When PEC NTNX33GB is ordered, these items are provided.

LGCI/DTCI COMMON CIRCUIT PACK (OFFSHORE) NTFX33CB

RATING: Standard

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The NTFX33CB is the common circuit pack fill used in the Offshore Line Trunk ISDN Module (LTEM) cabinet (NTFX33CA).

REFERENCE DOCUMENTATION: N/A

The LGCI/DTCI Common Circuit Pack (Offshore) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
LGC/DTC Processor CP	NT6X45BA		1	X+14	08	AP
4 MB MP Memory CP	NT6X47AC		1	X+14	09	AP
Filler Faceplate	NT0X50AA		1	X+14	10	AP
SP Memory Plus CP	NT6X46BA		1	X+14	11	AP
LGC/DTC Processor CP	NT6X45BA		1	X+14	12	AP
Filler Faceplate	NT0X50AA		1	X+14	19	AP
Channel Supervision Msgs CP	NT6X42AA		1	X+14	20	AP
Filler Faceplate	NT0X50AA		2	X+14	23,24	AP
+-5/12V Pwr Converter 50A CP	NT2X70AE		1	X+14	25	AP
Designation Strip (NTNX33CB)	P0729038		1	X+14		AP
LGC/DTC Processor CP	NT6X45BA		1	X	08	AP
4 MB MP Memory CP	NT6X47AC		1	X	09	AP
Filler Faceplate	NT0X50AA		1	X	10	AP
SP Memory Plus CP	NT6X46BA		1	X	11	AP
LGC/DTC Processor CP	NT6X45BA		1	X	12	AP
Filler Faceplate	NT0X50AA		1	X	19	AP
Channel Supervision Msgs CP	NT6X42AA		1	X	20	AP
Filler Faceplate	NT0X50AA		2	X	23,24	AP
+-5/12V Pwr Converter 50A CP	NT2X70AE		1	X	25	AP
Designation Strip (NTNX33CB)	P0729038		1	X		AP

NOTES:

1) One LGCI/DTCI Common CP (Offshore) can be assigned on the cabinet to shelf mounting positions 47 and 33 (X = 33) and the other to shelf mounting positions 19 and 05 (X = 05).

2) For more information on the cabinet refer to the section on NTFX33CA.

RULES:

AP 1) When PEC NTFX33CB is ordered, these items are provided.

INTERNATIONAL LGC/DTC COMMON CIRCUIT PACK

PEC CODE:	NTNX33GD
CPC CODE:	B0236793
RATING:	MD
REPLACES:	None
REPLACED BY:	NTZZ37BA or NTZZ37BB for NTZZ37AA applications only, which has the new NTNX33GH packfill.
ABBREVIATION NAME:	DTCO LGCO TMS
ENGINEERING DESCRIPTION:	The NTNX33GD is the common circuit packfill used to equip LGC and DTC modules in the NTNX33GA International Cabinet LGE/DTE ISDN. The NTNX33GD was formerly also used in the NTZZ37AA (NTRX46AA) Cabinetized International Peripheral Equipment. The NTNX33GD has been replaced for the NTZZ37AA application by: NTZZ37BA International XPM ISDN 48VDC Common CP, or NTZZ37BB International XPM Plus ISDN 48VDC Common C
REFERENCE DOCUMENTATION:	SLNX33GD 01 01 MSRX33GA 00 06
MARKETS:	Applicable markets: CALA Asia/Pacific Europe

ISSUE AUTHOR:	Ken Clisso	Dept. 3471	(PPK)
MAIN CONTACT:	Ken Clisso	Dept. 3471	(PPK)

NTNX33GD EMR2-20-LGCI-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 11 17	ECM 659 01	ECDs 011-16135, 011-16761, 011-16850.
93 08 31	ECM 659 04	Update description.
93 10 12	ECM 659 05	ET 39513: Add abbreviated names DTCO, LGCO, and TMS.
94 08 19	ECM 659 10	Correct PEC in description. Clarify usage.
95 04 25	ECM 659 15	MD’d NTNX33GD Packfill and replaced it with NTNX33GH.

The International LGC/DTC Common Circuit Pack is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Universal Time Switch CP	NT6X44EA		2	X+14,X	14	AP
Universal Tone Receiver CP	NT6X92CA		4	X+14,X	15,17	AP
Message Protocol & Tones CP	NT6X69LB		2	X+14,X	18	AP
Channel Supervision Msgs CP	NT6X42AA		2	X+14,X	20	AP
Speech Bus Formatter CP	NT6X41AB		2	X+14,X	21	AP
+-5/12V Pwr Converter 50A CP	NT2X70AE		2	X+14,X	25	AP
Designation Strip (NTNX33GD)	P0739766		2	X+14,X		AP

EQUIPMENT FLAGGED '#':

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A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) One International LGC/DTC Fiber Common CP can be assigned on the cabinet to shelf mounting positions 47 and 33 (X = 33) and the other to shelf mounting positions 19 and 05 (X = 05).

RULES:

AP 1) When PEC NTNX33GD is ordered, these items are provided.

INTERNATIONAL LGC/DTC COMMON CIRCUIT PACK

PEC CODE: NTNX33GH

CPC CODE: B0242830

RATING: MD

REPLACES: NTNX33GD

REPLACED BY: NTZZ37BA or NTZZ37BB for NTZZ37AA applications only, which has the new NTNX33GH packfill.

ABBREVIATION NAME: DTCO
LGCO
TMS

ENGINEERING DESCRIPTION: The NTNX33GH is the common circuit packfill used to equip LGC and DTC modules in the NTNX33GA International Cabinet LGE/DTE ISDN.

The NTNX33GH was formerly also used in the NTZZ37AA (NTRX46AA) Cabinetized International Peripheral Equipment. The NTNX33GH has been replaced for the NTZZ37AA application by:

NTZZ37BA International XPM ISDN 48VDC Common CP, or
NTZZ37BB International XPM Plus ISDN 48VDC Common C

REFERENCE DOCUMENTATION: SLNX33GH 01 01
MSRX33GA 00 06

MARKETS: Applicable markets:

CALA
Asia/Pacific
Europe

ISSUE AUTHOR: Bob Belvin Dept. 3471 (PPK)

MAIN CONTACT: Ken Clisso Dept. 3471 (PPK)

NTNX33GH EMR2-20-LGCI-5 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 11 17	ECM 659 01	ECDs 011-16135, 011-16761, 011-16850.
93 08 31	ECM 659 04	Update description.
93 10 12	ECM 659 05	ET 39513: Add abbreviated names DTCO, LGCO, and TMS.
94 08 19	ECM 659 10	Correct PEC in description. Clarify usage.
95 04 25	ECM 659 15	MD'd NTNX33GD Packfill and introduced the NTNX33GH packfill.
95 10 24	ECM 649 09	MD section per ECD 024-95247.

The International LGC/DTC Common Circuit Pack is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Universal Time Switch CP	NT6X44EA		2	X+14,X	14	AP
Universal Tone Receiver CP	NT6X92CA		4	X+14,X	15,17	AP
Message Protocol & Tones CP	NT6X69LB		2	X+14,X	18	AP
Channel Supervision Msgs CP	NT6X42AA		2	X+14,X	20	AP
Speech Bus Formatter CP	NT6X41AB		2	X+14,X	21	AP
+-5/12V Pwr Converter 50A CP	NT2X70AF		2	X+14,X	25	AP
Designation Label (NT2X70AF)	P0809960		2	X+14,X	25	AP
Designation Strip (NTNX33GD)	P0739766		2	X+14,X		AP

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MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) One International LGC/DTC Fiber Common CP can be assigned on the cabinet to shelf mounting positions 47 and 33 (X = 33) and the other to shelf mounting positions 19 and 05 (X = 05).

RULES:

AP 1) When PEC NTNX33GH is ordered, these items are provided.

INTERNATIONAL CABINET AUXILIARY MODULE

PEC CODE: NTFX37AA

CPC CODE: B0232477

RATING: MD

REPLACES: N/A

REPLACED BY: NTRX32CA

ABBREVIATION NAME: ICAM

ENGINEERING DESCRIPTION: The NTFX37AA International Cabinet Auxiliary Module (ICAM) can house two (2) International Packaged Trunk Module (IPTM) shelves, and a Power Distribution Panel (PDP).

When NTFX37BA Common Circuit Pack is provided, both IPTM shelves are then equipped with circuit packs to support

The Office Alarm Unit (OAU) function and
The provisionable maintenance and service circuit packs in the remaining free CP slots of the two shelves.

Alternatively each IPTM shelf may be equipped with the NTFX37BB Common Circuit Pack to support the provisionable maintenance and service circuit packs in the remaining free CP slots of the shelf (One or two NTFX37BB per ICAM).

REFERENCE DOCUMENTATION: MSFX37AA 00 01

MARKETS: Applicable markets:

Europe
Asia/Pacific

ISSUE AUTHOR: Joe Bragg Dept. 6457 (RCH)

MAIN CONTACT: Joe Bragg Dept. 6457 (RCH)

NTFX37AA EMR2-20-002 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 10 19	ECM 464 14	Make changes per ECD024-95039.

The International Cabinet Auxiliary Module is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Cabinet	NTNX25AA	FW	1			AP
Frame Supervisory Panel	NT7X34AA	FSP	1	60		AP
IMTM Shelf Assembly (PTM)	NT2X58BC	IPTM	1	47		AP
IPTM Common Circuit Pack	NTFX37BB			47		RUL1
101 Comm. Test Line	NT5X30AA			47	5-7,12,16	RUL2,3
Comp Bal Network (900 ohm)	NT2X77AA			47	5-7,12,16	RUL3
Miscellaneous Scanner	NT0X10AA			47	7,12,16	RUL9
Scan Dist'n Card	NT2X57AA			47	7,12,16	RUL9
Jack Ended Trunk	NT1X54AA			47	6,7,12,16	RUL4
LTU Analog Card	NT2X10AB			47	13	RUL5
LTU Digital Card	NT2X11AD			47	14	RUL5
Incoming/Outgoing Test Trk	NT2X90AD			47	15	RUL5,3
Comp Bal Network (900 ohm)	NT2X77AA			47	15	RUL3
Loop Around Test Line	NT2X75AA			47	5-16	RUL6
102 Test-MW Circuit	NT1X00AE			47	5-16	RUL7
TTU-Trans Test Module	NT2X47BA			47	5-15	RUL14
Digital Filter CP	NT2X56BA			47	6-16	RUL14
TTU-Test Scan Gen	NT1X90BA			47	5-15	RUL15
PCM Level Meter	NT2X96BA			47	6-16	RUL15
Tops Control Proc	NT3X02AA			47	5-15	RUL16
Tops Digital Cont	NT3X03AA			47	6-16	RUL16
Tone Gen-Call Waiting	NT3X68AC			47	5-16	RUL17
Tone Gen - PRMT	NT3X68AA			47	5-16	RUL18
Digital MTA CP	NT3X09BA			47	8-11	RUL10
Filler Face Plate (1.125)	NT0X50AC			47	5-16	RUL8
IMTM Shelf Assembly (PTM)	NT2X58BC	IPTM	1	33		AP
IPTM Common Circuit Pack	NTFX37BA			33		RUL1
IPTM Common Circuit Pack	NTFX37BB			33		RUL1
101 Comm. Test Line	NT5X30AA			33	5-12,16	RUL2,3
Comp Bal Network (900 ohm)	NT2X77AA			33	5-12,16	RUL3
Miscellaneous Scanner	NT0X10AA			33	7-9,12,16	RUL9
Signal Distribution Card	NT2X57AA			33	7-9,12,16	RUL9
Jack Ended Trunk	NT1X54AA			33	6-12,16	RUL4
LTU Analog Card	NT2X10AB			33	13	RUL5
MTU Analog Card	NT2X10BA			33	13	RUL5
LTU Digital Card	NT2X11AD			33	14	RUL5
MTU Digital Card	NT2X11BA			33	14	RUL5
Incoming/Outgoing Test Trk	NT2X90AD			33	15	RUL5,3
Comp Bal Network (900 ohm)	NT2X77AA			33	15	RUL3
Loop Around Test Line	NT2X75AA			33	5-16	RUL6
102 Test-MW Circuit	NT1X00AE			33	5-16	RUL7

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
TTU-Trans Test Module	NT2X47BA			33	5-15	RUL14
Digital Filter CP	NT2X56BA			33	6-16	RUL14
TTU-Test Scan Gen	NT1X90BA			33	5-15	RUL15
PCM Level Meter	NT2X96BA			33	6-16	RUL15
Tops Control Proc	NT3X02AA			33	5-15	RUL16
Tops Digital Cont	NT3X03AA			33	6-16	RUL16
Tone Gen-call Waiting	NT3X68AC			33	5-16	RUL17
Tone Gen - PRMT	NT3X68AA			33	5-16	RUL18
Filler Face Plate (1.125)	NT0X50AC			33	5-16	RUL8
STM Shelf Assembly	NT7X3004		1	19		AP
Filler Face Plate (2.22)	NT0X50AG			19	01	RUL8
Filler Face Plate (1.125)	NT0X50AC			19	3-18	RUL8
Filler Face Plate (0.875)	NT0X50AA			19	19	RUL8
Filler Face Plate (2.62)	NT0X50AE			19	20	RUL8
Power Distribution Panel	NTNX24BA		1	01		AP
Anchor Kit (Earthquake Slab)	NTNX2540					RUL12
Anchor Kit (Eq Computer Fl)	NTNX2578					RUL12
Anchor Kit (Non-Eq Slab)	NTNX2579					RUL12
Anchor Kit (Non-Eq Comp Fl)	NTNX2580					RUL12
Door Assy-Right(Grey)	NTNX2513					RUL19
Door Assy-Left(Grey)	NTNX2515					RUL19
Door Label-Left(Grey)	P0677704					RUL19
Door Label-Right(Grey)	P0699158					RUL19
Cabinet Type label(Grey)	P0726437					RUL19
End Panel Assy-Right(Grey)	NTNX2517					RUL19
End Panel Assy-Left(Grey)	NTNX2518					RUL19
Door Assy-Rt(Brown)	NTNX2552					RUL19
Door Assy-Left(Brown)	NTNX2550					RUL19
Door Label-Left(Brown)	P0699464					RUL19
Door Label-Right(Brown)	P0695230					RUL19
Cabinet Type Label(Brown)	P0726435					RUL19
End Panel Assy-Right(Brown)	NTNX2546					RUL19
End Panel Assy-Left(Brown)	NTNX2553					RUL19
ICGM/ENET DS30 Cable Assy	NTFX4701					RUL20
ICGM/ENET DS30 Cable Assy	NTFX4702					RUL20
Cable Duct Cover (Top)	P0674549					RUL13
Cable Duct Cover (Bottom)	P0685168					RUL13
Cable Duct Mounting Hardware	P097F839					RUL13
Desig. Label (NT5X30AA)	P0656329					RUL11
Desig. Label (NT0X10AA)	P0656328					RUL11

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Desig. Label (NT2X57AA)	P0656327					RUL11
Desig. Label (NT1X54AA)	P0656330					RUL11
Desig. Label (NT2X10AB)	P0664835					RUL11
Desig. Label (NT2X11AD)	P0710810					RUL11
Desig. Label (NT2X90AD)	P0688244					RUL11
Desig. Label (NT2X75AA)	P0657680					RUL11
Desig. Label (NT1X00AE)	P0677809					RUL11
Desig. Label (NT2X47BA)	P0677812					RUL11
Desig. Label (NT2X56BA)	P0677815					RUL11
Desig. Label (NT1X90BA)	P0677810					RUL11
Desig. Label (NT2X96BA)	P0677821					RUL11
Desig. Label (NT3X02AA)	P0661202					RUL11
Desig. Label (NT3X03AA)	P0661203					RUL11
Desig. Label (NT3X68AC)	P0657674					RUL11
Desig. Label (NT3X68AA)	P0661782					RUL11
Desig. Label (NT3X09BA)	P0664847					RUL11
Desig. Label (NT2X10BA)	P0707874					RUL11
Desig. Label (NT2X11BA)	P0707876					RUL11
Desig. Label (NT0X50AC)	P0580258					RUL11

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

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MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NTFX37AA is ordered, these items are provided.

RUL1 1) OAU Configuration:

When the OAU (Office Alarm Unit) function is to be provided in the ICAM cabinet, provide one (1) NTFX37BA IPTM Common CP to equip shelves 33 and 47 with pre-engineered circuit packs in an Office Alarm Unit (OAU) configuration. With this packfill, CP slots 9 and 10 on shelf 47, and CP slots 8 and 13-16 on shelf 33 are provisionable with cards as indicated in the equipment list.

2) IPTM Configuration:

Alternatively, provision one (1) NTFX37BB IPTM Common CP per IPTM shelf in position 33 and/or 47 to equip each shelf with the capability to provision CP slots 5-16 as indicated in the equipment list.

RUL2 1) When additional test lines are required, provide NT5X30AA 101 Comm. Test Line on ICAM as required (see RUL3).

RUL3 1) For each NT5X30AA and NT2X90AD provisioned, provide one (1) NT2X77AA Balance Network 900 ohms. NT2X77AA mounts on these trunk cards.

RUL4 1) When additional circuits for access to switching network for analog (VF) test equipment is required, provide one (1) NT1X54AA Jack Ended Trunk CP on ICAM as required (two circuits per pack).

RUL5 1) For Line Test Unit (LTU) with Montalk provide

- one (1) NT2X10AB LTU-Analog CP,
- one (1) NT2X11AD LTU-Digital CP, and
- one (1) NT2X90AD INC/OG Test Trunk Montalk CP.

LTU-1 is at shelf position 47, and LTU-0 at shelf position 33.

See RUL3.

2) For Multi-Line Test Unit (MTU) with Montalk provide

- one (1) NT2X10BA MTU-Analog CP,
- one (1) NT2X11BA MTU-Digital CP, and
- one (1) NT2X90AD INC/OG Test Trunk Montalk CP.

in shelf position 33.

See RUL3.

RUL6 1) When loop around test line is required for measuring near to far trunk transmission losses, provide one (1) NT2X75AA Loop Around Test CP on ICAM as required (one loop around circuit per pack).

RUL7 1) When additional 102 test milliwatt is required, provide one (1) NT1X00AE 102 Test Milliwatt CP on ICAM as required.

RUL8 1) Always provision Filler Face Plates in all CP positions in shelf position 19.

2) Provide Filler Face Plates in all positions not equipped with active circuit packs in shelf positions 33 and 47.

RUL9 1) Provide

- one (1) NT0X10AA Miscellaneous Scanner CP on ICAM as required for scan points (two circuits per pack, and seven scan points per circuit) and

- one (1) NT2X57AA Signal Distribution CP on ICAM as required for signal distribution (two circuits per pack and seven SD points per circuit).

2) For office alarms, provide

- one (1) NT0X10AA on shelf 47 CP slot 07 and
- one (1) NT2X57AA on shelf 47 CP slot 12.

RUL10 1) Provide NT3X09BA Metallic Test Access CP on ICAM as follows:

one (1) NT3X09BA Slot 8 for 1st & 2nd MCLM bays in line-up
one (1) NT3X09BA Slot 9 for 3rd & 4th MCLM bays in line-up
one (1) NT3X09BA Slot 10 for 5th & 6th MCLM bays in line-up
one (1) NT3X09BA Slot 11 for 7th & 8th MCLM bays in line-up

RUL11 1) Provide one per circuit pack provisioned of the appropriate label. PEC on label should be same as circuit pack provisioned. Affix label on shelf designation strip in appropriate position.

RUL12 1) When cabinet is installed in seismic (earthquake) zones

- ATC Zones 6 & 7,
- NEBS Zone 4, and
- UBC Zone 4

provision

- one (1) NTNX2540 Earthquake Anchor Kit for slab-type flooring or
- one (1) NTNX2578 Earthquake Anchor Kit for computer-type flooring.

2) When installing cabinet in a non-earthquake zone provision

- one (1) NTNX2579 Frame Mounting Kit for slab-type flooring or
- one (1) NTNX2580 Frame Mounting Kit for computer-type flooring.

RUL13 1) When cables exit through the bottom of cable housing, provide

- one (1) P0674549 Cable Duct Cover (Top) and
- one (1) P097F839 Cable Duct Mounting Hardware.

When cables exit through the top of cable housing, provide

- one (1) P0685168 Cable Duct Cover (Botttom) and
- one (1) P097F839 Cable Duct Mounting Hardware.

RUL14 1) For each additional transmission test unit required, provide

- one (1) NT2X47BA A-Law TTU Controller CP (left, odd slot) and
- one (1) NT2X56BA A-Law TTU Digital Filter CP (right, even slot).

RUL15 1) For additional transmission termination trunks, provide

- one (1) NT1X90BA TTT Test Signal Generator CP (left, odd slot) and
- one (1) NT2X96BA PCM Level Meter CP (right, even slot).

RUL16 1) Provide

- one (1) NT3X02AA TOPS Control Processor CP (left, odd slot) and
- one (1) NT3X03AA TOPS Digital Signal Processor CP (right, even slot)

for additional TOPS data channels (one pair required for every four TOPS position/TOPS tty served or 1 pair for every four BSAC NT4X09AG). Do not provide on same IPTM with NT5X30AA (different software exec required)

RUL17 1) When call waiting tone generation is required, provide one (1) NT3X68AC Tone Generator: Call Waiting CP.

This circuit pack requires two slots, leave next highest slot vacant (provide NT0X50AC filler).

RUL18 1) When pre-empt tone generation is required, provide one (1) NT3X68AA Tone Generator: Pre-empt CP.

This circuit pack requires two slots, leave next highest slot vacant (provide NT0X50AC filler).

RUL19 1) When specifying a brown cabinet, provision

- two (2) NTNX2550 Left Door Assemblies (Brown),
- two (2) P0699464 Left Door Labels (Brown),
- two (2) NTNX2552 Right Door Assemblies (Brown), and
- two (2) P0695230 Right Door Labels (Brown),

one each for front and rear respectively, as well as

- one (1) P0726435 Cabinet Type Label (Brown).

Also

- when the cabinet is located at the right end of a lineup, or
- when the equipment adjacent to the right of the cabinet is not EMI compliant,

provide

- one (1) NTNX2546 End Panel Right (Brown),

and/or

- when the cabinet is located at the left end of a lineup, or
- when the equipment adjacent to the left of the cabinet is not EMI compliant.

provide

- one (1) NTNX2553 End Panel Left (Brown).

2) When specifying a grey cabinet, provision

- two (2) NTNX2515 Left Door Assemblies (Grey),
- two (2) P0677704 Left Door Labels (Grey),
- two (2) NTNX2513 Right Door Assemblies (Grey), and
- two (2) P0699158 Right Door Labels (Grey),

one each for front and rear respectively, as well as

- one (1) P0726437 Cabinet Type Label (Grey).

Also

- when the cabinet is located at the right end of a lineup, or
- when the equipment adjacent to the right of the cabinet is not EMI compliant,

provide

- one (1) NTNX2517 End Panel Right (Grey).

and/or

- when the cabinet is located at the left end of a lineup, or
- when the equipment adjacent to the left of the cabinet is not EMI compliant,

provide

- one (1) NTNX2518 End Panel Left (Grey).

RUL20 1) When termination is required on the ENET/Network frame provide one (1) each of cable assemblies NTFX4701 and NTFX4702.

INTERNATIONAL CABINET AUXILIARY MODULE

PEC CODE:	NTFX37AB
CPC CODE:	B0232743
RATING:	MD
REPLACES:	N/A
REPLACED BY:	NTRX32CA
ABBREVIATION NAME:	ICAM
ENGINEERING DESCRIPTION:	The ICAM frame houses two (2) IMTM or IMTM-DRA shelves. Power from the bulkhead may be fed out to three (3) MCMI cabinets.
REFERENCE DOCUMENTATION:	MSFX37AB 00 01
MARKETS:	Applicable markets: Europe Asia/Pacific

ISSUE AUTHOR:	Joe Bragg	Dept. 6457	(RCH)
MAIN CONTACT:	Joe Bragg	Dept. 6457	(RCH)

NTFX37AB EMR2-20-003 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 10 19	ECM 464 14	Make changes per ECD024-95039.

The International Cabinet Auxiliary Module is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Common Framework	NTNX25AA	FW	1			AP
2" Filler Plate	P0684448		1	65		RUL6
E/W Screws	P097F813		4	65		RUL6
E/W FL Washer	P0284154		1	65		RUL6
E/W L Washer	P0183220		1	65		RUL6
2" Mounting Plate	P0726444		1	65		RUL6
ESD Bonding Label (MSL)	P0726543		1	65		RUL6
ESD Bonding Stud (MSL)	P0726544		1	65		RUL6
HHT Screw .216-24X.750	P097F815		2	65		RUL6
ESD Ground Panel Assembly	NTFX3713		1	65		RUL6
Frame Supv Panel	NT7X34AA	FSP	1	60		AP
ESD Ground Terminator Assy	NTFX3703			60R		RUL6
International MTM Shelf	NT2X58BC	IMTM		47		RUL1
IMTM to Bulkhead Cable Assy	NTFX3709			47		RUL1
International MTM-DRA Shelf	NT2X58BD	IMTM-DRA		47		RUL1
IMTM-DRA to Bulkhead Ca Assy	NTFX3711			47		RUL1
IMTM Common CP Turkey	NT2X58AY			47		RUL1
IMTM Common CP U.K.	NT2X58BB			47		RUL1
IMTM Common CP Caribbean	NT2X58CL			47		RUL1
IMTM Common CP Mercury U.K.	NT2X58DB			47		RUL1
OAU Dead Sys/Unique Audibls	NT3X82AA			47	05	RUL1
OAU Dead Sys/Common Audibls	NT3X82AB			47	05	RUL1
OAU Alm Transfer CP	NT3X83AA			47	07	RUL1
Misc Scan CP	NT0X10AA			47	08	RUL1
Signal Dist CP	NT2X57AA			47	09	RUL1
Trunk Card	AR			47	05-16	RUL1
Pwr Conv. CP +/- 5V, 12V	NT2X70AE			47	20	RUL1
Desig. Label (NT2X70AE)	P0698943			47	20	RUL4
Filler Face Plate	NT0X50AG			47	17	RUL2
Filler Face Plate	NT0X50AA			47	19	RUL2
Filler Face Plate	NT0X50AE			47	20	RUL2
International MTM Shelf	NT2X58BC	IMTM		33		RUL1
IMTM to Bulkhead Cable Assy	NTFX3709			33		RUL1
International MTM-DRA Shelf	NT2X58BD	IMTM-DRA		33		RUL1
IMTM-DRA to Bulkhead Ca Assy	NTFX3711			33		RUL1
IMTM Common CP Turkey	NT2X58AY			33		RUL1
IMTM Common CP U.K.	NT2X58BB			33		RUL1
IMTM Common CP Caribbean	NT2X58CL			33		RUL1
IMTM Common CP Mercury U.K.	NT2X58DB			33		RUL1

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
OAU Dead Sys/Unique Audibls	NT3X82AA			33	05	RUL1
OAU Dead Sys/Common Audibls	NT3X82AB			33	05	RUL1
Trunk Card	AR			33	05-16	RUL1
Pwr Conv. CP +/- 5V, 12V	NT2X70AE			33	20	RUL1
Filler Face Plate	NT0X50AG			33	17	RUL2
Filler Face Plate	NT0X50AA			33	19	RUL2
Filler Face Plate	NT0X50AE			33	20	RUL2
STM Shelf Assembly	NT7X3004		1	19		AP
Filler Face Plate	NT0X50AG			19	1	RUL2
Filler Face Plate	NT0X50AC			19	5-16	RUL2
Filler Face Plate	NT0X50AA			19	19	RUL2
Filler Face Plate	NT0X50AE			19	20	RUL2
Power Distribution Panel	NTNX24BA		1	01		AP
Anchor Kit (Earthquake Slab)	NTNX2540					RUL3
Anchor Kit (Eq Computer Fl)	NTNX2578					RUL3
Anchor Kit (Non-Eq Slab)	NTNX2579					RUL3
Anchor Kit (Non-Eq Comp Fl)	NTNX2580					RUL3
Door Assy-Rt(Gray)	NTNX2513					RUL5
Door Assy-Left(Gray)	NTNX2515					RUL5
Door Label-Left(Gray)	P0677704					RUL5
Door Label-Rt(Gray)	P0699158					RUL5
Cabinet Type label(Gray)	P0726437					RUL5
End Panel Assy-Rt(Gray)	NTNX2517					RUL5
End Panel Assy-Left(Gray)	NTNX2518					RUL5
Door Assy-Rt(Brown)	NTNX2552					RUL5
Door Assy-Left(Brown)	NTNX2550					RUL5
Door Label-Left(Brown)	P0699464					RUL5
Door Label-Rt(Brown)	P0695230					RUL5
Cabinet Type Label(Brown)	P0726435					RUL5
End Panel Assy-Rt(Brown)	NTNX2546					RUL5
End Panel Assy-Left(Brown)	NTNX2553					RUL5
ICGM/ENET DS30 Cable Assy	NTFX4701					RUL7
ICGM/ENET DS30 Cable Assy	NTFX4702					RUL7
ICGM FLT Alarm Cable Assy	NTFX4709					RUL8
Cable Duct Cover (Top)	P0674549					RUL9
Cable Duct Cover (Bottom)	P0685168					RUL9
Desig. Label (NT3X82AA)	P0689912			47	05	RUL4
Desig. Label (NT3X82AB)	P0702196			47	05	RUL4
Desig. Label (NT3X83AA)	P0688413			47	07	RUL4
Desig. Label (NT0X10AA)	P0656328			47	08	RUL4
Desig. Label (NT2X57AA)	P0656327			47	09	RUL4

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Desig. Label (NT3X82AB)	P0702196			47	05	RUL4
Desig. Label (NT3X82AA)	P0689912			33	05	RUL4
Desig. Label (NT2X70AE)	P0698943			33	20	RUL4

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) "AR" in column PEC stands for As Required.

RULES:

AP 1) When PEC NTFX37AB is ordered, these items are provided.

RUL1 1) OAU Configuration:

When the OAU (Office Alarm Unit) function is to be provided in the ICAM cabinet, provide:

- two (2) NT2X58BC IMTM shelves
  (shelf positions 33 and 47)

- two (2) of one of the following Common Circuit Packs
  (Shelf positions 33 and 47):

  - NT2X58AY IMTM CP Turkey
  - NT2X58CL IMTM CP Caribbean
  - NT2X58DB IMTM CP Mercury DMS-250

- the following trunk circuit packs using the rules and notes of the Engineering Manual section EMA14-01-000 for shelf NT2X58BC:

  - two (2) NT3X82AA/AB Dead System Alarm
    (Shelf positions 33 and 47 slot 05)
  - one (1) NT3X83AA OAU Alm Transfer
    (Shelf position 47 slot 07)
  - one (1) NT0X10AA Misc Scan CP
    (Shelf position 47 slot 08)
  - one (1) NT2X57AA Signal Dist CP
    (Shelf position 47 slot 09)

- provisionable trunk circuit packs as required using the rules and notes of the Engineering Manual section EMA14-01-000 for shelf NT2X58BC
  (Shelf position 47 slots 10 to 16, and slot 06, and shelf position 33 slots 06 to 16).

- two (2) NT2X70AE Power Converters +/-5V, 12V
  (shelf positions 33 and 47 slot 20)

- one (1) NTFX3709 IMTM to Bulkhead Cable Assembly

2) IMTM Configuration:

To configure a shelf in position 33 or 47 as an IMTM shelf provide:

- one (1) NT2X58BC IMTM shelf

- one (1) of the following Common Circuit Packs

  - NT2X58AY IMTM CP Turkey
  - NT2X58CL IMTM CP Caribbean
  - NT2X58DB IMTM CP Mercury DMS-250

- provisionable trunk circuit packs as required using the rules and notes of the Engineering Manual section EMA14-01-000 for shelf NT2X58BC in slots 05-16

- one (1) NT2X70AE Power Converter +/-5V, 12V in slot 20

- one (1) NTFX3709 IMTM to Bulkhead Cable Assembly

3) IMTM-DRA Configuration:

To configure a shelf in position 33 or 47 as a DRA shelf provide:

- one (1) NT2X58BD IMTM-DRA shelf

- one (1) of the following Common Circuit Packs

  - NT2X58AY IMTM CP Turkey
  - NT2X58CL IMTM CP Caribbean
  - NT2X58DB IMTM CP Mercury DMS-250

- provisionable trunk circuit packs as required using the rules and notes of the Engineering Manual section EMA14-01-000 for shelf NT2X58BD in slots 05-16.

- one (1) NT2X70AE Power Converter +/-5V, 12V in slot 20.

- one (1) NTFX3711 IMTM-DRA to Bulkhead Cable Assembly

RUL2 1) Provide Filler Face Plates in all positions not equipped with active circuit packs.

RUL3 1) When cabinet is installed in seismic (earthquake) zones

- ATC Zones 6 & 7,
- NEBS Zone 4, and
- UBC Zone 4

provision

- one (1) NTNX2540 Earthquake Anchor Kit for slab-type flooring or
- one (1) NTNX2578 Earthquake Anchor Kit for computer-type flooring.

2) When installing cabinet in a non-earthquake zone provision

- one (1) NTNX2579 Frame Mounting Kit for slab-type flooring or
- one (1) NTNX2580 Frame Mounting Kit for computer-type flooring.

RUL4 1) Provide the appropriate designation label for each circuit pack provided.

RUL5 1) When specifying a brown cabinet, provision

- two (2) NTNX2550 Left Door Assemblies (Brown),
- two (2) P0699464 Left Door Labels (Brown),
- two (2) NTNX2552 Right Door Assemblies (Brown), and
- two (2) P0695230 Right Door Labels (Brown),

one each for front and rear respectively, as well as

- one (1) P0726435 Cabinet Type Label (Brown).

Also

- when the cabinet is located at the right end of a lineup, or
- when the equipment adjacent to the right of the cabinet is not EMI compliant,

provide

- one (1) NTNX2546 End Panel Right (Brown),

and/or

- when the cabinet is located at the left end of a lineup, or
- when the equipment adjacent to the left of the cabinet is not EMI compliant.

provide

- one (1) NTNX2553 End Panel Left (Brown).

2) When specifying a gray cabinet, provision

- two (2) NTNX2515 Left Door Assemblies (Gray),
- two (2) P0677704 Left Door Labels (Gray),
- two (2) NTNX2513 Right Door Assemblies (Gray), and
- two (2) P0699158 Right Door Labels (Gray),

one each for front and rear respectively, as well as

- one (1) P0726437 Cabinet Type Label (Gray).

Also

- when the cabinet is located at the right end of a lineup, or
- when the equipment adjacent to the right of the cabinet is not EMI compliant,

provide

- one (1) NTNX2517 End Panel Right (Gray),

and/or

- when the cabinet is located at the left end of a lineup, or
- when the equipment adjacent to the left of the cabinet is not EMI compliant.

provide

- one (1) NTNX2518 End Panel Left (Gray).

RUL6 1) When ESD Ground protection is required provide

- one (1) P0684448 2" Filler Plate,
- four (4) P097F813 E/W Screws,
- one (1) P0284154 E/W FL Washer, and
- one (1) P0183220 E/W L Washer.

2) When ESD Ground protection (BTI Standard) is required on front of frame provide

- one (1) P0726444 2" Mounting Plate,
- one (1) P0726543 ESD Bonding Label (MSL),
- one (1) P0726544 ESD Bonding Stud (MSL), and
- two (2) P097F815 HHT Screws .216-24x.750.

3) When ESD Ground protection (BTI Standard) is required provide

- one (1) NTFX3703 ESD Ground Terminator Assembly and
- one (1) NTFX3713 ESD Ground Panel Assembly.

4) Items of rul6 1) or items of rul6 3), but not both must be provided.

RUL7 1) When Network/ENET port connections are required, provide one (1) each of Network Port Cables NTFX4701 and NTFX4702.

RUL8 1) Provide one (1) NTFX4709 ICGM Filtered Alarm Cable Assembly per EMI/FRI compliance.

RUL9 1) When cabling exit from the top of the frame provision one (1) P0685168 Cable Duct Cover (Botttom) and

2) When cabling exit from the bottom of the frame provision one (1) P0674549 Cable Duct Cover (Top) and

INTERNATIONAL CABINET GENERAL MODULE

PEC CODE:	NTFX47AA
CPC CODE:	B0232478
RATING:	MD
REPLACES:	None
REPLACED BY:	NTRX32CA
ABBREVIATION NAME:	ICGM
ENGINEERING DESCRIPTION:	The ICGM frame provides the capability to add custom feature hardware when required, i.e. DIO, MTD, DDU, ROS, ROTL, ITM8, IT8A, IMTM, and IMTM-DRA modules.
REFERENCE DOCUMENTATION:	MSFX47AA 00 03
MARKETS:	Applicable markets: Europe Asia/Pacific CALA

ISSUE AUTHOR:	Joe Bragg	Dept. 6457	(RCH)
MAIN CONTACT:	Joe Bragg	Dept. 6457	(RCH)

NTFX47AA EMR2-20-004 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
94 03 31	ECM 464 08	ET49203 Update MTM hardware kits
94 07 18	ECM 464 09	ET19359 Change PECs NTNX47CA-CE to NTFX47CA-CE.
95 02 15	ECM 464 10	EC 018-43966 A&Ms NT1X67FA and adds NT1X89BB as replacement. EC 018-40077 MDs NT1X89AA, NT1X89BA is replacement.
95 05 08	ECM 464 11	Changes per ECD 024-93969 which MD'd the NT2X70AE and replaced it with the NT2X70AF.
95 08 11	ECM 464 13	MD the NT1X62BB and replace with NT1X62CB and MD NT1X67DB and replace with NT1X89BB.
95 10 19	ECM 464 14	Make changes per ECD024-95039.

The International Cabinet General Module is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Common Framework	NTNX25AA	FW	1			AP
Frame Supv Panel	NTNX26MA	FSP	1	60		AP
DS-5R Modem Shelf	NT5X09AA			47		RUL1
GDC 4800 Bd Modem Card	A0301068			47	1-16	RUL1
GDC 1200/1800 Bd Modem Card	A0328534			47	1-16	RUL1
GDC 1200 Bd Modem Card	A0326501			47	1-16	RUL1
GDC 4800 Bd Modem Card	A0300700			47	1-16	RUL1
GDC 2400 Bd Modem Card	A0292964			47	1-16	RUL1
GDC 4800 Bd Modem Card	A0316825			47	1-16	RUL1
GDC 9600 Bd Modem Card	A0319453			47	1-16	RUL1
GDC 9600/4800 Bd Modem Card	A0345213			47	1-16	RUL1
MCGM Modem Hardware Kit	NTNX47AN			47		RUL1
Dual I/O Equipment Shelf	NTNX3401	DIO		47		RUL2
MCGM DIO Hardware Kit	NTNX47BC			47		RUL2
Power Converter CP	NT2X70AE			47	01,25	RUL2
I/O MSG Cont CP	NT1X62CB			47	04,15	RUL2
Bus Terminator CP	NT0X67AA			47	14,24	RUL2
I/O Terminal Control CP	NT1X67BC			47	7-10,19,20	RUL2
I/O Terminal Control CP	NT1X67BD			47	7-10,19,20	RUL2
I/O Terminal Control CP	NT1X67EA			47	7-10,19,20	RUL2
X25LAPB Link Cont CP	NT6X91BB			47	7-10,19,20	RUL2
MTD Control CP	NT1X68BC			47	11,21	RUL2
DDU Control CP	NT1X55DA			47	6,17	RUL2
Enhanced Multi Protocol CP	NT1X89BA			47	7-10,19,20	RUL2
EMP CP (Sync V.35 Appns)	NT1X89BA			47	12,13, 21,24	RUL2
Multi Protocol Cont CP	NT1X89BB			47	7-10,19,20	RUL2
Filler Face Plate	NT0X50BA			47	6-14,17-24	RUL2
Filler Face Plate	NT0X50BE			47	01,25	RUL2
Filler Face Plate	NT0X50BF			47	04,15	RUL2
Magnetic Tape Drive	A0277744	MTD		05,19,33		RUL3
MTD Mounting Hardware	NT0X44AD					RUL3
MTD Cable (READ)	NTNX4757					RUL3
MTD Cable (WRITE)	NTNX4758					RUL3
MTD Cable (CONTROL)	NTNX4759					RUL3
Dual Disk Drive Unit	NT4X00AF	DDU		05		RUL4
MCGM DDU Hardware Kit	NTNX47AK			05		RUL4
Priam DDU	A0336877			05	04,12	RUL4

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Priam DDU H/W Kit	NT4X0031			05		RUL4
NT-Mercury DDU	A0336417			05	04,12	RUL4
NT-Mercury DDU H/W Kit	NT4X0032			05		RUL4
Power Converter CP	NT1X78AA			05	02,26	RUL4
Filler Face Plate 2.6"	NT0X50BE			05	02,26	RUL4
Stratum 2.5 ISG Rmt Osc Shlf	NT3X95BB	ROS		33		RUL5
MCGM ROS Hardware Kit	NTNX47AS			33		RUL5
Intl Trunk Module/8 Wire	NT2X52BB	ITM8		05,19,33		RUL7
Intl ITM8 Common CP	NT2X52CA	ITM8		05,19,33		RUL7
MCGM TM8 Hardware Kit	NTNX47AC			33		RUL7
MCGM TM8 Hardware Kit	NTNX47AD			19		RUL7
MCGM TM8 Hardware Kit	NTNX47AE			05		RUL7
Intl Trunk Module Assembly	NT2X5228			05,19,33		RUL8
IT8A Common CP	NT2X52CB	(IT8A)		05,19,33		RUL8
MCGM T8A Hardware Kit	NTNX47AV			33		RUL8
MCGM T8A Hardware Kit	NTNX47AW			19		RUL8
MCGM T8A Hardware Kit	NTNX47AX			05		RUL8
Test Access Network Shelf	NT5X00AD	TAN		05,19,33		RUL9
Trunk Card on TAN Shelf	AR			05,19,33	4-18	RUL9
MCGM TAN Hardware Kit	NTNX47AY			33		RUL9
MCGM TAN Hardware Kit	NTNX47AZ			19		RUL9
MCGM TAN Hardware Kit	NTNX47BB			05		RUL9
International MTM Shelf	NT2X58BC	IMTM		05,19,33		RUL10
International MTM/DRA Shelf	NT2X58BD	IMTM/DRA		05,19,33		RUL10
IMTM Common CP	NT2X58AY			05,19,33		RUL10
IMTM Common CP	NT2X58BB			05,19,33		RUL10
IMTM Common CP	NT2X58CL			05,19,33		RUL10
IMTM Common CP	NT2X58DB			05,19,33		RUL10
Pwr Conv. CP +/- 5V, 12V	NT2X70AF			05,19,33	20	RUL10
Dead Sys Alm w/Unique Aud	NT3X82AA			05,19,33	05	RUL10
Dead Sys Alm w/Common Aud	NT3X82AB			05,19,33	05	RUL10
OAU Alm Transfer CP	NT3X83AA			05,19,33	07	RUL10
Misc Scan CP	NT0X10AA			05,19,33	08	RUL10
Signal Dist CP	NT2X57AA			05,19,33	09	RUL10
Trunk Card on IMTM, IMTM-DRA	AR			05,19,33	05-16	RUL10
Filler Face Plate	NT0X50AC			05,19,33	01-16	RUL10
Filler Face Plate	NT0X50AG			05,19,33	17	RUL10
Filler Face Plate	NT0X50AA			05,19,33	19	RUL10
Filler Face Plate	NT0X50AE			05,19,33	20	RUL10
MCGM MTM Hardware Kit	NTFX47CC			33		RUL10
MCGM MTM Hardware Kit	NTFX47CB			19		RUL10

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
MCGM MTM Hardware Kit	NTFX47CA			05		RUL10
MCGM MTM/DRA Hardware Kit	NTFX47CF			33		RUL10
MCGM MTM/DRA Hardware Kit	NTFX47CE			19		RUL10
MCGM MTM/DRA Hardware Kit	NTFX47CD			05		RUL10
Cable Duct Cover (Top)	P0674549					RUL11
Cable Duct Cover (Bottom)	P0685168					RUL11
Mounting Hardware	P097F839					RUL11
Cable Duct	P0690484					RUL12
ICGM Filtered Power Bulkhead	NTFX4703					RUL19
Wiring for ICGM (Filtered)	NTFX47WA					RUL19
ICGM Non-Filtered Pwr Blkhd	NTFX4704					RUL19
Wiring for ICGM (NonFiltered)	NTFX47WB					RUL19
ESD Ground Terminator	NTFX3703					RUL19
2" Filler Plate	P0726444					RUL19
Label	P0726543					RUL19
ESD Bonding Stud	P0726544					RUL19
Screw	P0593325					RUL19
4 Mntg Screws(14" panel)	P097F813					RUL19
2" Filler Plate	P0684448					RUL19
Mounting Screws	P097F813					RUL19
Alarm (Filtered) Cable Assy	NTFX4709					RUL19
Network Port Cable	NTFX4701					RUL6
Network Port Cable	NTFX4702					RUL6
14" Filler Panel	NT0X84AA			05,19,33,47		RUL13
4 Mntg Screws(14" panel)	P097F813			05,19,33,47		RUL13
Washer	P0183220			05,19,33,47		RUL13
Washer	P0284154			05,19,33,47		RUL13
50-pin Blkhd Cover Plate	P0686751			01,05,19,33		RUL14
25-pin Blkhd Cover Plate	P0686749			01,05,19,33		RUL14
Mounting Screws	P0670923			01,05,19,33		RUL14
25-pin Blkhd Cover Plate	P0686749			47		RUL15
Mounting Screws	P0670923			47		RUL15
10" Cooling Unit	NTNX27CA	CU		01		AP
Anchor Kit E’qke Slab	NTNX2540					RUL16
Anchor Kit E’qke Cmptr	NTNX2578					RUL16
Anchor Kit Non-e.q Slab	NTNX2579					RUL16
Anchor Kit Non-e.q Cmptr	NTNX2580					RUL16
Right Door Assembly-Gray	NTNX2513					RUL17
Left Door Assembly-Gray	NTNX2515					RUL17
Right Door Label-Gray	P0699158					RUL17
Left Door Label-Gray	P0677704					RUL17
Cabinet Type Label-Gray	P0715037					RUL17
Right Door Assembly-Brown	NTNX2552					RUL17

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Left Door Assembly-Brown	NTNX2550					RUL17
Right Door Label-Brown	P0699463					RUL17
Left Door Label-Brown	P0699464					RUL17
Cabinet Type Label-Brown	P0715038					RUL17
Desig. Label (NT2X70AF)	P0809960					RUL18
Desig. Label (NT1X62BB)	P0599146					RUL18
Desig. Label (NT1X62CA)	P0686038					RUL18
Desig. Label (NT1X62CB)	P0745105					RUL18
Desig. Label (NT0X67AA)	P0657673					RUL18
Desig. Label (NT1X67BC)	P0623517					RUL18
Desig. Label (NT1X89AA)	P0664841					RUL18
Desig. Label (NT1X89BA)	P0708961					RUL18
Desig. Label (NT1X89BB)	P0800156					RUL18
Desig. Label (NT0X50BA)	P0599142					RUL18
Desig. Label (NT0X50BE)	P0599142					RUL18
Desig. Label (NT0X50BF)	P0599143					RUL18
Desig. Label (NT1X78AA)	P0668410					RUL18
Desig. Label (NT0X50BE)	P0599142					RUL18
Desig. Label (NT2X70AE)	P0698943					RUL18
Desig. Label (NT3X82AA)	P0689912					RUL18
Desig. Label (NT3X82AB)	P0702196					RUL18
Desig. Label (NT3X83AA)	P0688413					RUL18
Desig. Label (NT0X10AA)	P0656328					RUL18
Desig. Label (NT2X57AA)	P0656327					RUL18
Desig. Label (NT0X50AC)	P0580258					RUL18
Desig. Label (NT0X50AG)	P0685986					RUL18
Desig. Label (NT0X50AA)	P0578498					RUL18
Desig. Label (NT0X50AE)	P0591361					RUL18

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) The MTD is to be installed in the ICGM cabinet just prior to shipment to job site.

2) All provisioned items are to be installed by the shop unless otherwise specified in the ICGM cabinet assembly drawing.

3) ROS shelf cannot be provisioned in the same ICGM cabinet with a DDU. When a DIO is provided at shelf position 47, shelf position 05 must be reserved for DDU or MTD. MTD requires two (2) shelf positions.

4) When the ICGM cabinet is ordered as an extension, the following labels should be ordered:

QTY 1 P0687620
QTY 1 P0695393
QTY 1 P0695425
QTY 1 P0580231
QTY 1 P0580232
QTY 1 P0695392 (FOR MSL-100 JOBS)
QTY 1 P0588059 (FOR DMS-300 JOBS)
QTY 1 P0622886 (FOR DMS-250 JOBS)

RULES:

AP 1) When PEC NTFX47AA is ordered, these items are provided.

RUL1 1) Provide a NT5X09AA DS-5R modem shelf per customer requirements. Up to 16 GDC modem cards may be provisioned on this shelf. Refer to GDC's DS-5R modem shelf specifications to select modems needed.

2) Provide one NTNX47AN MCGM Modem hardware kit when Modem Shelf is provisioned. The Modem Shelf hardware kit includes all cables and associated hardware required when the modem shelf is provisioned in the ICGM cabinet.

RUL2 1) The DIO shelf can only be provisioned in shelf location 47. The DIO shelf can be provisioned for one IOC on the left of the shelf, plus a second IOC on the right of the shelf. The following circuit packs are always required when a DIO is equipped:

PEC	DESCRIPTION	CP POSITION	
		LEFT IOC Slots	RIGHT IOC Slots
NT2X70AF	Power Converter CP	01	25
NT1X62BB or NT1X62CA or NT1X62CB	I/O MSG Controller CP (NT40) I/O MSG Controller CP (DPCC) I/O MSG Controller CP	04 04 04	15 15 15
NT0X67AA	Bus Terminator CP	14	24

2) The following circuit packs are provisionable when a DIO is first equipped as above:

PEC	DESCRIPTION	CP POSITION	
		LEFT IOC Slots	RIGHT IOC Slots
NT1X67BC	I/O Terminal Controller CP	7-10	19,20
NT1X89BA	Enhanced MultiProtocol Ctrl	7-10	19,20
NT1X89BA	EMPC CP (Sync V.35)	12,13,21 or 23	
NT1X89BB	Enhanced MultiProtocol Ctrl	7-10	19,20
NT1X67BD	I/O Terminal Control CP	7,8,9,10	19,20
NT1X67EA	I/O Terminal Control CP	7,8,9,10	19,20
NT1X67DB	Bit Synch Data Link CP	7,8,9,10	19,20
NT6X91BB	X25LAPB Link Cont CP	7,8,9,10	19,20
NT1X68BC	MTD Control CP	11	21
NT1X55DA	DDU Control CP	06	17

3) The formerly provided NT1X89AA MultiProtocol Controller CP has been changed to MD status and replaced by the NT1X89BA.

4) The formerly provided NT1X67FA SMDI Interface CP has been changed to A&M status and replaced by the NT1X89BB.

4) The formerly provided NT1X67DB Bit Sync Data Link CP has been changed to MD status and replaced by the NT1X89BB.

5) The following filler face plates are to be provisioned when a slot is not equipped as above:

PEC	DESCRIPTION	CP POSITION	
		LEFT IOC Slots	RIGHT IOC Slots
NT0X50BA	Filler Face Plate	6-14	17-24
NT0X50BE	Filler Face Plate	01	25
NT0X50BF	Filler Face Plate	04	15

6) Provision the Mag Tape Controller circuit pack in slot 11 of the DIO shelf if the MTD is mounted in shelf position 05 or 33 of the ICGM.

Provision the MAG Tape Controller circuit pack in slot 21 of the DIO shelf if the MTD is mounted in shelf position 19 of the ICGM.

Provision the Disc Drive Controller circuit packs in slots 6 and 17 of the DIO.

7) Provide one MCGM DIO hardware kit NTNX47BC when DIO is provisioned. The DIO hardware kit includes all cables and associated hardware required when a DIO shelf is provisioned in the ICGM cabinet.

RUL3 1) Provide per requirements of office features (see note 1).

RUL4 1) Provision one (1) NT4X00AF Dual Disk Drive Unit (DDU) shelf on shelf position 05 to accommodate two of the disk drives provisioned under RUL4 3) below.

2) Provide one (1) NTNX47AK MCGM DDU hardware kit for each NT4X00AF DDU provisioned. The DDU hardware kit includes all cables and associated hardware required when a DDU shelf is provisioned in the ICGM cabinet.

3) Provide a disk drive (up to two per per NT4X00F DDU on shelf position 05) as follows:

- one (1) A0336877 Priam Disk Drive and
- one (1) NT4X0031 Priam Hardware Kit

or

- one (1) A0336417 NT-Mercury Disk Drive and
- one (1) NT4X0032 NT-Mercury Hardware Kit.

The first DDU will mount in slot 04 and the second DDU will mount in slot 12.

4) Provision on shelf position 05 in slot 02 or 26, for each disk drive provided, a power converter circuit pack as follows:

- one (1) NT1X78AA Power Converter CP and
- one (1) designation label P0668410.

Otherwise, provide

- one (1) NT0X50AE Filler Face Plate and
- one (1) Designation Label P0599142.

RUL5 1) When the ICGM is in a DMS-Core ISG office provision one (1) NT3X95BB Stratum 2.5 Remote Oscillator Shelf (ROS) Assembly in shelf position 33, to accommodate customer requirements for Stratum Clocking.

2) When the ICGM is in a DMS-Core ISG office provision one (1) NT3X95BB Stratum 2.5 Remote Oscillator Shelf (ROS) Assembly in shelf position 33, to accommodate customer requirements for Stratum II Clocking.

2) Provide one (1) MCGM ROS Hardware Kit NTNX47AS when the ROS is provisioned.

RUL6 1) Provide one (1) each of Network Port Cables NTFX4701 and NTFX4702 when one or more of the following shelves are provisioned on the ICGM:

NT2X52BB ITM8
NT2X58BC MTM
NT2X58BD MTM/DRA
NT5X00AD TAN
NT2X5228 IT8A

RUL7 1) Provision one (1) NT2X52BB for each ITM8 required to accommodate customer requirements in shelf positions 05, 19, 33.

2) Provision one (1) NT2X52CA ITM8 Common Circuit Pack for each NT2X52BB ITM8 Shelf provisioned.

3) Provide one of the following hardware kits as required for each ITM8 shelf provided. The hardware kits include all cables and associated hardware required when ITM8 shelf is provisioned in the ICGM cabinet except Network Port cables. (see RUL6)

NTNX47AC when an ITM8 shelf is provisioned in SHF POS 33.
NTNX47AD when an ITM8 shelf is provisioned in SHF POS 19.
NTNX47AE when an ITM8 shelf is provisioned in SHF POS 05.

RUL8 1) Provision one (1) IT8A Shelf Assembly NT2X5228 to accommodate customer requirements for each IT8A required in shelf positions 05, 19, 33.

2) Always provide one (1) NT2X52CB (IT8A) IT8A Common Circuit Pack for each NT2X5228 IT8A Shelf Assembly provisioned.

3) Provide one of the following hardware kits as required for each IT8A shelf provided. The hardware kits include all cables and associated hardware required when IT8A shelf is provisioned in the ICGM cabinet except Network Port cables. (see RUL6)

NTNX47AV when an IT8A shelf is provisioned in SHF POS 33.
NTNX47AW when an IT8A shelf is provisioned in SHF POS 19.
NTNX47AX when an IT8A shelf is provisioned in SHF POS 05.

RUL9 1) Provision one (1) NT5X00AD Test Access Newtwork(TAN) to accommodate customer requirements for each TAN required.

2) Refer to the Engineering Manual section EMA2-02-TAN-2 for the circuit packs which may be provisioned in slots 04-18 for each TAN in shelf position 05, 19, or 33.

3) Provide one of the following hardware kits as required for each TAN shelf provided. The hardware kits include all cables and associated hardware required when TAN shelf is provisioned in the ICGM cabinet except Network Port cables (see RUL6).

NTNX47AY when a TAN shelf is provisioned in SHF POS 33.
NTNX47AZ when a TAN shelf is provisioned in SHF POS 19.
NTNX47BB when a TAN shelf is provisioned in SHF POS 05.

RUL10 1) OAU Configuration:

When the OAU (Office Alarm Unit) function is to be provided in the ICGM cabinet, provide:

- two (2) NT2X58BC IMTM shelves
  (shelf positions 05 and 19)

- two (2) of one of the following Common Circuit Packs
  (Shelf positions 05 and 19):

  - NT2X58AY IMTM CP Turkey
  - NT2X58CL IMTM CP Caribbean
  - NT2X58DB IMTM CP Mercury DMS-250

- the following trunk circuit packs using the rules and notes of the Engineering Manual section EMA14-01-000 for shelf NT2X58BC:

  - two (2) NT3X82AA/AB Dead System Alarm
    (Shelf positions 05 and 19 slot 05)
  - one (1) NT3X83AA OAU Alm Transfer

(Shelf position 19 slot 07)
- one (1) NT0X10AA Misc Scan CP
(Shelf position 19 slot 08)
- one (1) NT2X57AA Signal Dist CP
(Shelf position 19 slot 09)

- provisionable trunk circuit packs as required using the rules and notes of the Engineering Manual section EMA14-01-000 for shelf NT2X58BC
(Shelf position 19 slots 10 to 16, and slot 06, and shelf position 05 slots 06 to 16).

- two (2) NT2X70AF Power Converters +/-5V, 12V
(shelf positions 05 and 19 slot 20)

- one (1) of the following IMTM Hardware Kits

  - NTFX47CC for shelf in position 33,
  - NTFX47CB for shelf in position 19, or
  - NTFX47CA for shelf in position 05.

  The hardware kits include all cables and associated hardware required when an IMTM shelf is provisioned in the ICGM cabinet except Network Port cables (see RUL6).

2) IMTM Configuration:

To configure a shelf in position 05, 19 or 33 as an IMTM shelf provide:

- one (1) NT2X58BC IMTM shelf

- one (1) of the following Common Circuit Packs

  - NT2X58AY IMTM CP Turkey
  - NT2X58CL IMTM CP Caribbean
  - NT2X58DB IMTM CP Mercury DMS-250

- provisionable trunk circuit packs as required using the rules and notes of the Engineering Manual section EMA14-01-000 for shelf NT2X58BC in slots 05-16

- one (1) NT2X70AF Power Converter +/-5V, 12V in slot 20

- one (1) of the following IMTM Hardware Kits

  - NTFX47CC for shelf in position 33,
  - NTFX47CB for shelf in position 19, or

- NTFX47CA for shelf in position 05.

The hardware kits include all cables and associated hardware required when an IMTM shelf is provisioned in the ICGM cabinet except Network Port cables (see RUL6).

3) IMTM-DRA Configuration:

To configure a shelf in position 05, 19 or 33 as a DRA shelf provide:

- one (1) NT2X58BD IMTM-DRA shelf

- one (1) of the following Common Circuit Packs

  - NT2X58AY IMTM CP Turkey
  - NT2X58CL IMTM CP Caribbean
  - NT2X58DB IMTM CP Mercury DMS-250

- provisionable trunk circuit packs as required using the rules and notes of the Engineering Manual section EMA14-01-000 for shelf NT2X58BD in slots 05-16.

- one (1) NT2X70AF Power Converter +/-5V, 12V in slot 20.

- one (1) of the following IMTM Hardware Kits

  - NTFX47CF for shelf in position 33,
  - NTFX47CE for shelf in position 19, or
  - NTFX47CD for shelf in position 05.

The hardware kits include all cables and associated hardware required when an IMTM shelf is provisioned in the ICGM cabinet except Network Port cables (see RUL6).

RUL11 1) When cabling exit from the top of the frame provision

- one (1) P0685168 Cable Duct Cover (Botttom) and
- eight (8) P097F839 mounting screws.

2) When cabling exit from the bottom of the frame provision

- one (1) P0674549 Cable Duct Cover (Top) and
- fourteen (14) P097F839 mounting screws.

RUL12 1) When frame is used in a non-EMI compliant environment, provision one (1) P0690484 Cable Duct for cabling facility.

RUL13 1) Provide the following hardware for each unequipped shelf position 05, 19, 33, 47:

One (1) NT0X84A 14" Filler Panel
Four (4) P097F81 Mounting Screws(14" panel)
One (1) P018322 Washer
One (1) P028415 Washer

RUL14 1) Provide the following hardware for each unequipped mounting position 01, 05, 19 or 33:

- Eight (8) P0686751 50-pin Blkhd Cover Plate,
- Four (4) P0686749 25-pin Blkhd Cover Plate, and
- Twenty Four (24) P0670923 Mounting Screws.

Note that if ROTL equipment is mounted in positions 01/22, it will use rear bulkhead outlets for position 05 and this hardware must be provided for position 19, and for position 33 if unequipped.

RUL15 1) Provide the following hardware if mounting position 47 is unequipped:

Twenty Eight (28) P0686749 25-pin Blkhd Cover Plate, and
Fifty Six (56) P0670923 Mounting Screws.

RUL16 1) When cabinet is installed in seismic (earthquake) zones

- ATC Zones 6 & 7,
- NEBS Zone 4, and
- UBC Zone 4

provision

- one (1) NTNX2540 Earthquake Anchor Kit for slab-type flooring or
- one (1) NTNX2578 Earthquake Anchor Kit for computer-type flooring.

2) When installing cabinet in a non-earthquake zone provision

- one (1) NTNX2579 Frame Mounting Kit for slab-type flooring or
- one (1) NTNX2580 Frame Mounting Kit for computer-type flooring.

RUL17 1) When specifying a brown cabinet, provision

- two (2) NTNX2550 Left Door Assemblies (Brown),

- two (2) P0699464 Left Door Labels (Brown),
- two (2) NTNX2552 Right Door Assemblies (Brown), and
- two (2) P0695230 Right Door Labels (Brown),

one each for front and rear respectively, as well as

- one (1) P0715038 Cabinet Type Label (Brown).

2) When specifying a gray cabinet, provision

- two (2) NTNX2515 Left Door Assemblies (Gray),
- two (2) P0677704 Left Door Labels (Gray),
- two (2) NTNX2513 Right Door Assemblies (Gray), and
- two (2) P0699158 Right Door Labels (Gray),

one each for front and rear respectively, as well as

- one (1) P0715037 Cabinet Type Label (Gray).

RUL18 1) Provide one (1) label per circuit pack provisioned. NT code on label should be the same as circuit pack provisioned. Affix designation label to appropriate position on the designation strip.

RUL19 1) When the ICGM receives power from a source outside of the EMI lineup shield, such as the MCMI, provide

- one (1) NTFX4703 ICGM Filtered Power Bulkhead.
- one (1) NTFX47WA Wiring for ICGM (Filtered).

Alternatively, when the ICGM receives power from a source inside of the EMI lineup shield, such as the ICAM, provide

- one (1) NTFX4704 Non-Filtered Power Bulkhead.
- one (1) NTFX47WB Wiring for ICGM (Non-Filtered).

2) When Ground strap termination per BTI standard is required, provide:

- one (1) NTFX3703 ESD Ground Terminator,
- one (1) P0726444 2" Filler Plate,
- one (1) P0726543 Label,
- one (1) P0726544 ESD Bonding Stud,
- one (1) P0593325 Screw, and
- four (4) P097F813 Mounting Screws.

- Alternatively, when a Ground Strap Termination is not required, provide

- one (1) P0684448 2" Filler Plate, and
- four (4) P097F813 Mounting Screws.

3) Provide one (1) NTFX4709 Alarm (Filtered) Cable Assembly when filtered alarms per EMI compliance are required.

INTERNATIONAL CABINET LGE/DTE ISDN

PEC CODE: NTNX33GA

CPC CODE: B0231933

RATING: MD

REPLACES: None

REPLACED BY: NTRX46CA

ABBREVIATION NAME: FCTM-ISDN

ENGINEERING DESCRIPTION: The NTNX33GA International Cabinet LGE/DTE Fiber ISDN houses one or two International LGCO/DTCO dual shelf modules in a cabinet configuration for applications with copper or fiber network interfaces.

REFERENCE DOCUMENTATION: MSNX33GA 00 07

MARKETS: Applicable markets:

Europe
Asia/Pacific
CALA

ISSUE AUTHOR: Deniece Land Dept. 3471 (PPK)

MAIN CONTACT: Deniece Land Dept. 3471 (PPK)

NTNX33GA EMR2-20-005 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 10 15	ECM 649 01	ECDs 011-16761 & 011-16850
92 11 20	ECM 649 02	Clarify NTBX01AA and NT6X70AA may not be provisioned in the same DTC.
92 12 04	ECM 649 03	Clarify NT6X28AA provisioning per ET-110670.
93 08 31	ECM 649 04	Update per ECD 011-17311. Clarify provisioning of DS30A port cables per ET112300. Add that a minimum of 4 NT6X27 is required per equipped module.
94 11 15	ECM 649 05	Update per ECD 011-18850, adds NT6X02XG XPM+ Upgrade Kit, plus other updates per latest issue of MSNX33GA.
95 02 24	ECM 649 06	Correct part locations.
95 04 04	ECM 649 07	Update NT2X70AE to NT2X70AF per EC 024-93969.
95 04 26	ECM 649 08	Introduce the NTNX33GH packfill to the NTNX33GA cabinet per ECD 024-93969.
95 10 24	ECM 649 09	MD Section per ECD 024-95039.
97 03 14	ECM 704 02	Consolidation of ECM 649 issue 10. per 011-18054 MD NT6X78AA add AB and NTZZ02EA (CP’s and Labels). Change Bushing from P0682727 to P0689010 per 024-94268. Per 024-96494 MD NT6X05CA add NTMX90AB reference. 024-95726 MD NTBX01AA and NTBX02AA. replaced by NTBX01AC/BA and NTBX02BA. 024-96589 MD NTBX01AB replaced by NTBX01AC/BA and MD NTBX01AC replaced NTBX01BA. Clarify Rules.

The International Cabinet LGE/DTE ISDN is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Frame Supervisory Panel	NTNX26NA	FSP	1	60		AP
	Offshore CPC Shelf Assy	NT6X0216		4	47,33 19,05		AP
	Universal Ground Point	NT6X0250			60R		RUL15
#	Int. LGC/DTC Common CP	NTNX33GB			X		RUL1
#	Int. LGC/DTC Common CP	NTNX33GH			X		RUL1
	CPC Filler Faceplate	NT6X02AB			X+14,X		RUL1
	Filler Faceplate	NT0X50AA			X+14,X	01-07	RUL2
	D-channel Handler CP	NTBX02AA			X+14,X	01-05	RUL3
#	PCM-30 Trunk Interface CP	NT6X27AC			X+14,X	02-05	RUL4
	PCM-30 Trunk Interface CP	NT6X27BB			X+14,X	02-05	RUL4
	PCM-30 Coaxial I/F Assy	NTNX3369			19,47		RUL4
	PCM-30 Coaxial I/F Assy	NTNX3366			05,33		RUL4
	PCM-30 Twist Pair I/F Assy	NTNX3370			X+14,X		RUL4
	PCM-30 Twist Pair I/F Assy	NTNX3371			X+14,X		RUL4
	Designation Labels	P0711579			05		RUL4
	DS30A LCM Interface CP	NT6X48AA			X+14,X	06,07	RUL5
	Connector Key Bracket	P0638261			X+14,X	6R,7R	RUL5
	DS30A Interface Cable Assy	NTNX3305			05		RUL5
	DS30A Interface Cable Assy	NTNX3306			05		RUL5
	DS30A Interface Cable Assy	NTNX3313			05		RUL5
	DS30A Interface Cable Assy	NTNX3314			05		RUL5
	DS30A Interface Cable Assy	NTNX3315			05		RUL5
	DS30A Interface Cable Assy	NTNX3316			05		RUL5
	DS30A Interface Cable Assy	NTNX3317			05		RUL5
	DS30A Interface Cable Assy	NTNX3318			05		RUL5
	DS30A Interface Cable Assy	NTNX3307			33		RUL5
	DS30A Interface Cable Assy	NTNX3308			33		RUL5
	DS30A Interface Cable Assy	NTNX3319			33		RUL5
	DS30A Interface Cable Assy	NTNX3320			33		RUL5
	DS30A Interface Cable Assy	NTNX3321			33		RUL5
	DS30A Interface Cable Assy	NTNX3322			33		RUL5
	DS30A Interface Cable Assy	NTNX3323			33		RUL5
	DS30A Interface Cable Assy	NTNX3324			33		RUL5
	Cable Mounting Bushing	P0638259					RUL5
	Cable Mounting Washer	P0423631					RUL5

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	LGC/DTC Processor CP	NT6X45BA			X+14,X	08	RUL6
	Filler Face Plate	NT0X50AA			X,X+14	08	RUL6
	4 MB MP Memory CP	NT6X47AC			X+14,X	09	RUL6
	Filler Face Plate	NT0X50AA			X,X+14	09	RUL6
	Filler Faceplate	NT0X50AA		2	X+14,X	10	AP-01
#	SP Memory Plus CP	NT6X46BA			X+14,X	11	RUL6
	SP Memory Plus CP	NT6X46BB			X+14,X	11	RUL6
	Filler Face Plate	NT0X50AA			X,X+14	11	RUL6
	LGC/DTC Processor CP	NT6X45BA			X+14,X	12	RUL6
	XPM Plus Processor CP	NTMX77AA			X,X+14	12	RUL6
	Wiring List XPM Plus/ISDN	NTNX33WB			X		RUL6
#	XPM Plus Change Kit	NT6X02XA			05,33		RUL6
#	XPM Plus/ISDN Change Kit	NT6X02XB			05,33		RUL6
	XPM Plus Upgrade Kit	NT6X02XG			05,33		RUL6
	Paddlecard Upgrade Kit	NTMX70AB			05,33		RUL6
	Continuity Tone Detector CP	NT6X70AA			X+14,X	13	RUL7
#	CLASS Modem Resource CP	NT6X78AA			X+14,X	13	RUL7
	CLASS Modem Resource CP	NT6X78AB			X+14,X	13	RUL7
	NT6X78AB CP's & labels	NTZZ02EA			X+14,X	13	RUL7
	Filler Faceplate	NT0X50AA			X+14,X	13	RUL2
	Universal Time Switch CP	NT6X44EA			X+14,X	14	RUL1
	Universal Tone Receiver CP	NT6X92CA			X+14,X	15,17	RUL8
	Filler Faceplate	NT0X50AA			X+14,X	15-17	RUL2
#	ISDN Sig. Preproc. CP	NTBX01AA			X+14,X	16	RUL6
#	XPM Plus ISDN Sig Preproc CP	NTBX01AB			X+14,X	16	RUL6
#	XPM Plus ISDN Sig Preproc CP	NTBX01AC			X+14,X	16	RUL6
	XPM Plus ISDN Sig Preproc CP	NTBX01BA			X+14,X	16	RUL6
	Msg Prot & Download Tones CP	NT6X69LB		2	X+14,X	18	AP-01
	PCM-30 Signalling CP	NT6X28AA			X+14,X	19	RUL14
	XPM Plus Paddleboard	NTMX71AA			X,X+14	19R	RUL6
	Channel Supervision Msgs CP	NT6X42AA		2	X+14,X	20	AP-01

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Speech Bus Formatter CP	NT6X41AB		2	X+14,X	21	AP-01
#	DS512 Link Control CP	NT6X40CA			X+14,X	22	RUL9
#	DS512 Link Paddleboard	NT6X40DA			X+14,X	22R	RUL9
	DS512 Link Control CP	NT6X40FA			X+14,X	22	RUL9
	DS512 Link Paddleboard	NT6X40GA			X+14,X	22R	RUL9
#	Fiber Cable Warning Label	P0736273			05,33		RUL9
#	FXPM Bracket Assembly Kit	NT6X02BU			05,33	22R	RUL9
	Universal Connector Kit	NT6X02UF			05,33	22R	RUL16
	Fiber Adapter Plate Assembly	NTFX33GD			05,33		RUL9
	Fiber Cover Plate	P0713105					RUL9
	Fiber Cover Plate	P0713256					RUL9
#	Snap Bushing	P0682727					RUL9
	Snap Bushing	P0689010					RUL9
	Fiber Cable Conversion Kit	NT6X0251			05,33	22R	RUL9
	DS30 Network Interface CP	NT6X40AC			X+14,X	22	RUL9
#	DS30 Interface Cable Assy	NTNX3389			33,47		RUL9
	DS30 Backpanel Cable Assy	NTNX3310			33		RUL9
	DS30 Backpanel Cable Assy	NTNX3311			47		RUL9
#	DS30 Interface Cable Assy	NTNX3384			05,19		RUL9
	DS30 Backpanel Cable Assy	NTNX3308			05		RUL9
	DS30 Backpanel Cable Assy	NTNX3309			19		RUL9
	Connector Cover Plate	P0713257					RUL9
	Connector Cover Plate	P0713258					RUL9
	Filler Faceplate	NT0X50AA		4	X+14,X	23,24	AP-01
#	Power Converter +-5V 50A CP	NT2X70AE			X+14,X	25	RUL1
	Power Converter +-5V 50A CP	NT2X70AF			X+14,X	25	RUL1
	Cooling Unit	NTNX27CA	CU	1	00		AP
	Merid Cab. Common Framework	NTNX25AA	FW	1			AP
	Anchor Kit E'qke Slab Flr	NTNX2540					RUL10
	Anchor Kit E'qke Cmptr Flr	NTNX2578					RUL10
	Anchor Kit Non E.Q. Slab	NTNX2579					RUL10
	Anchor Kit Non E.Q. Cmptr	NTNX2580					RUL10
	Right Door Ass'y (grey)	NTNX2513					RUL11
	Left Door Ass'y (grey)	NTNX2515					RUL11
	Right Door Label (grey)	P0699158					RUL11
	Left Door Label (grey)	P0677704					RUL11
	Right Door Ass'y (brown)	NTNX2552					RUL11

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Left Door Ass'y (brown)	NTNX2550					RUL11
Right Door Label (brown)	P0695230					RUL11
Left Door Label (brown)	P0699464					RUL11
Cabinet Label (grey)	P0687618					RUL11
Cabinet Label (brown)	P0699471					RUL11
Cable Duct Cover (Bottom)	P0685168					RUL12
Cable Duct Cover (Top)	P0674549					RUL12
Designation Strip (NTNX33GA)	P0713212		2	X+14,X		AP-01
Desig. Label (NTBX02AA)	P0697919			X+14,X		RUL13
Desig. Label (NT6X27BB)	P0739157			X+14,X		RUL13
Desig. Label (NT6X46BB)	P0711664			X+14,X		RUL13
Desig. Label (NT6X47AC)	P0711821			X+14,X		RUL13
Desig. Label (NT6X69LB)	P0713213			X+14,X		RUL13
Desig. Label (NT6X70AA)	P0628358			X+14,X		RUL13
Desig. Label (NT6X40AC)	P0695397			X+14,X		RUL13
Desig. Label (NT6X40CA)	P0710477			X+14,X		RUL13
Desig. Label (NT2X70AF)	P0809960			X+14,X		RUL13

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT2X70AE	MD	NT2X70AF
NT6X46BA	A&M	NT6X46BB
NT6X27AC	MD	NT6X27BB
Pair NT6X40CA and NT6X40DA	A&M	Pair NT6X40FA and NT6X40GA
NTNX3384	A&M	NTFX3308 and NTFX3309
NTNX3389	A&M	NTFX3310 and NTFX3311
NT6X02XA	MD	NT6X02XG
NT6X02XB	MD	NT6X02XG
NT6X02BU	A&M	NT6X02UF
P0736273	A&M	NT6X02UF
NTNX33GB	MD	No Replacement
NTNX33GH	MD	No Replacement
NTBX01AA	MD	NTBX01AC/BA
NTBX01AB	MD	NTBX01AC/BA
NTBX01AC	MD	NTBX01BA
NTBX02AA	MD	NTBX02BA

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) For the lower module in the frame, X=05 (ie. shelf positions 05 and 19), and for the upper module in the frame X=33 (ie. shelf positions 33 and 47).

2) The abbreviation for the frame is "LTEI xx", regardless of the types of modules mounted in it, where xx represents the frame discrimination number.

   Each module is names according to the services required and the circuit packs provisioned; the PLGC (PCM-30 Line Group Controller) supports lines and PCM-30 remote links, while the PDTC (PCM-30 Digital Trunk Controller) supports PCM-30 trunking.

   Modules of different types may be mixed on the frame if required.

RULES:

AP 1) When PEC NTNX33GA is ordered, these items are provided.

AP-01 1) This PEC is always provided with NTNX33GB International LGC/DTC Common Circuit Pack provisionable per RUL1.

RUL1 1) For each equipped module, maximum two (2) per cabinet, provide:
- one (1) NTNX33GB International LGC/DTC Common CPs,
- two (2) NT6X44EA Time Switch CPs, and
- two (2) NT2X70AF Power Converters CPs.

   NTNX33GB Common CP fill contains the always provided hardware for both shelves of an equipped LGC/DTC module.

The formerly provided NT2X70AE Power Converter has been changed to MD status and replaced by the NT2X70AF.

Alternatively, for each equipped module where the maximum sixty (60) universal tone receiver circuits are required, provide:
- one (1) NTNX33GH International LGC/DTC Common CPs,

The NTNX33GH includes all of the circuit packs provided as part of the NTNX33GB, and also two (2) NT6X44EA Time Switch CPs, two (2) NT2X70AF Power Converter CPs, and four (4) NT6X92CA Universal Tone Receiver CPs.

Refer to RUL8 to determine the requirment for Universal Tone Receiver Circuits.

2) If the second module is not equipped on the last FCTM-ISDN cabinet, provide:

- one (1) NT6X02AB Filler Face Plate Kit.

RUL2 1) For each equipped module, provide for each unequipped CP slot:

- one (1) NT0X50AA Filler Face Plate and
- one (1) P0578498 Designation Label (NT0X50AA).

RUL3 1) When ISDN BRA functions are required (ISDN functions on subscriber lines) for each equipped LGC module, provide in addition to NTBX01's provided per RUL6:

- up to ten (10) NTBX02AA/BA D Channel Handler CPs.

In BCS-28 or later, provide for use as a hot spare:

- one (1) additional NTBX02AA/BA D Channel Handler CP.

Note that NTBX01 and NTBX02 ISDN CPs may not be provisioned on a DTC which is provisioned with NT6X70ABs per RUL7 to handle CCIS/CCS7 voice trunking.

DCH CP are not required on a PCM-30 DTC module nor where a PCM-30 LGC module supports only non-ISDN LCMs.

2) Each NTBX02AA/BA supports up to 124 BRA D-Channels. The spare DCH CP should not be counted when determining the number of NTBX02AA/BA required to support D-channel traffic.

3) Each NTBX02AA/B DCH, including the spare, requires one (1) peripheral port on the module. Assign NTBX02AA/BA cards to shelf and slot positions in the following order. The spare DCH should be assigned last:

DCH Pack Provisioned	Shelf Position	CP Slot	Assign to Logical Port Number
1st	X+14	1	19
2nd	X	1	17
3rd	X+14	2	15
4th	X	2	13
5th	X+14	3	11
6th	X	3	09
7th	X+14	4	07
8th	X	4	05
9th	X+14	5	03
10th	X	5	01

For lower module X is shelf position 05 and
X+14 is shelf position 19.

For upper module X is shelf position 33 and
X+14 is shelf position 47.

4) DCH CP are not required for PCM-30 DTC (PRI) applications, nor where the module supports only non-ISDN LCMs.

RUL4 1) For each equipped module, provide per customer requirements:

- minimum four (4) and
  maximum eight (8) NT6X27BB PCM-30 Interface CPs.

The formerly provided NT6X27AC PCM-30 Interface CP has been changed to MD status and replaced by the NT6X27BB.

Each PCM-30 Interface CP supports two (2) PCM-30 ports. The following table is a listing of PCM-30 ports per circuit pack location.

CP POS	5	5	4	2

SHF POS X+14	PORTS 2,3	PORTS 6,7	PORTS 10,11	PORTS 14,15
SHF POS X	PORTS 0,1	PORTS 4,5	PORTS 8,9	PORTS 12,13

For lower module X is shelf position 05 and
X+14 is shelf position 19.

For upper module X is shelf position 33 and
X+14 is shelf position 47.

2) For PCM-30 interface via coaxial cable, provide for each module equipped:

- one (1) NTNX3366 Coaxial Interface Assembly (NTNX3366 connects shelves 05 and/or 33), and
- one (1) NTNX3369 Coaxial Interface Cable Assembly (NTNX3369 connects shelves 19 and/or 47).

3) For PCM-30 interface via twisted pair wiring, provide for each IDTC module equipped:

- two (2) NTNX3370 PCM-30 Twisted Pair Interface Assembly and
- two (2) NTNX3371 PCM-30 Twisted Pair Interface Assembly.

When twisted pair PCM-30 interface is equipped, provide:

- one (1) P0711579 Designation Labels sheet

One sheet contains sufficient cable connector designation labels for both modules in the frame.

RUL5 1) For PCM-30 LGC applications, to interface links from LCMI, LCME, and/or LCM, provide:

- four (4) NT6X48AA DS30A LCM Interface CPs, and
- four (4) P0638261 Connector Key Brackets.

For PCM-30 DTC applications, provide:

- four (4) NT0X50AA Filler Face Plates.

2) The NT6X48AA CP are assigned in pairs for reliability. One member of the pair interfaces the same DS30A ports as the other member. Each member of the pair occupies the same CP

position, with one CP assigned to LGAI/LTAI 0 (lower shelf of the module) and the other assigned to LGAI/LTAI 1 (upper shelf of the module).

3) The two pairs of NT6X48AA provide interfaces for up to twenty (20) DS30A ports (links) from LCMIs, LCMEs and/or LCMs. The following is a listing of DS30A ports per DS30A LCM Interface CP, NT6X48AA location.

	CP POS 6	CP POS 7
PORT	2	0
PORT	3	1
PORT	6	4
PORT	7	5
PORT	10	8
PORT	11	9
PORT	14	12
PORT	15	13
PORT	18	16
PORT	19	17

4) Assign ports to DS30A in the following sequence: 19, 17, 18, 16, 15, 13, 14, 12, 11, 9, 10, 8, 7, 5, 6, 4, 3, 1, 2 and 0 (if unused by DCH or PCM-30). In an extension job, when adding new DCH ports (RUL3), the DS30A ports may have to be reconfigured in accordance with this rule.

   The ports for DS30A must be selected from the those ports that remain after assignment of port circuits to DCH in RUL3 and to PCM-30 circuits in RUL4.

5) DS30A Port Cables shall be provisioned by the job engineer based on CCS/line requirements. These cables connect DS30A signals from the backplane using 2X4 connectors (1 port per connector), to the bulkhead Cables are equipped with six 2X4 connectors (6-Port cables) or four 2X4 connectors

(4-Port cables) and shall be provisioned based on port requirements.

For each LCM linked to the LGC module, provide:

- One (1) DS30A 6-Port Cable or
  One (1) DS30A 4-Port Cable.

Since only eight (8) 6-port and 4-port cables may be provisioned per LGC module, the maximum number of LCMs which may be linked to an LGC module is eight (8).

A further restriction is that, since only four (4) 6-port cables may be provisioned per LGC module, the maximum number of LCMs which may be linked to an LGC module with six (6) links is four (4).

There is no restriction on the order in which the DS30A Port Cables may be assigned.

The DS30A port cables for each of the two LGC modules in the cabinet are listed in the following tables.

DS30A PORT CABLES FOR LGC MODULE ON SHELVES 05 AND 19		
CABLE PEC	6-PORT OR 4-PORT CABLE	BULKHEAD CONNECTOR DESIGNATION
NTNX3305	6-PORT	0P0
NTNX3313	6-PORT	0P1
NTNX3314	6-PORT	0P2
NTNX3315	6-PORT	0P3
NTNX3306	4-PORT	0P4
NTNX3316	4-PORT	0P5
NTNX3317	4-PORT	0P6
NTNX3318	4-PORT	0P7

DS30A PORT CABLES FOR LGC MODULE ON SHELVES 33 AND 47		
CABLE PEC	6-PORT OR 4-PORT CABLE	BULKHEAD CONNECTOR DESIGNATION
NTNX3307	6-PORT	1P0
NTNX3319	6-PORT	1P1
NTNX3320	6-PORT	1P2
NTNX3321	6-PORT	1P3
NTNX3308	4-PORT	1P4
NTNX3322	4-PORT	1P5
NTNX3323	4-PORT	1P6
NTNX3324	4-PORT	1P7

For each DS-30A Interface Cable Assembly ordered, provide:

- two (2) P0638259 Bushings and
- two (2) P0423631 Washers.

RUL6 1) For offices with the XPM (MP/SP) feature, provide

- for each equipped LGC or DTC module:
  - four (4) NT6X45BA LGC/DTC Processor CPs,
  - two (2) NT6X47AC 4MB MP Memory CPs, and
  - two (2) NT6X46BA/BB Signal Processor Memory Plus CPs,

- for each equipped DTC/LGC module:
  - when ISDN services are required,
    - two (2) NTBX01AA/AB/AC ISDN Sig. Preproc. CPs, or
  - when ISDN services are not required,
    - two (2) NT0X50AA Filler Face Plates.

Note that NTBX01 ISDN CPs may not be provisioned on a DTC which is provisioned with NT6X70AAs per RUL7 to handle CCIS/CCS7 voice trunking. The NTBX01AA/AB/AC CP’s are MD’ed and replaced by NTBX01BA. The NTBX01BA may only be used with NTMX77 and AX74 CP’s (XPM+). NTBX01AA can not be used with XPM+.

Alternatively, for offices with the XPM Plus (UP) feature, provide

- for each equipped LGC or DTC module:
  - two (2) NTMX77AA XPM Plus Processor CPs,
  - two (2) NTMX71AA XPM Plus Paddleboards,
  - one (1) NTNX33WB Wiring List XPM Plus/ISDN, and
  - eight (8) NT0X50AA Filler Face Plates in slots 8, 9, 10, and 11,

- for each equipped DTC/LGC module:
  - when ISDN services are required,
    - two (2) NTBX01AB/AC/BA ISDN Sig. Preproc. CPs.

  - when ISDN services are not required,
    - two (2) NT0X50AA Filler Face Plates.

Note that NTBX01 ISDN CPs may not be provisioned on a DTC which is provisioned with NT6X70AAs per RUL7 to handle CCIS/CCS7 voice trunking. The NTBX01AB/AC are MD'ed replaced with NTBX01BA. The NTBX01BA may only be used with NTMX77 and AX74. The NTBX01AB may not be used with NTAX74 and the NTBX01AA may not be used with XPM+.

2) For an existing module being converted from XPM to XPM Plus, provide:

- when no parts are already stocked on site,
  - one (1) NT6X02XG XPM Plus Upgrade Kit.
- when the office already has the NTMX77AA CPs and the NTMX71AA Paddlecards stocked on site,
  - one (1) NTMX70AB XPM Plus Paddlecard Kit.

The NTMX70AB does not contain NTMX77AA, NTMX71AA, nor P0735417 Designation Labels for NTMX77AA.

When either the NT6X02XG or the NTMX70AB Kit is installed, remove all the NT6X45, NT6X46, and NT6X47 CPs in the module and provide NT0X50AA Filler Face Plates as required to occupy the vacant CP positions.

When NTBX01AA ISDN Signalling Pre-processor CPs are present in a module being upgraded to XPM PLUS, provide two (2) NTBX01AB/AC/BA CP's and (2) Designation Labels, and use them to replace the NTBX01AA CPs. The NTBX01AA/AB/AC CP's are MD'ed and replaced with NTBX01BA. The NTBX01BA must be used with NTMX77 or NTAX74 (XPM+).

4) The formerly provided NT6X02XA and NT6X02XB XPM Plus Upgrade Kits have been changed to MD status and replaced by the NT6X02XG.

RUL7 1) When this PCM-30 DTC is handling CCIS/CCS7 voice trunking, provide for each equipped module:

- two (2) NT6X70AA Continuity Tone Detector CPs.

Note that NT6X70AAs for CCIS/CCS7 voice trunking, may not be provisioned on a DTC which is provisioned with the NTBX01 ISDN CPs provisioned per RUL6.

This CP supports a Continuity Test (COT), and is recommended whenever analog facilities are employed in part or all of the transmission path. When the facility is end-to-end digital, this CP is not required since digital facilities employ other means of fault detection.

2) When the calling Number Delivery/Calling Number Display (CND) feature is ordered, provide for each module requiring the CND feature:
- one (1) NTZZ02EA Containing two NT6X78AB and two labels.

RUL8 1) When analog (POTS) lines are to be supported on PCM-30 LGC, or when non-ISDN trunks (A/B bit signalling) are interfaced to a PCM-30 DTC, provide per customer requirements

- zero (0), two (2) or four (4)
NT6X92CA Universal Tone Receiver CPs.
The NT6X92CA is a combined service circuit that can perform the function of Digitone Receiver for lines and MF Receiver for trunks. One pair of NT6X92CA provides up to thirty circuits.

2) The first provisionable UTR (NT6X92CA) pair shall be located in CP position 15. The second provisionable UTR pair shall be located in CP position 17. Each UTR on the shelf is paired with a UTR in the same circuit pack position on the other shelf in the module.

RUL9 1) When fiber network interface is required in an ENET office, provide for each LGC/DTC module:

- two (2) NT6X40FA DS512 Link Control CPs,
- two (2) NT6X40GA DS512 Link Paddleboards,
- one (1) NT6X0251 Fiber Cable Conversion Kit,
- one (1) NTFX33GD Fiber Adapter Plate Assembly,
- one (1) P0713105 Fiber Cover Plate,

- one (1) P0713256 Fiber Cover Plate, and
- two (2) P0689010 Snap Bushings.

Depending on availability, NT6X40CA and NT6X40DA functional pair may be used in place of the preferred NT6X40FA and NT6X40GA functional pair. The paddleboards and circuit packs cannot be mixed because they do not function in mismatched pairs.

Also both pairs in a module must be NT6X40FA and NT6X40GA or both NT6X40CA and NT6X40DA.

2) Note that the formerly provided NT6X02BU FXPM Bracket Assembly Kit and the P0736273 Fiber Warning Label have been changed to A&M status and replaced by the NT6X02UF UFXPM Kit. One (1) NT6X02UF is now always provided per equipped module via RUL16. However, if an existing module must be upgraded in the field from copper to fiber interface, then one (1) NT6X02UF UFXPM Kit will be required for older modules which were not already equipped with it.

3) Alternatively, when DS30 copper network interface is required in a non-ENET office, provide for each equipped module:

- two (2) NT6X40AC DS30 Network Interface CPs.

For DS30 network interface, also provide the following:

- For the top module equipped in the cabinet, provide:
  - one (1) P0713257 Connector Cover Plate,
  - one (1) NTFX3310 DS30 Backpanel Cable Assembly, and
  - one (1) NTFX3311 DS30 Backpanel Cable Assembly.

- For the bottom module equipped in the cabinet, provide:
  - one (1) P0713258 Connector Cover Plate,
  - one (1) NTFX3308 DS30 Backpanel Cable Assembly, and
  - one (1) NTFX3309 DS30 Backpanel Cable Assembly.

The formerly provided NTNX3389 and NTNX3384 DS30 Interface Cable Assemblies have been changed to A&M status and replaced by the NTFX3310/NTFX3311 and the NTFX3308/NTRX3309 DS30 Backpanel Cable Assemblies.

RUL10 1) When the cabinet is installed in seismic (earthquake) zones

- ATC Zones 6 & 7,
- NEBS Zone 4, and
- UBC Zone 4,

provide:

- for slab-type flooring
  - one (1) NTNX2540 Earthquake Anchor Kit, or
- for computer-type flooring
  - one (1) NTNX2578 Earthquake Anchor Kit.

2) When installing cabinet in a non-earthquake zone, provide:

- for slab-type flooring
  - one (1) NTNX2579 Frame Mounting Kit, or
- for computer-type flooring
  - one (1) NTNX2580 Frame Mounting Kit.

RUL11 1) When specifying a brown cabinet, provide:

- two (2) NTNX2550 Left Door Assemblies (Brown),
- two (2) P0699464 Left Door Labels (Brown),
- two (2) NTNX2552 Right Door Assemblies (Brown),
- two (2) P0695230 Right Door Labels (Brown),

(one each for front and rear respectively), and

- one (1) P0699471 Cabinet Type Label (Brown).

2) When specifying a grey cabinet, provision

- two (2) NTNX2515 Left Door Assemblies (Grey),
- two (2) P0677704 Left Door Labels (Grey),
- two (2) NTNX2513 Right Door Assemblies (Grey), and
- two (2) P0699158 Right Door Labels (Grey) ,

(one each for front and rear respectively), and

- one (1) P0687618 Cabinet Type Label (Grey).

RUL12 1) When cabling exits from the cabinet through the top of the cable housing, provide:

- one (1) P0685168 Cable Duct Cover (Bottom).

2) When cabling exits from the cabinet through the bottom of the cable housing, provide:

- one (1) P0674549 Cable Duct Cover (Top)

RUL13 1) Provide the appropriate designation label for each CP provided.

RUL14 1) For each equipped LGC/DTC which supports PCM30 links (NT6X27 PCM-30 Interface CPs provided per RUL4), or for each equipped LGC module which supports links to an LCM (NT6X48 DS30A LCM Interface CPs provided per RUL5), and the LCM is equipped with a PCM30 line drawer such as the NT6X05CA, provide:

- two (2) NT6X28AA PCM-30 Signaling Interface CPs.

The NT6X05CA PCM30 Line Drawer (PLD) has been MD'ed with a functional replacement of NTMX90AB Global Peripheral Platform (GPP).

RUL15 1) Provide one (1) NT6X0250 Universal Ground Point per cabinet for equipment maintenance at the rear of the cabinet.

RUL16 1) Provide one (1) NT6X02UF Universal Connector Kit per equipped module.

LGC/DTC OFFSHORE COMMON CP NT6X02UA

RATING: A&M. Replaced by NT6X02UB.

ABBREVIATION NAME: LTCI

ENGINEERING DESCRIPTION: The NT6X02UA is the common circuit pack fill for Offshore peripheral controller applications.

REFERENCE DOCUMENTATION: N/A

The LGC/DTC Offshore Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Faceplate	NT0X50AA		1	X+14	1	AP
Channel Supervision Msgs CP	NT6X42AA		1	X+14	20	AP
Speech Bus Formatter CP	NT6X41AA		1	X+14	21	AP
Filler Faceplate	NT0X50AA		2	X+14	23,24	AP
Desig. Strip (NT6X01AC)	P0710677		1	X+14		AP
Filler Faceplate	NT0X50AA		1	X	1	AP
Channel Supervision Msgs CP	NT6X42AA		1	X	20	AP
Speech Bus Formatter CP	NT6X41AA		1	X	21	AP
Filler Faceplate	NT0X50AA		2	X	23,24	AP
Desig. Strip (NT6X01AC)	P0710677		1	X		AP

NOTES:

1) One LTC/DTC Offshore Common CP can be assigned to shelf mounting positions 65 and 51 (X=51) and the other to shelf mounting positions 32 and 18 (X=18).

2) For more information on the frame refer to the section on NT6X01AC.

RULES:

AP 1) When PEC NT6X02UA is ordered, these items are provided.

OFFSHORE REMOTE CLUSTER CONTROLLER COMMON CP

PEC CODE: NT6X12DB

CPC CODE: B0231485

RATING: MD

REPLACES: N/A

REPLACED BY: N/A

ABBREVIATION NAME: RCCO

ENGINEERING DESCRIPTION: The Offshore Remote Cluster Controller Common CP provides the necessary circuit packs to equip one RCCO module for offshore applications.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Europe
Asia/Pacific
CALA

ISSUE AUTHOR: NTI: Bob Belvin Dept. 3471 (PPK)

MAIN CONTACT: NTI: Lars Mage Dept. 3471 (PPK)

NT6X12DB EMR2-22-RCCO-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	PREVIOUS HISTORY NOT AVAILABLE.
95 08 09	ECM 645 05	MD NT6X12DB.
95 09 13	ECM 645 06	Retire section document

The Offshore Remote Cluster Controller Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
LGC/DTC Processor CP	NT6X45BC		1	X+14	08	AP
Filler Faceplate .875	NT0X50AA		1	X+14	09	AP
4 MB MP Memory CP	NT6X47AC		1	X+14	10	AP
Filler Faceplate .875	NT0X50AA		1	X+14	11	AP
SP Memory Plus CP	NT6X46BA		1	X+14	12	AP
LGC/DTC Processor CP	NT6X45BC		1	X+14	13	AP
Domestic Universal Tone Rcvr	NT6X92CA		1	X+14	14	AP
Time Switch CP	NT6X44EA		1	X+14	15	AP
ISDN Signaling Pre-processor	NTBX01AA		1	X+14	16	AP
CPP Message & Tone CP	NT6X69LA		1	X+14	17	AP
Filler Faceplate .875	NT0X50AA		1	X+14	18	AP
Host Link Formatter CP	NT6X72BA		1	X+14	19	AP
PCM 30 Trunk Interface CP	NT6X27AC		1	X+14	20	AP
Filler Faceplate .875	NT0X50AA		1	X+14	24	AP
Designation Strip (NT6X12DB)	P0714323		1	X+14		AP
LGC/DTC Processor CP	NT6X45BC		1	X	08	AP
Filler Faceplate .875	NT0X50AA		1	X	09	AP
4 MB MP Memory CP	NT6X47AC		1	X	10	AP
Filler Faceplate .875	NT0X50AA		1	X	11	AP
SP Memory Plus CP	NT6X46BA		1	X	12	AP
LGC/DTC Processor CP	NT6X45BC		1	X	13	AP
Domestic Universal Tone Rcvr	NT6X92CA		1	X	14	AP
Time Switch CP	NT6X44EA		1	X	15	AP
ISDN Signaling Pre-processor	NTBX01AA		1	X	16	AP
CPP Message & Tone CP	NT6X69LA		1	X	17	AP
Filler Faceplate .875	NT0X50AA		1	X	18	AP
Host Link Formatter CP	NT6X72BA		1	X	19	AP
PCM 30 Trunk Interface CP	NT6X27AC		1	X	20	AP
Filler Faceplate .875	NT0X50AA		1	X	24	AP
Designation Strip (NT6X12DB)	P0714323		1	X		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) One NT6X12DB Offshore RCCO Common CP equips the always provided circuit packs for both shelves (18,32) in the RCCO module (X=18).

2) For more information on the frame, refer to the section on NT6X10AE.

RULES:

AP 1) When PEC NT6X12DB is ordered, these items are provided.

PCM-30 RCC COMMON CP (PRCC)

PEC CODE:	NT6X12DD
CPC CODE:	B0235728
RATING:	MD
REPLACES:	N/A
REPLACED BY:	N/A
ABBREVIATION NAME:	PRCC
ENGINEERING DESCRIPTION:	The PCM-30 Remote Cluster Controller Common CP provides the necessary circuit packs to equip one PRCC module for international (outside North America) applications. NT6X12DD replaces NT6X12DB to provide NT6X46BB in place of NT6X46BA.
REFERENCE DOCUMENTATION:	N/A
MARKETS:	Applicable markets: Europe Asia/Pacific CALA

ISSUE AUTHOR: NTI: Bob Belvin Dept. 3471 (PPK)

MAIN CONTACT: NTI: Lars Mage Dept. 3471 (PPK)

NT6X12DD EMR2-22-RCCO-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 10 01	ECM 645 01	NT6X12DD created per ECD 018-37356.
95 08 09	ECM 645 05	MD NT6X12DD.
95 09 13	ECM 645 06	Retire section document

The PCM-30 RCC Common CP (PRCC) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
LGC/DTC Processor CP	NT6X45BC		2	X+14,X	08	AP
Filler Face Plate	NT0X50AA		2	X+14,X	09	AP
4 MB MP Memory CP	NT6X47AC		2	X+14,X	10	AP
Filler Face Plate	NT0X50AA		2	X+14,X	11	AP
SP Memory Plus CP	NT6X46BB		2	X+14,X	12	AP
LGC/DTC Processor CP	NT6X45BC		2	X+14,X	13	AP
Domestic Universal Tone Rcvr	NT6X92CA		2	X+14,X	14	AP
Time Switch CP	NT6X44EA		2	X+14,X	15	AP
ISDN Signaling Pre-processor	NTBX01AA		2	X+14,X	16	AP
CPP Message & Tone CP	NT6X69LA		2	X+14,X	17	AP
Filler Face Plate	NT0X50AA		2	X+14,X	18	AP
Host Link Formatter CP	NT6X72BA		2	X+14,X	19	AP
PCM 30 Trunk Interface CP	NT6X27AC		2	X+14,X	20	AP
Filler Face Plate	NT0X50AA		2	X+14,X	24	AP
Designation Strip (NT6X12DD)	P0735685		2	X+14,X		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) One NT6X12DD PRCC Common CP equips the always provided circuit packs for both shelves (18,32) in the PRCC module (X=18).

2) For more information on the frame, refer to the section on NT6X10AE.

RULES:

AP 1) When PEC NT6X12DD is ordered, these items are provided.

PCM-30 RCC COMMON CP (PRCC)

PEC CODE:	NT6X12DF
CPC CODE:	B0236818
RATING:	MD
REPLACES:	N/A
REPLACED BY:	N/A
ABBREVIATION NAME:	PRCC
ENGINEERING DESCRIPTION:	The PCM-30 Remote Cluster Controller Common CP provides the necessary circuit packs to equip one RCCO module for international (outside North America) applications. NT6X12DF replaces part of NT6X12DD PRCC Common CP. Provisionable CPs replace the CPs which are in NT6X12DD but not in NT6X12DF.
REFERENCE DOCUMENTATION:	N/A
MARKETS:	Applicable markets: Europe Asia/Pacific CALA

ISSUE AUTHOR: NTI: Bob Belvin Dept. 3471 (PPK)

MAIN CONTACT: NTI: Lars Mage Dept. 3471 (PPK)

NT6X12DF EMR2-22-RCCO-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 10 01	ECM 645 01	NT6X12DF created per ECD 011-16614.
95 08 09	ECM 645 05	MD NT6X12DF.
95 09 13	ECM 645 06	Retire section document

The PCM-30 RCC Common CP (PRCC) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Host Link Formatter CP	NT6X72BA		2	X+14,X	19	AP
Designation Strip (NT6X12DF)	P0739955		2	X+14,X		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) One NT6X12DF PRCC Common CP equips the always provided circuit packs for both shelves (18,32) in the PRCC module (X=18).

2) For more information on the frame, refer to the section on NT6X10AE.

RULES:

AP 1) When PEC NT6X12DF is ordered, these items are provided.

REMOTE CLUSTER CONTROLLER 2 COMMON CP NTMX85AA

RATING: CANCEL (Replaced by NTZZ12XA)

ABBREVIATION NAME: RCC2

ENGINEERING DESCRIPTION: The RCC2 is the remote office deployment of the Compact Peripheral Module (CPM) family of peripherals for the DMS-100 family. The RCC2 is based on a one (RCC2) or two shelf configuration (RCC2 and EXT) which must be provisioned separately. The RCC2 Shelf (RCC2) supports a Maximum of 54 P-Side Ports, 16 C-Side Ports and Dual RCC2 configurations.

REFERENCE DOCUMENTATION: MS_____ 00 01

REFERENCE DOCUMENTATION: SL_____ 00 01

The Remote Cluster Controller 2 Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Power Converter	NTMX72AA		2	05	1-2 26-27	AP
Processor	NTMX77AA		2	05	3,25	AP
Enhanced ISP CP	NTBX01AB		2	05	4,24	AP
Enhanced Messaging CP	NT6X69AC		2	05	8,20	AP
Enhanced Matrix CP	NTMX75AA		2	05	10,18	AP
PCM Signalling Processor	NTMX73AA		2	05	11,17	AP
DS30A Interface CP	NTMX74AA		2	05	13,15	AP

FLAGS:

NOTES:

1) The RCC2 Shelf (RCC2) supports the following:

   * Contain all 'common' circuitry and be capable of supporting medium size installation of several types of lines & trunks.

   * May be deployed in a Single shelf configuration supporting a maximum of 54 P-Side Ports which may be configured as follows:

     — 32 DS-30A Ports Plus 22 DS-1 Ports, or
     — 30 DS-30A Ports Plus 24 DS-1 Ports, or
     — 28 DS-30A Ports Plus 24 DS-1 Ports Plus 02 DCH Ports.

* The Extension shelf

  Provision the EXT shelf to increase the number of P-Side port configurations possible by expanding the number of assignable DS-1 and DCH ports at a cost of DS-30A Ports.

* The 54-P-Side Ports may be used to support the following:

  — On Site LCMs supporting CLASS, Pots and Coin Lines

  — Remote LCMs housed in RLCMs, OPMs or RLCCs supporting CLASS, Pots and Coin lines with or without ESA via DS-1 links

  — CDO/PBX Trunks via DS-1 links

  — ESA

  — LCME (2B1Q) via DCH & DS-30A ports

  — Dual RCC2 configuration via P-Side DS-1 links

RULES:

AP 1) When PEC NTMX85AA is ordered, these items are provided.

CRSC EXTENSION CABINET (CEXT) OFFSHORE

PEC CODE: NTMX88BA

CPC CODE: B0234989

RATING: MD

REPLACES: Not Applicable

REPLACED BY: NTZZ47SB and NTZZ47SN

ABBREVIATION NAME: CEXT

ENGINEERING DESCRIPTION: The CEXT is used to expand the capabilities of the CRSC. The CEXT consists of an FSP, LCME, RMM, EXT, and Cooling Unit.

The RCC2 EXT shelf is actually two shelves on a single card cage which are provisioned independently of each other. One EXT shelf supports two (2) RCC2s (i.e. the left side is used to support the first RCC2 and the right side is used to support the second RCC2). Therefore, in Mono RSC-S installations which require the CEXT cabinet the right side of the EXT shelf will be filled with filler face plates.

REFERENCE DOCUMENTATION: SLMX88BA 00 01
MSMX88BA 00 07

MARKETS: Applicable markets:

Europe
Asia/Pacific
CALA
Carrier

ISSUE AUTHOR: NTI: Deniece Land Dept. 3471 (PPK)

MAIN CONTACT: NTI: Deniece Land Dept. 3471 (PPK)

NTMX88BA EMR2-24-002 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 01 27	ECM 639 04	Changes due to ECD 018 40314.
93 04 15	ECM 639 05	ECD 011-17820 - Replace NT6X76AC with NT6X76AD Hayes Supported AILC.
93 12 21	ECM 639 07	Reformat section; transfer ownership to RTP Product Rules group.
95 09 05	ECM 639 11	MD section per EC 24-94287, replaced by NTZZ47SB and NTZZ47SN.
96 04 02	ECM 691 15	Per EC#024-94829 add NTBX02BA, add label P0737724, add NTBX31PB upgrade kit.
97 10 10	ECM 691 22	Per EC#018-51456 MD NT9X0102 and show NT9X0105 for Frame Fail Light Kit. Per EC 02497863 Show NTBX31BB replaced by NTBX31BC. Per EC 018-51489 add note for NT2X10AC and NT2X11AD LTU required for DMS-10.

The CRSC Extension Cabinet (CEXT) Offshore is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Streamline Cabinet	NTNX25EA					AP
	Frame Supervisory Panel	NTMX26BA	FSP		61		RUL15
	FSP Alarm CP	NT6X36AA		1	61		AP01
	Alarm CP for FSP	NT6X36AB		1	61		AP01
	Ringing Generator (analog)	NT6X30AA			61		RUL16
	Ringing Generator (UK)	NT6X30AB			61		RUL16
	Ringing Generator (Australia)	NT6X30AE			61		RUL16
	CRSC Stand Alone Power Kit	NTMX8943			61		RUL17
	Frame&Logic Ground HW Kit	NTRX2519					RUL18
#	LCME Common CP	NTBX31BA	LCME				RUL1
#	LCME Common CP	NTBX31BB	LCME				RUL1
	LCME Common CP	NTBX31BC	LCME				RUL1
	LCME Upgrade Kit	NTBX31PB	LCME				RUL1
	ISDN Line Conc Arr Shf Assy	NTBX3118	LCAI	1	47		AP
	ISDN Enhanced Line Drawer	NTBX32BA	LD			1,5, 9,13	RUL2
	Line Drawer Filler Plate	NT6X05AX	FP			1,5, 9,13	RUL2
	ISDN Line Conc Arr Shf Assy	NTBX3118	LCAI	0	33		AP
	ISDN Enhanced Line Drawer	NTBX32BA	LD			1,5, 9,13	RUL2
	Line Drawer Filler Plate	NT6X05AX	FP			1,5, 9,13	RUL2
	Subscriber Line Circuits	AR					RUL3
	Shelf Pos ID Label	P0707612					RUL4
	Line Drawer ID Label	P0709652					RUL4
	Warning Label (French)	P0689450					RUL4
	Remote Maintenance Module	NT6X1306		1	19		AP
	International RMM Common CP	NT6X13EA	RMM		19		RUL5
	-48V SP Battery Supply Cable	NT6X1438					RUL5
	Maintenance Trunk Card	AR			19	3-16	RUL5
	MTA Wiring Option	NTMX88WA					RUL5
	Filler Face Plate	NT0X50AC			19	11-16	RUL5
	Auxiliary Alarm Cable	NTMX8816					RUL5

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	RCC2 Extension Shelf	NTMX8601		1	06		AP
	Filler Face Plate	NT0X50AA			06	1,26	RUL6
	RCC Offshore EXT CP Fill	NTZZ37KA			06		RUL6
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	3	RUL8
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	4	RUL8
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	3	RUL8
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	4	RUL8
	Quad Frame Carrier	NTMX87AA			06	4	RUL9
	Dual PCM30 Packlet	NTMX82AA			06	4 0-3	RUL9
	Filler Face Plate	NTMX83AA			06	4 0-3	RUL9
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	5	RUL8
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	6	RUL8
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	5	RUL8
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	6	RUL8
	Design Label (NTBX02AA)	P0697919			06		RUL8
	Quad Frame Carrier	NTMX87AA			06	6	RUL9
	Dual PCM30 Packlet	NTMX82AA			06	6 0-3	RUL9
	Filler Face Plate	NTMX83AA			06	6 0-3	RUL9
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	7	RUL8
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	8	RUL8
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	7	RUL8
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	8	RUL8
	Quad Frame Carrier	NTMX87AA			06	8	RUL9
	Dual PCM30 Packlet	NTMX82AA			06	8 0-3	RUL9
	Filler Face Plate	NTMX83AA			06	8 0-3	RUL9
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	9	RUL8
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	10	RUL9
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	11	RUL9
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	12	RUL8
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	9	RUL8
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	10	RUL8
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	11	RUL8
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	12	RUL8
	RCC2 EXT Shelf Filler Kit	NTZZ12KA			06	14	RUL6
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	15	RUL8
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	16	RUL9

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	17	RUL9
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	18	RUL9
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	19	RUL8
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	15	RUL8
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	16	RUL8
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	17	RUL8
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	18	RUL8
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	19	RUL8
	Quad Frame Carrier	NTMX87AA			06	19	RUL9
	Dual PCM30 Packlet	NTMX82AA			06	19 0-3	RUL9
	Filler Face Plate	NTMX83AA			06	19 0-3	RUL9
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	20	RUL8
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	21	RUL8
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	20	RUL8
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	21	RUL8
	Quad Frame Carrier	NTMX87AA			06	21	RUL9
	Dual PCM30 Packlet	NTMX82AA			06	21 0-3	RUL9
	Filler Face Plate	NTMX83AA			06	21 0-3	RUL9
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	22	RUL8
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	23	RUL8
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	22	RUL8
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	23	RUL8
	Quad Frame Carrier	NTMX87AA			06	23	RUL9
	Dual PCM30 Packlet	NTMX82AA			06	23 0-3	RUL9
	Filler Face Plate	NTMX83AA			06	23 0-3	RUL9
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	24	RUL8
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	24	RUL8
	Fan Cooling Unit	NTNX27CA			00		RUL20
	CEXT Cabinet Door Label	P0715088					RUL10
	Des. Label NTBX02BA	P0737724					RUL8
	EMI Kit Single Bulkhead,Grey	NTRX2516					RUL12
	Frame Fail LP, Grey	NT9X0174					RUL12
	Dummy Fail LP, Grey	P0699441					RUL12
	EMI Door Kit, Brown	NTRX2531					RUL12
	EMI Gasket Vertical	P0691073					RUL12
#	Frame Fail LP, Brown Kit	NT9X0102					RUL12
	Frame Fail LP, Brown Kit	NT9X0105					RUL12

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Dummy Fail LP, Brown	P0674502					RUL12
Cable Trough Assembly, Grey	NTNX5511					RUL13
Cable Trough Assembly, Brown	NTRX5544					RUL13
AUX Alarm Cable	NTMX8816					RUL21
Leveling Foot Kit	NTRX2523					RUL14
Bulkhead Assembly	NTMX8891			05,19	LE	RUL19
CA Assembly (SEND) CPMtoBHD	NTMX8895					RUL19
CA Assembly (RECV) CPMtoBHD	NTMX8896					RUL19
Bulkhead Assembly	NTMX8801			05,19	LE	RUL19
CA Assembly (SEND)	NTMX8810					RUL19
CA Assembly (RECV)	NTMX8811					RUL19

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NTBX31BA	MD	NTBX31BB
NTBX31BB	MD	NTBX31BC
NT9X0102	MD	NT9X0105
NTBX02AA	RCP	NTBX02BA

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NTMX88BA is ordered, these items are provided.

The break out of these items are shown here for completeness.
The bulkhead assemblies mount on the LEFT side of the frame, when viewing the frame from the rear.

RCP in flaglist means that the Rating (status) of the pec is pending change.

AP01 1) This PEC is Always Provided in the NTMX26BA FSP and is shown here for sparing purposes.

RUL1 1) Provide one (1) NTBX31BA/BB LCME Common CP Fill for each LCME (2B1Q) module required.

2) The LCME module is for the ISDN 2B1Q Access Subsystem. The LCME Line Drawers are numbered from left to right as seen from the front. The Line Sub Groups are numbered as follows:

Frame Shelf Pos.	Line Drawer	Line Sub Group (LSG)
05 or 40	0	00,01
05 or 40	1	02,03
05 or 40	2	04,05
05 or 40	3	06,07
19 or 54	4	08,09
19 or 54	5	10,11
19 or 54	6	12,13
19 or 54	7	14,15

3) Provide one (1) NTBX31PB Upgrade Kit per LCME module, for field upgrades only, when converting NTBX31BB LCME common CP to NTBX31BC. The NTBX31BB's and NTBX31BC's may be mixed in a frame. There are no specific software loads required for the Host office when the NTBX31BC is provisioned. The NTMX31BB is Md'ed and replaced by BC.

RUL2 1) Provide one (1) NTBX32BA Enhanced Line Drawer for the LCME to accommodate up to 60 line cards in two (2) logical drawers called Line Sub-Groups. Line Drawers are equipped in line drawer positions 1,5,9 and 13 on each Line Shelf Assembly.

2) The Data Line Cards cannot be mounted in the five line card position (slots 18 to 26) in the top LSG next to the PUPS line card. It is permitted to mount the Data Line Card in the lower LSG directly under the PUPS.

3) The LCME in RSC-S applications supports, in addition to ISDN lines, POTS, EBS and DATAPATH lines. Refer to the section on ISDN Enhanced Line Drawer NTBX32BA for more information.

4) For each unequipped line drawer position provide one (1) NT6X05AX Line Drawer Filler Plate.

5) Provide one (1) Cutoff Strap for each line drawer whose line cards are to be held simultaneously cutoff by this method.

   Since straps can be re-used, the quantity to be provided is determined by the number of lines which are to be held simultaneously in this state.

RUL3 1) The following line cards may be assigned to the ISDN Line Drawer:

DESCRIPTION	PEC	# OF CARD SLOTS	MAX # PER LINE MODULE
ISDN 2B1Q 'U' I/F Line Card	NTBX27AA	1	480
ISDN 'S/T' I/F LC	NTBX26AA	2	240
Data Line Card	NT6X71AA/AB	2	240
Asynchronous I/F Line Card	NT6X76AC/AD***	2	240
Business Set Line Card	NT6X21AC	1	480
POTS Message Waiting	NT6X19AA*	1	472
Message Waiting Converter LC	NT6X20AA*	2	8
POTS Line Card	NT6X17AA/AB/AC	1	480
POTS Line Card	NT6X18--**	1	480
World Line Card Type 'A'	@NT6X17BA	1	480
World Line Card Type 'B'	&NT6X18BA	1	480
POTS Line Card (Australia)	NT6X93EA	1	480
International Line Card (UK)	NT6X98AA	1	480
IBERT	NT6X99AA	2	1 per LCME

@ The World Line Card Type 'A' replaces:

NT6X17AC North America
NT6X93AA Turkey, Belize
NT6X93BA Caribbean
NT6X93CA China
NT6X93DA Morocco
NT6X93EA Australia
NT6X99AA UK ScopeDial
NTMX29AA British telephone

& The World Line Card Type 'B' replaces:

NT6X18AA North America
NT6X94AB Turkey, Belize, Guyana
NT6X94BB Caribbean
NT6X94CA China
NT6X94DA Morocco
NT6X33AA Japan Type 'A'

* The POTS Message Waiting cards require one (1) message waiting converter line card NT6X20AA (two slots high) per line drawer to function.

** The NT6X18-- line card type can be used if it is NOT configured as a Coin or ANI line. No high voltage NT6X18-- applications may be used.

*** The NT6X76AD Hayes Supported Asynchronous Line Card replaces NT6X76AC AILC.

2) Any of the line cards supported can be mixed with any other line cards of a Line Subgroup. However, if there are more than eight (8) S/T-Interface line cards in the same row as POTS line cards, then the POTS line cards will NOT stay in-service on PUPS failure.

The LCME provides flexible Time Division Multiplexing (TDM) groups. This enables an ISDN line to be placed anywhere in a drawer. Any four ISDN lines from the same physical drawer can belong to the same TDM group subject to rule that lines in a particular TDM group must come from the same physical drawer.

4) Provision IBERT for data path/ISDN loop testing. Provision only one per LCME.

5) Provision a maximum of 32 single slot cards in even line subgroups and 28 in odd line subgroups.

RUL4 1) Provide one (1) P0689450 French Warning Label when frame is required by Canadian customers. This label is to be affixed to the cabinet FSP.

2) Provide one (1) P0709652 Line Drawer Identification Labels per CRSC Cabinet. P0709652 provides enough labels for 16 Line Drawers.

3) Provide one each of the following LCME PDC Fuse Designation Labels per CRSC and/or CEXT Cabinet provided.

PEC	DESCRIPTION
P0711231	LCME 00 0- LCME 99 0
P0711232	LCME 00 1- LCME 99 1

5) Provide one each of the following LCME Module/Shelf Designation Labels per CRSC and/or CEXT Cabinet provided to be affixed to the FSP:

PEC	DESCRIPTION
P0711233	LCME:00 0 LCAI:0- LCME:99 0 LCAI:0
P0711234	LCME:00 0 LCAI:1- LCME:99 0 LCAI:1
P0711235	LCME:00 1 LCAI:0- LCME:99 1 LCAI:0
P0711236	LCME:00 1 LCAI:1- LCME:99 1 LCAI:1

RUL5 1) For the Remote Maintenance Module (RMM) always provide:

- one (1) NT6X13EA International RMM Common CP and
- one (1) NT6X1438 -48V SP Battery Supply Cable.

2) There are fourteen (14) provisionable slots 3-16 on the RMM.

Provision the following CP per system requirements:

Card Type	PEC	Slot	Note
INCOMING/OUTGOING TEST TRUNK	NT2X90AD	07-10	A
SCAN CIRCUIT PACK	NT0X10AA	05	B
SD CIRCUIT PACK	NT2X57AA	11-16	C
INCOMING TEST TRUNK FOR AECO LOCAL TEST	NT3X04AA	11-16	D
8x8 METALIC TEST ACCESS	NT3X09BA	06	E
MULTILINE TEST CONTROLLER	NT4X98BB	03	F
MULTILINE TEST (ANALOG)	NT4X97AA	04	G
BALANCE NETWORK	NT2X77AA		G

Note:

A. Provide one (1) NT2X90AD test trunk on an As Required basis. A NT2X90AD must always be combined with an LTU to provide a talk monitor feature. The TR & TT leads on NT2X90AD shall be connected to the same metallic test access as the LTU leads T & R. Note: the NT2X10AC/NT2X11AD LTU is required by DMS-10.

B. Provide one scan circuit pack (NT0X10AA) for every fourteen scan points required in a remote office. When connected to out-of-office leads, the NT0X10AA packs must be located in even slots.

C. Provide one miscellaneous SD Type 1 circuit pack (NT2X57AA) for every fourteen signal distributor points required for the remote office.

D. Provide one Incoming Test Trunk (NT3X04AA) for each AECO Local Test board interface circuit pack on an as required basis.

E. Provide one (1) 8X8 Metallic Test Access circuit pack (Nt3X09BA) for each four LCMs in the remote site. Each

NT3X09BA can serve up to eight service circuits and must be mounted in even circuit pack positions only.

F. Provide the Multiline Test Unit (MTU) which consists of one NT4X98BB and one NT4X97AA CP. The MTU must be be installed in adjacent slots only with the NT4X98BB occupying the odd numbered slot position. A minimum of one MTU per office is required. -48v SP (Special Power), is required. This unit is also required when electronic business sets are used.

G. Provide one (1) NT2X77AA for every NT2X90AD.

The total 48 volt power consumption of the provisionable circuit packs in the RMM (NT6X1306) must not exceed 110 watts.

Existing provisioning rules for the RMM apply to slots 13-16 of the NT6X13 used on the NTMX88BA cabinet.

Rating of the circuit packs is as follows:

CIRCUIT PACK CODE	MAXIMUM POWER CONSUMPTION
NT2X59 & NT6X74	25.0 WATTS
NT0X10AA	2.0 WATTS
NT2X10AA/AB	9.0 WATTS
NT2X11AA/AD	8.5 WATTS
NT2X48AB	12.0 WATTS
NT2X57AA	4.5 WATTS
NT2X90AB	1.5 WATTS
NT3X04AA	28.0 WATTS
NT3X09AA	4.0 WATTS
NT3X09BA	11.5 WATTS
NT4X98BB	20.0 WATTS
NT4X97AA	9.0 WATTS

3) Provide one (1) NT0X50AC Filler Face Plate for each slot 11- 16 not equipped with a circuit pack.

4) Provide one (1) MTA Wiring Option (NTMX88WA) when MTA capability is provided on the CEXT cabinet. Manufacturing documentation (NTMX88BA) contains the necessary wiring information for this option. The wires used are part of the NTMX8809 cable assembly (an always provided item with the frame). When this wiring option is not provisioned, the

installer will run the wires to the CRSC and connect per CARX06.

5) Provide one (1) Auxiliary Alarm Cable Assembly NTMX8816 when CRSC/CEXT system is being used in a 7 foot lineup.

RUL6 1) If additional ports on the Extension shelf are required, provide one (1) NTZZ37KA in slot 2 and/or one (1) NTZZ37KA in slot 14 of the EXT shelf to extend the capabilities of one or both CRSCs in the dual configuration.

Note: Dual RSC-S is not supported at this time. Only Mono RSC-S configurations are currently supported.

2) If the office is a Mono RSC-S and ports on the Extension shelf are required:

- provide one (1) NTZZ37KA in slot 2 of the EXT and one (1) NTZZ12KA EXT Shelf Filler Kit in slot 14 for the right side of the EXT Shelf.

3) Provide one (1) Filler Faceplate NT0X50AA for each unequipped slot in position 2 to 25. Always provide two (2) Filler Faceplates NT0X50AA for slots 1 and 26.

RUL8 1) Provision the EXT to house D-Channel Handlers (DCH) when the office requirements dictate DCH quantities in excess of 3. When the EXT shelf is provisioned with DCH CPs it is at the expense of PCM30 Circuits.

2) The EXT Shelf is actually two functional shelves on a single card cage, where Slots 1 thru 13 (the Left Side) is used for the first CRSC and Slots 14 thru 27 (the Right Side) is used for the second CRSC.

3) The PCM30 slots or part of a slot (14:0-3, 15:0-3, and 16:0- 3) are disabled on the RCC2 shelf to allow provisioning of DCHs on the RCC2 EXT shelf slots and/or part of slots disabled on the RCC2 shelf must be filled with a Filler Face Plate - NT0X50AA for a whole slot or NTMX83AA for each part of the slot moved. Each of slots 14 thru 16 has four parts numbered 0 to 3.

4) Provide NTBX02AA Designation labels (P0697919) as required. Provide NTBX02BA Designation labels (P0737724) as required, one per CP.

RUL9 1) When provisioning DCHs, DS-30As and PCM30s for the RCC2 one must consider all three together to determine the hardware

configuration required. Refer to the chart on the following page and select the configuration that bests suits your need.

Note:

If any of the following configurations indicate slots used in the extension shelf then the CEXT Cabinet must be provided to support this configuration.

DCH, DS30A and PCM30 PROVISIONING CHART for RCC2

A	B	C	D	E	F	G	H	J	K	L
	DCH REQD QTY	RCC2 SLOTS FOR DCH	EXT SH REQ	EXT SHELF SLOTS REQ'D FOR DCH CPs	PCM30 PORTS REQ'D	RCC2 SLOTS FOR PCM30s	QTY OF EXT MX87	EXT SLOTS PCM-30s	DS30As REQ'D QTY	PCM-30 DYN. TRKS
1	0		0		0-22	12:0-3 16:0 14:0 14:2 16:3 16:2 14:1 16:1	0		0-30	0-22
2	2	14,16	0		0-08	12:0-3	0		0-30	0-8
3	3	14,16 12	0		00		0		0-30	0
4	2		1	5,3 (22,24)	0-20	12:0-3 16:0 14:0 14:2 16:3 16:2 14:1	0		0-30	20
5	3		1	5,3,9 (22,24,18)	0-18	12:0-3 16:0 14:0 14:2 16:3 16:2	0		0-30	18
6	4-5		1	5,3,9,7,8 (22,24,18, 20,19)	0-16	12:0-3 16:0 14:0	0		0-30	16

						14:2 16:3				

A	B	C	D	E	F	G	H	J	K	L
	DCH REQD QTY	RCC2 SLOTS FOR DCH	EXT SH REQ	EXT SHELF SLOTS REQ'D FOR DCH CPs	PCM30 PORTS REQ'D	RCC2 SLOTS FOR PCM30s	QTY OF EXT MX87	EXT SLOTS PCM-30s	DS30As REQ'D QTY	PCM-30 DYN. TRKS
7	6-7		1	5,3,9,7,8,6,4 (22,24,18,20,19,21,23)	0-14	12:0-3 16:0 14:0 14:2	0		0-30	0-14
8	8	14	1	5,3,9,7,8,6,4 (22,24,18,20,19,21,23)	0-10	12:0-3 16:0	0		0-30	0-10
9	9	14,16	1	5,3,9,7,8,6,4 (22,24,18,20,19,21,23)	0-08	12:0-3	0		0-30	0-8
10	10	14,16 12	1	5,3,9,7,8,6,4 (22,24,18,20,19,21,23)	00		0		0-30	8
11	06		1	5,3,9,7,8,6 (22,24,18,20,19,21)	0-16	12:0-3 16:0 14:0 14:2	1	4:0 (23:0)	0-28	0-14
12	06		1	5,3,9,7,8,6 (22,24,18,20,19,21)	0-18	12:0-3 16:0 14:0 14:2	1	4:0-1 (23:0-1)	0-26	0-14
13	06		1	5,3,9,7,8,6 (22,24,18,20,19,21)	0-20	12:0-3 16:0 14:0 14:2	1	4:0-2 (23:0-2)	0-24	0-14

A	B	C	D	E	F	G	H	J	K	L
	DCH REQD QTY	RCC2 SLOTS FOR DCH	EXT SH REQ	EXT SHELF SLOTS REQ'D FOR DCH CPs	PCM30 PORTS REQ'D	RCC2 SLOTS FOR PCM30s	QTY OF EXT MX87	EXT SLOTS PCM-30s	DS30As REQ'D QTY	PCM-30 DYN. TRKS
14	06		1	5,3,9,7,8,6 (22,24,18,20,19,21)	0-22	12:0-3 16:0 14:0 14:2	1	4:0-3 (23: 0-3)	0-22	0-14
15	05		1	5,3,9,7,8 (22,24,18,20,19)	0-24	12:0-3 16:0 14:0 14:2 16:3	1	4:0-3 (23: 0-3)	0-20	0-16
16	05		1	5,3,9,7,8 (22,24,18,20,19)	0-26	12:0-3 16:0 14:0 14:2 16:3	2	4:0-3 6:0 (23: 0-3, 21:0)	18	0-16
17	05		1	5,3,9,7,8 (22,24,18,20,19)	0-28	12:0-3 16:0 14:0 14:2 16:3	2	4:0-3 6:0-1 (23: 0-3, 21: 0-1)	18	0-16
18	05		1	5,3,9,7,8 (22,24,18,20,19)	0-30	12:0-3 16:0 14:0 14:2 16:3	2	4:0-3 6:0-2 (23: 0-3, 21: 0-2)	16	0-16
19	4-5		1	5,3,9,7,8 (22,24,18,20,19)	0-32	12:0-3 16:0 14:0 14:2 16:3	2	4:0-3 6:0-3 (23: 0-3, 21: 0-3)	14	0-16

A	B	C	D	E	F	G	H	J	K	L

	DCH REQD QTY	RCC2 SLOTS FOR DCH	EXT SH REQ	EXT SHELF SLOTS REQ'D FOR DCH CPs	PCM30 PORTS REQ'D	RCC2 SLOTS FOR PCM30s	QTY OF EXT MX87	EXT SLOTS PCM-30s	DS30As REQ'D QTY	PCM-30 DYN. TRKS
20	04		1	5,3,9,7 (22,24,18, 20)	0-34	12:0-3 16:0 14:0 14:2 16:3	3	4:0-3 6:0-3 8:0 (23: 0-3, 21: 0-3, 19:0)	14	0-16
21	04		1	5,3,9,7 (22,24,18, 20)	0-36	12:0-3 16:0 14:0 14:2 16:3	3	4:0-3 6:0-3 8:0-1 (23: 0-3, 21: 0-3, 19: 0-1)	12	0-16
22	04		1	5,3,9,7 (22,24,18, 20)	0-38	12:0-3 16:0 14:0 14:2 16:3	3	4:0-3 6:0-3 8:0-2 (23: 0-3, 21: 0-3, 19: 0-2)	10	0-16
23	03		1	5,3,9 (22,24,18)	0-40	12:0-3 16:0 14:0 14:2 16:3 16:2	3	4:0-3 6:0-3 8:0-2 (23: 0-3, 21: 0-3, 19: 0-2)	08	0-18

A	B	C	D	E	F	G	H	J	K	L
	DCH	RCC2	EXT	EXT SHELF	PCM30	RCC2	QTY	EXT	DS30As	PCM-

	REQD QTY	SLOTS FOR DCH	SH REQ	SLOTS REQ'D FOR DCH CPs	PORTS REQ'D	SLOTS FOR PCM30s	OF EXT MX87	SLOTS PCM-30s	REQ'D QTY	30 DYN. TRKS
24	02		1	5,3 (22,24)	0-42	12:0-3 16:0 14:0 14:2 16:3 16:2 14:1	3	4:0-3 6:0-3 8:0-2 (23: 0-3, 21: 0-3, 19: 0-3)	08	0-20
25	00		1		0-44	12:0-3 16:0 14:0 14:2 16:3 16:2 14:1	3	4:0-3 6:0-3 8:0-3 (23: 0-3, 21: 0-3, 19: 0-3)	08	0-22
26	00		1		0-46	12:0-3 16:0 14:0 14:2 16:3 16:2 14:1 16:1	3	4:0-3 6:0-3 8:0-3 (23: 0-3, 21: 0-3, 19: 0-3)	08	0-22

RUL10 1) Provide one P0715088 CEXT Cabinet Door Label sheet for each CEXT cabinet. The sheet provides labelling for both CEXT cabinet doors.

RUL12 1) Provide one NTRX2516, EMI Kit Single Bulkhead, per cabinet when Grey doors are required. Provide one (1) NT9X0174 and one (1) P0699441 per NTRX2516 Kit.

2) Provide one NTRX2531, EMI Door Kit (Brown), per cabinet when Brown doors are required. Also provide one P0691073, EMI Gasket Vertical, with each NTRX2531 Kit provided. Provide one (1) NT9X0105 and one (1) P0674502 per NTRX2531 Kit. The NT9X0102 Kit is MD'ed and replaced by NT9X0105.

RUL13 1) Provide one NTNX5511, Grey Cable Trough Assembly, per cabinet when overhead cabling is required.

2) Provide one NTNX5544, Cable Trough Assembly, per cabinet when Brown cable trough is required.

RUL14 1) Provide one NTRX2523, Leveling Foot Kit, per cabinet for Non-Earthquake offices.

RUL15 1) Provide one NTMX26BA -48V FSP per cabinet.

RUL16 1) Provide:

two (2) NT6X30AA when analog ringing is required,
OR
two (2) NT6X30AB when ringing for the UK market is required,
OR
two (2) NT6X30AE when ringing for the Australian market is required.

RUL17 1) Provide one (1) NTMX8943 CRSC Stand Alone Power Kit and one (1) PCMX8943 Product Change Kit drawing when the CEXT is powered from a seven (7) foot Power Distribution Center (PDC) or when external power filters (vertical power) are used.

RUL18 1) Provide one (1) NTRX2519 Frame & Logic Ground HW Kit for each CEXT cabinet.

RUL19 1) Provide the following equipment when COAX PCM-30 is specified by the customer:

one (1) Bulkhead Assembly (NTMX8891)
one (1) CA Assembly (SEND) CPMtoBHD (NTMX8895)
one (1) CA Assembly (RECV) CPMtoBHD (NTMX8896)

2) Provide the following equipment when twisted pair PCM-30 is specified by the customer:

one (1) Bulkhead Assembly (NTMX8801)
one (1) CA Assembly (SEND) (NTMX8810)
one (1) CA Assembly (RECV) (NTMX8811)

RUL20 1) Always provide one (1) Fan Cooling NTNX27CA per CEXT cabinet.

RUL21 1) Always provide one (1) Auxillary Alarm cable assembly NTMX8816 when CRSC/CEXT system is being used in a 7ft lineup.

CRSC EXTENSION CABINET (CEXT)

PEC CODE: NTMX88AA

CPC CODE: B0231073

RATING: MD

REPLACES: Not Applicable

REPLACED BY: NTZZ47SB

ABBREVIATION NAME: CEXT

ENGINEERING DESCRIPTION: The extension cabinet (CEXT) is used to expand the capabilities of the CRSC. The CEXT consists of one Frame Supervisory Panel (FSP), one LCME Module, one RMM Card Cage, one EXT Shelf, and one Cooling Unit.

The EXT Shelf is actually two shelves on a single card cage which are provisioned independently of each other. One EXT Shelf supports two (2) RCC2s (i.e. the left side is used to support the first RCC2 and the right side is used to support the second RCC2). Therefore, in RSCS installations which do not require the additional capabilities provided by the EXT Shelf, it is provided with filler plates for both sides. If only one side is utilized, the other is covered.

REFERENCE DOCUMENTATION: MSMX88AA 00 09

MARKETS: Applicable markets:

US
Canada
CALA

ISSUE AUTHOR: NTI: Steve Martin Dept. 3471 (PPK)

MAIN CONTACT: NTI: Scott Maggiolo Dept. 3471 (PPK)

NTMX88AA EMR2-25-RCC2-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 10 27	ECM 617 04	Changes per MSMX88AA 00 04. Chg shelf positions from 05 to 06 and 60 to 61.
93 01 05	ECM 617 05	Changes per MSMX88AA 00 06.
93 02 05	ECM 617 06	Correct brown cable trough code - Change NTNX5544 to NTRX5544.
93 03 12	ECM 617 07	Add cable BB code and FSP spare CPs.
93 04 13	ECM 617 08	EC 011-17820 - Replace NT6X76AC with NT6X76AD in NTBX32BA.
93 04 23	ECM 617 09	Introduce NT6X30CA Ringing Generator.
93 12 02	ECM 617 14	Add door label for brown application.
94 10 17	ECM 691 07	Retire code. Replaced by NTZZ47SB.
95 05 04	ECM 691 09	Revisions per EC 011-21293.
96 04 02	ECM 691 15	Per EC#024-94829 add NTBX02BA, add label P0737724, add NTBX31PB upgrade kit.

The CRSC Extension Cabinet (CEXT) is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Streamline Cabinet	NTNX25EA		1			AP
	Frame Supervisory Panel	NTMX26BA	FSP		61		RUL1
	FSP Alarm CP	NT6X36AA		1	61		AP01
	Alarm CP for FSP	NT6X36AB		1	61		AP01
%	Ring Generator	NT6X30AA			61	1,2	RUL1
	Ring Generator	NT6X30CA			61	1,2	RUL1
	Ring Generator Filler	NT6X3005			61	1,2	RUL1
#	LCME Common CP	NTBX31BA	LCME				RUL2
#	LCME Common CP	NTBX31BB	LCME				RUL2
	LCME Packfill Upgrade Kit	NTBX31PA					RUL2
	LCME Packfill Upgrade Kit	NTBX31PB					RUL2
	LCME Fillers	NTBX31AB					RUL2
	ISDN Line Conc Arr Shf Assy	NTBX3118	LCAI 0	1	47		AP
	ISDN Enhanced Line Drawer	NTBX32BA	LD			1,5, 9,13	RUL3
	Line Drawer Filler Plate	NT6X05AX	FP			1,5, 9,13	RUL3
	ISDN Line Conc Arr Shf Assy	NTBX3118	LCAI 1	1	33		AP
	ISDN Enhanced Line Drawer	NTBX32BA	LD			1,5, 9,13	RUL3
	Line Drawer Filler Plate	NT6X05AX	FP			1,5, 9,13	RUL3
	Subscriber Line Circuits	AR					RUL4
	Line Drawer ID Label	P0709652					RUL5
	Warning Label (French)	P0689450					RUL5
	LCME PDC Fuse Label	P0711231					RUL5
	LCME PDC Fuse Label	P0711232					RUL5
	LCME Shelf Label for FSP	P0711233					RUL5
	LCME Shelf Label for FSP	P0711234					RUL5
	LCME Shelf Label for FSP	P0711235					RUL5
	LCME Shelf Label for FSP	P0711236					RUL5
	STD1 Remote Maint. Module	NTZZ12JA					RUL6
	Remote Maint. Mod. Common CP	NT6X13AB	RMM		19		RUL6
	Remote Maintenance Module	NT6X1301		1	19		AP
	Maintenance Trunk Card	AR			19	3-16	RUL7
	MTA Wiring Option	NTMX88WA			19		RUL7
	Filler Face Plate	NT0X50AC			19	1-16	RUL8
	Filler Face Plate	NT0X50AG			19	17	RUL8
	Filler Face Plate	NT0X50AA			19	19	RUL8
	Filler Face Plate	NT0X50BE			19	20	RUL8
	-48V SP Battery Supply Cable	NT6X1438		1			AP

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Filler Faceplate	NT0X50AA			06	1	RUL10
	DS60 Extender CP	NTMX79AA			06	2,13	RUL10
	DS60 Extender CP	NTMX79AA			06	14,25	RUL10
	EXT Filler Kit (Right)	NTZZ12KA			06	14	RUL10
	EXT Filler Kit (Left)	NTZZ12WA			06	02	RUL10
	RCC2 Extension Shelf	NTMX8601		1	06		AP
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	3	RUL12
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	4	RUL12
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	3	RUL12
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	4	RUL12
	Quad Frame Carrier	NTMX87AA			06	4	RUL12
	Dual DS1 Packlet	NTMX81AA			06	4 0-3	RUL12
	Filler Face Plate	NTMX83AA			06	4 0-3	RUL12
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	5	RUL12
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	6	RUL12
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	5	RUL12
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	6	RUL12
	Quad Frame Carrier	NTMX87AA			06	6	RUL12
	Dual DS1 Packlet	NTMX81AA			06	6 0-3	RUL12
	Filler Face Plate	NTMX83AA			06	6 0-3	RUL12
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	7	RUL12
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	8	RUL12
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	7	RUL12
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	8	RUL12
	Quad Frame Carrier	NTMX87AA			06	8	RUL12
	Dual DS1 Packlet	NTMX81AA			06	8 0-3	RUL12
	Filler Face Plate	NTMX83AA			06	8 0-3	RUL12
	Filler Plate	NT0X50AA			06	3,5,7	RUL12
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	9	RUL12
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	10	RUL12
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	11	RUL12
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	12	RUL12
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	9	RUL12
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	10	RUL12
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	11	RUL12
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	12	RUL12
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	15	RUL12
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	16	RUL12
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	17	RUL12
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	18	RUL12
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	19	RUL12
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	15	RUL12
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	16	RUL12
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	17	RUL12
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	18	RUL12

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS		RULE
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	19		RUL12
	Quad Frame Carrier	NTMX87AA			06	19		RUL12
	Dual DS1 Packlet	NTMX81AA			06	19	0-3	RUL12
	Filler Face Plate	NTMX83AA			06	19	0-3	RUL12
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	20		RUL12
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	21		RUL12
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	20		RUL12
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	21		RUL12
	Quad Frame Carrier	NTMX87AA			06	21		RUL12
	Dual DS1 Packlet	NTMX81AA			06	21	0-3	RUL12
	Filler Face Plate	NTMX83AA			06	21	0-3	RUL12
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	22		RUL12
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	23		RUL12
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	22		RUL12
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	23		RUL12
	Quad Frame Carrier	NTMX87AA			06	23		RUL12
	Dual DS1 Packlet	NTMX81AA			06	23	0-3	RUL12
	Filler Face Plate	NTMX83AA			06	23	0-3	RUL12
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	24		RUL12
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	24		RUL12
	Filler Plate	NT0X50AA			06	24		RUL12
	Fan Cooling Unit	NTNX27CA			00			RUL1
	Des. Label NTBX02BA	P0737724						RUL12
	CEXT Label (Grey)	P0715088						RUL13
	CEXT Label (Brown)	P0746295						RUL13
	CEXT FSP Label	P0742964						RUL13
	EMI Door Kit (Grey)	NTRX2516						RUL23
	EMI Door Kit (Brown)	NTRX2531						RUL23
	Cable Trough (Grey)	NTNX5511						RUL19
	Cable Trough (Brown)	NTRX5544						RUL19
	Leveling foot kit	NTRX2523						RUL20
	End Guards & Side Panels	NTRX73						RUL14
	Frame/Logic Ground H/W kit	NTRX2519						RUL15
	CRSC Standalone Power Kit	NTMX8943						RUL18
	CRSC Standalone Power Dwg.	PCMX8943						RUL18
	Cover Plate	P0715809						RUL18
	Endguard Insert Assemblies	NTRX07						RUL16
	Auxiliary Alarm Cable BB	NTZZ46FA						RUL21
	Cover Plate	P0715775						RUL21
	ABS Cable	NTMX8955						RUL22
	15-Pin Cover Plate	P0741250						RUL22
	RSC-S Hardware kit	NT0X58BK						RUL24

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT6X30AA	MD	NT6X30CA
NTBX31BA	MD	NTBX31BB
NTBX31BB	A&M	NTBX31BC
NTBX02AA	RCP	NTBX02BA

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

Items marked AP01 are included with NTMX26BA and are shown for completeness.

RCP in flaglist means that the Rating (status) of the pec is pending change.

RULES:

AP 1) When PEC NTMX88AA is ordered, these items are provided.

RUL1 1) Provide one NTMX26BA FSP per CEXT cabinet.

2) Provide two NT6X30CA Ringing Generators when analog ringing is required. Analog ringing is used when non-ISDN lines are provided. Check availability reports before ordering. NT6X30CA replaces NT6X30AA.

3) Provide two NT6X3005 fillers when NT6X30--s are not provided.

4) Provide one NTNX27CA Cooling Unit per CEXT.

RUL2 1) Provide one (1) NTBX31BB LCME Common CP Fill for each LCME (2B1Q) module required (maximum one per CEXT). NTBX31BB replaces NTBX31BA. Provide one NTBX31PA per CEXT for field application to upgrade an existing NTBX31BA to NTBX31BB.

Provide one (1) NTBX31PB LCME Upgrade Kit per LCME Module, for field upgrades only, when converting NTBX31BB LCME Common CP to NTBX31BC.

2) The LCME module is for the ISDN 2B1Q Access Subsystem. The LCME Line Drawers are numbered from left to right as seen from the front. The Line Sub Groups are numbered as follows:

Frame Shelf Pos.	Line Drawer	Line Sub Group (LSG)
33	0	00,01
33	1	02,03
33	2	04,05
33	3	06,07
47	4	08,09
47	5	10,11
47	6	12,13
47	7	14,15

3) Provide one NTBX31AB LCME Filler set when the module is not equipped.

RUL3 1) Provide one (1) NTBX32BA Enhanced Line Drawer for the LCME to accommodate up to 60 line cards in two (2) logical drawers called Line Sub-Groups. Line Drawers are equipped in line drawer positions 1,5,9 and 13 on each Line Shelf Assembly. 2) The Data Line Cards cannot be mounted in the five line card position (slots 18 to 26) in the top LSG next to the PUPS line card. It is permitted to mount the Data Line Card in the lower LSG directly under the PUPS.

3) The LCME for RSC-S applications supports ISDN lines and POTS, EBS and DATAPATH lines. Refer to the section on ISDN Enhanced Line Drawer NTBX32BA for more information.

4) For each unequipped line drawer position provide one (1) NT6X05AX Line Drawer Filler Plate.

5) Provide one (1) Cutoff Strap for each line drawer whose line cards are to be held simultaneously cutoff by this method.

Since straps can be re-used, the quantity to be provided is determined by the number of lines which are to be held simultaneously in this state.

RUL4 1) The following line cards may be assigned to the ISDN Line Drawer:

DESCRIPTION	PEC	# OF CARD SLOTS	MAX # PER LINE MODULE
ISDN 2B1Q 'U' I/F Line Card	NTBX27AA	1	480
ISDN 'S/T' I/F LC	NTBX26AA	2	240
Data Line Card	NT6X71AA/AB	2	240
Asynchronous I/F Line Card	NT6X76AC/AD***	2	240
Business Set Line Card	NT6X21AC	1	480
POTS Message Waiting	NT6X19AA*	1	472
Message Waiting Converter LC	NT6X20AA*	2	8
POTS Line Card	NT6X17AA/AB/AC	1	480
POTS Line Card	NT6X18--**	1	480
IBERT	NT6X99AA	2	1 per LCME

* The POTS Message Waiting cards require one (1) message waiting converter line card NT6X20AA (two slots high) per line drawer to function.

** The NT6X18-- line card type can be used if it is NOT configured as a Coin or ANI line. No high voltage NT6X18-- applications may be used.

*** The NT6X76AD Hayes Supported Asynchronous Interface Line Card is to replace NT6X76AC Asynchronous Interface Line Card.

2) Any of the line cards supported can be mixed with any other line cards of a Line Subgroup. However, if there are more than eight (8) S/T-Interface line cards in the same row as POTS line cards, then the POTS line cards will NOT stay in-service on PUPS failure.

The LCME provides flexible Time Division Multiplexing (TDM) groups. This enables an ISDN line to be placed anywhere in a drawer. Any four ISDN lines from the same physical drawer can belong to the same TDM group subject to rule that lines in a particular TDM group must come from the same physical drawer.

4) Provision IBERT for data path/ISDN loop testing. Provision only one per LCME.

5) Provision a maximum of 32 single slot line cards in even line subgroups and 28 in odd line subgroups.

RUL5 1) Provide one (1) P0689450 French Warning Label when frame is required by Canadian customers. This label is to be affixed to the cabinet FSP.

2) Provide one (1) P0709652 Line Drawer Identification Labels per CRSC Cabinet. P0709652 provides enough labels for 16 Line Drawers.

3) Provide one each of the following LCME PDC Fuse Designation Labels per CRSC and/or CEXT Cabinet provided.

PEC	DESCRIPTION
P0711231	LCME 00 0- LCME 99 0
P0711232	LCME 00 1- LCME 99 1

4) Provide one each of the following LCME Module/Shelf Designation Labels per CRSC and/or CEXT Cabinet provided to be affixed to the FSP:

PEC	DESCRIPTION
P0711233	LCME:00 0 LCAI:0- LCME:99 0 LCAI:0
P0711234	LCME:00 0 LCAI:1- LCME:99 0 LCAI:1
P0711235	LCME:00 1 LCAI:0- LCME:99 1 LCAI:0
P0711236	LCME:00 1 LCAI:1- LCME:99 1 LCAI:1

RUL6 1) Provide either a fully configured RMM per NTZZ12JA or build the RMM by provisioning one (1) NT6X13AB and equipment per RULES 7, 8, and 9.

2) This shelf is always needed in Mono RSCS installations. A second (2nd) RMM may be housed in the CEXT cabinet (if used) or a CMIS.

RUL7 1) The following Service Circuits are provisionable on the RMM:

- NT3X09BA - Remote Metallic Test Access
- NT0X10AA - Scan (SC) Point Card (14 SC Points Per Card)
- NT2X10BA/NT2X11BA - MTU
- NT2X57AA - Signal Distribution (SD) Card (14 SD Points Per Car
- NT2X90AD - INC/OG Test Trunk (Required For Metallic Testing)

2) Due to bulkhead cabling limitations, RMMs in RSC-S applications have additional mounting restrictions. Refer to the following for allowable circuit pack mounting locations:

RMM SLOT	ALLOWED CIRCUIT PACK
3	NT2X10BA
4	NT2X11BA
5	NT0X10AA
6	NT3X09BA
7	NT2X90AD for MONTALK
8	NT2X90AD for MONTALK
9	NT2X90AD for VERIFICATION 90
10	NT2X90AD for VERIFICATION 90
11	FULLY PROVISIONABLE WITHIN RULES
12	FULLY PROVISIONABLE WITHIN RULES
13	FULLY PROVISIONABLE WITHIN RULES
14	FULLY PROVISIONABLE WITHIN RULES
15	FULLY PROVISIONABLE WITHIN RULES
16	FULLY PROVISIONABLE WITHIN RULES

3) Provide Wiring Option NTMX88WA when CEXT RMM shelf is equipped for MTA capability.

RUL8 1) Any card slot 1 thru 16 not equipped with a circuit pack per RULE #7 above shall be equipped with an NT0X50AC Filler Face Plate.

2) Provide RMM fillers for unequipped slots as follows:
- NT0X50AG for shelf 19 slot 17
- NT0X50AA for shelf 19 slot 19
- NT0X50BE for shelf 19 slot 20

RUL9 1) Reserved.

RUL10 1) Provide two NTMX79AA and one NT0X50AA (slot 1) to equip the Extension shelf to support one CRSC. This circuit pack is required for configurations that require the additional capabilities provided by the Extension shelf. The Extension shelf is divided into two units (left/right), each of which can support one CRSC. Provide four NTMX79AA packs and two NT0X50AAs (slots 1 and 26) when required to extend the capabilities of two CRSCs. Slots 2 and 13 support extension of the first RCC2. Slots 14 and 25 extend the second RCC2.

2) Provide one NTZZ12KA to provide Filler Face Plates for the right side of the Extension shelf (slots 14-26) when it is not to be equipped. If the Extension shelf is not being

usedat all, provide one NtZZ12KA and one NTZZ12WA (for slots 1-13).

RUL11 1) Provision the EXT to house D-Channel Handlers (DCH) when the office requirements dictate DCH quantities in excess of 3. When the EXT shelf is provisioned with DCH CPs it is at the expense of DS-1 Circuits.

2) The EXT shelf is actually two functional shelves on a single card cage. Where Slots 1 thru 13 (the Left Side) is used for the first CRSC and Slots 14 thru 27 (the Right Side) is used for the second CRSC.

RUL12 1) When provisioning DCHs, DS-30As and DS-1s for the RCC2 one must consider all three together to determine the hardware configuration required. Refer to Table H (Section 14 of the Engineering Manual) and select the configuration that bests suits your need. Note: If any of the configurations indicate slots used in the extension shelf then the CEXT Cabinet must be provided to support this configuration.

2) Resistor networks for the DCH circuit packs are Always Provided as part of the shelf.

3) Each slot not equipped with either a DCH or a Quad Carrier CP must be equipped with a NT0X50AA filler plate. Provision one NT0X50AA for each slot (xx = 4,6,8,9-12,15-24) that is not so equipped.

4) Ports 0 (slot 12:0) and 8 (slot 16:0) must be the first interlinks in a Dual RCC2 configuration.

5) DS30A ports are to be assigned beginnning with port 53 and then descending.

6) Provide one Des. Label P0737724 for each NTBX02BA CP provisioned.

RUL13 1) Provide one P0715088 CEXT Label and one P0742964 CEXT FSP Label per CEXT cabinet for applications using grey cabinets.

2) Provide one P0746295 CEXT Label and one P0742964 CEXT FSP Label per CEXT cabinet for applications using brown cabinets.

RUL14 1) Refer to MSRX73 for all CEXT cabinet lineup provisioned endpanel, endcover, endguard, duct and column around hardware.

RUL15 1) Provide one NTRX2519 Frame/Logic Ground Hardware kit per CEXT.

2) P0714698 and P0714699 are NOT to be ordered. They are included in the NTRX2516 kit.

RUL16 1) Refer to MSRX07 for all CEXT cabinet lineup provisioned endguard insert hardware.

RUL17 1) Provide one of each item referenced against this Rule per CEXT.

RUL18 1) Provide one NTMX8943 and PCMX8943 when the CEXT is powered from a seven foot PDC or when vertical powering is used. Vertical power should be used for all new applications. Horizontal power will be supplied to extend an existing horizontally-powered lineup only.

2) When NTMX8943 is NOT required, provide four (4) P0715809 Cover Plates and eight (8) P0670923 screws.

RUL19 1) Provide one (1) NTNX5511 cable trough for each grey trimmed CEXT.

2) Provide one (1) NTRX5544 cable trough for each brown trimmed CEXT.

RUL20 1) Provide one (1) NTRX2523 leveling foot kit per CEXT for non-earthquake applications.

RUL21 1) Provide one (1) NTMX8950 Cable Assembly (C01/C02 to Aisle ALM1/2) Building Block when external alarms are required. This code includes the hardware required with this cable. Assemble per ADMX88AA.

2) When NTZZ46FA is NOT required, provide two (2) P0715775 Cover Plates and four (4) P0670923 screws.

RUL22 1) Provide one (1) NTMX8955 ABS Cable Assembly when Alarm Battery Supply is required at the bulkhead.

2) When NTMX8955 is NOT required, provide two (2) P0741250 Cover Plates and four (4) P0670923 screws.

RUL23 1) Provide one (1) NTRX2516 EMI door kit per grey trimmed CEXT or one (1) NTRX2531 EMI door kit per brown trimmed CEXT.

RUL24 1) Provide one NT0X58BK Hardware kit to provide installation materials. When providing CEXT on an extension (without a

CRSC), kit is required. If CEXT is provided with a CRSC, the kit can be provided per the Rule in the CRSC section (only one kit is needed per extension).

CABINETIZED REMOTE SWITCHING CENTER

PEC CODE: NTMX89AA

CPC CODE: B0231072

RATING: MD

REPLACES: N/A

REPLACED BY: NTZZ47RN

ABBREVIATION NAME: CRSC

ENGINEERING DESCRIPTION: The CRSC is capable of being deployed as a single cabinet RSCS which supports up to 480 lines, service and maintenance circuits and DS1 links to host at a maximum distance of 100 miles (150 miles for Canadian applications).

In addition, the CRSC may be deployed as the controller in a multi-cabinet RSCS. Other cabinets which may be deployed in a multi-cabinet RSCS are the CPDC, CMIS, and CLCE (max 5 in Mono CRSC).

REFERENCE DOCUMENTATION: ISMX89AA 00 15
MSMX89AA 00 14

MARKETS: Applicable markets:

US
Canada
CALA

ISSUE AUTHOR: NTI: Deniece Land Dept. 3471 (PPK)

MAIN CONTACT: NTI: Deniece Land Dept. 3471 (PPK)

NTMX89AA EMR2-25-RCC2-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 10 27	ECM 617 04	Revisions per MSMX89AA 00 05
93 01 05	ECM 617 05	Revisions per MSMX89AA 00 07
93 03 12	ECM 617 07	Corrections per EAE input.
93 04 13	ECM 617 08	EC 011-17820 - Replace NT6X76AC with NT6X76AD Hayes Supported AILC.
93 04 23	ECM 617 09	Introduce NT6X30CA Ringing Generator. Introduce Extended Distance packfill.
93 08 17	ECM 617 11	Inttopuce NTZZ12XB RCC2 w/o EISP.
93 10 13	ECM 617 12	EC 024-90341 - Cable gender changer. ET 41093 - Add NT0X58BK H/W kit.
93 12 02	ECM 617 14	Add door labels for brown application.
94 10 17	ECM 691 07	Retire code. Replaced by NTZZ47RN.
95 05 04	ECM 691 09	Revisions per EC 011-21293.
96 04 02	ECM 691 15	Per EC#024-94829 add NTBX02BA, add label P0737724, add NTBX31PB upgrade kit. Per EC#024-93888 add NTMX87AB and NTMX8515 AML Kit. Per EC#024-93816 add NT6X92BC, NTMX73AB, and P0809790 Des. Lab. Introduce NT6X92EA.
97 03 07	ECM 691 19	Per EC#024-97290 show NTMX76AB as provisionable.
97 05 02	ECM 691 21	Per EC#024-97754 show NTAX74AA as provisionable.
97 10 10	ECM 691 22	Clarify the CDO/PBX available trunk information for Dual RSC-S office from 40 to 36 Ports. MD NTMX8515 Kit NO Replacement Per EC 024-98484. Per EC 024-97867 MD the NTBX31BB and replaced by NTBX31BC.

The Cabinetized Remote Switching Center is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Streamline Cabinet	NTNX25EA		1			AP
	Frame Supervisory Panel	NTMX26BA	FSP		61		RUL1
	FSP Alarm CP	NT6X36AA		1	61		AP01
	Alarm CP for FSP	NT6X36AB		1	61		AP01
#	Ringing Generator	NT6X30AA			61	1,2	RUL1
	Ringing Generator	NT6X30CA			61	1,2	RUL1
	Ringing Generator Filler	NT6X3005			61	1,2	RUL1
#	LCME Common CP	NTBX31BA	LCME				RUL2
#	LCME Common CP	NTBX31BB	LCME				RUL2
	LCME Common CP	NTBX31BC	LCME				RUL2
	LCME Packfill Upgrade Kit	NTBX31PA					RUL2
	LCME Packfill Upgrade Kit	NTBX31PB					RUL2
	LCME Filler Plates	NTBX31AB					RUL2
	ISDN Line Conc Arr Shf Assy	NTBX3118	LCAI	0	47		AP
	ISDN Enhanced Line Drawer	NTBX32BA	LD			1,5, 9,13	RUL3
	Line Drawer Filler Plate	NT6X05AX	FP			1,5, 9,13	RUL3
	ISDN Line Conc Arr Shf Assy	NTBX3118	LCAI	1	33		AP
	ISDN Enhanced Line Drawer	NTBX32BA	LD			1,5, 9,13	RUL3
	Line Drawer Filler Plate	NT6X05AX	FP			1,5, 9,13	RUL3
	Subscriber Line Circuits	AR					RUL4
	Line Drawer ID Label	P0709652					RUL5
	Warning Label (French)	P0689450					RUL5
	LCME PDC Fuse Label	P0711231					RUL5
	LCME PDC Fuse Label	P0711232					RUL5
	LCME Shelf Label for FSP	P0711233					RUL5
	LCME Shelf Label for FSP	P0711234					RUL5
	LCME Shelf Label for FSP	P0711235					RUL5
	LCME Shelf Label for FSP	P0711236					RUL5
	STD1 Remote Maint. Module	NTZZ12JA	RMM		19		RUL6
	Remote Maint. Mod. Common CP	NT6X13AB	RMM		19		RUL6
	Remote Maintenance Module	NT6X1301		1	19		AP
	Maintenance Trunk Card	AR			19	3-16	RUL7
	Filler Face Plate	NT0X50AC			19	1-16	RUL8
	Filler Face Plate	NT0X50AG			19	17	RUL8
	Filler Face Plate	NT0X50AA			19	19	RUL8
	Filler Face Plate	NT0X50BE			19	20	RUL8
	-48V SP Battery Supply Cable	NT6X1438		1			AP

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
#	RCC2 Shelf Packfill	NTZZ12XA	RCC2		06		RUL10
#	RCC2 EDC Packfill	NTZZ12ZA	RCC2		06		RUL10
	RCC2 Packfill w/o EISP	NTZZ12XB	RCC2		06		RUL10
	RCC2 Packfill	NTZZ12XF	RCC2		06		RUL10
	Remote Cluster Controller #2	NTMX8501		1	06		AP
#	Enhanced ISP	NTBX01AB			06	4,24	RUL10
#	Design label (NTBX01AB)	P0738856			06	4,24	RUL10
	Enhanced ISP	NTBX01BA			06	4,24	RUL10
	Design label (NTBX01BA)	P0809787			06	4,24	RUL10
	Filler faceplate	NT0X50AA			06	4,24	RUL10
	Class Modem Resource CP	NT6X78AB			06	5,23	RUL12
	Peripheral Loader CP	NT7X05AA			06	5,23	RUL12
	Des. Label NT7X05AA	P0809790			06	5,23	RUL12
	Filler Plate	NT0X50AA			06	5,23	RUL12
	Universal Tone Rec'vr (UTR)	NT6X92BB			06	6,22, 7,21	RUL13
#	Universal Tone Rec'vr (UTR)	NT6X92BC			06	6,22, 7,21	RUL13
	Global Tone Rec'vr (GTR)	NT6X92EA			06	6,22, 7,21	RUL13
	Des. Label NT6X92EA	P0835224			06	6,22, 7,21	RUL13
	Peripheral Loader CP	NT7X05AA			06	7,21	RUL13
	Des. Label NT7X05AA	P0809790			06	7,21	RUL13
	Filler Plate	NT0X50AA			06	7,21	RUL13
	Enhanced Messaging CP	NT6X69AC		2	06	8,20	AP02
	Enhanced Messaging CP	NT6X69AC			06	8,20	RUL10
	Design label (NT6X69AC)	P0710476			06	8,20	RUL10
	Enhanced Messaging CP	NT6X69AD			06	8,20	RUL10
	Design label (NT6X69AD)	P0809789			06	8,20	RUL10
	Extended Distance Messaging	NTMX76AA			06	8,20	RUL10
	Design label (NTMX76AA)	P0744109			06	8,20	RUL10
	Extended Distance Messaging	NTMX76AB			06	8,20	RUL10
	Design label (NTMX76AB)	P0857783			06	8,20	RUL10
	PCM Signaling Proc.	NTMX73AA			06	11,17	RUL27
	PCM Signaling Proc.	NTMX73AB			06	11,17	RUL27
	Quad Carrier	NTMX87AA			06	9,19	RUL11
	Quad Carrier	NTMX87AB			06	9,19	RUL28
#	AML Upgrade Kit	NTMX8515			06		RUL29

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Dual DS1 Packlet	NTMX81AA			06	9 0-3 19 0-3	RUL11
	Filler Face Plate	NTMX83AA			06	9 0-3 19 0-3	RUL11
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	12,14, 16	RUL14
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	12,14, 16	RUL14
	Quad Frame Carrier	NTMX87AA			06	12	RUL14
	Dual DS1 Packlet	NTMX81AA			06	12 0-3	RUL14
	Filler Face Plate	NTMX83AA			06	12 0-3	RUL14
	Quad Frame Carrier	NTMX87AA			06	14	RUL14
	Dual DS1 Packlet	NTMX81AA			06	14 0-2	RUL14
	Filler Face Plate	NTMX83AA			06	14 0-3	RUL14
	Quad Frame Carrier	NTMX87AA			06	16	RUL14
	Dual DS1 Packlet	NTMX81AA			06	16 0-3	RUL14
	Filler Face Plate	NTMX83AA			06	16 0-3	RUL14
	Filler Face Plate	NT0X50AA			06	12,14, 16	RUL14
	Fan Cooling Unit	NTNX27CA			00		RUL1
	CRSC Label (Grey)	P0715089					RUL9
	CRSC Label (Brown)	P0746294					RUL9
	CRSC FSP Label	P0742963					RUL9
	EMI Door Kit (Grey)	NTRX2516					RUL21
	EMI Door Kit (Brown)	NTRX2531					RUL21
	Cable Trough (Grey)	NTNX5511					RUL21
	Cable Trough (Brown)	NTRX5544					RUL21
	Leveling foot kit	NTRX2523					RUL25
	Earthquake Anchor kit	NTRX2512					RUL25
	End Guards,EMI Side Panels	NTRX73					RUL15
	Frame/Logic Gnd. H/W Kit	NTRX2519					RUL16
	Endguard Insert Assemblies	NTRX07					RUL17
	CRSC Standalone Power Kit	NTMX8943					RUL18
	CRSC Standalone Power Dwg.	PCMX8943					RUL18
	9-Pin Cover Plate	P0715809					RUL18
	Endguard Labels for RSC-S	P0736690					RUL20
	ABS Cable	NTMX8955			61		RUL22
	15-Pin Cover Plate	P0741250			47		RUL22
	BAMD Alarm/Power Cable BB	NTZZ46GA			61		RUL23

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
9-Pin Cover Plate	NTEX5070			47		RUL23
Aisle Alarm Cable Assy. BB	NTZZ46FA			33		RUL24
Cable Gender Change Adapter	NTRX26CZ			33		RUL24
Cover Plate	P0715775			33		RUL24
RSC-S Hardware kit	NT0X58BK					RUL26

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT6X30AA	MD	NT6X30CA
NTZZ12XA	MD	NTZZ12XB
NTZZ12ZA	MD	NTZZ12XB
NTBX01AB	MD	NTBX01BA
NTBX31BA	MD	NTBX31BB
NTBX31BB	MD	MTBX31BC
NTBX02AA	MD	NTBX02BA
NTMX8515	MD	No Replacement
NT6X92BC	STD*	NT6X69EA

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

Items marked AP01 are included in NTMX26BA and are shown for sparing purposes.

Items marked AP02 are included in NTZZ12XA and are shown for sparing purposes.

RCP in flaglist means that the Rating (status) of the pec is pending change.

STD* in flaglist means that the pec is still standard pending change. Check availablility before ordering the replacement pec.

RULES:

AP 1) When PEC NTMX89AA is ordered, these items are provided.

RUL1 1) Provide one NTMX26BA FSP for each CRSC.

2) Provide two NT6X30CA Ringing Generators when analog ringing is required. Analog ringing is used when non-ISDN cards are provided. Check availability reports before ordering. NT6X30CA replaces NT6X30AA.

3) Provide one NTNX27CA Cooling Unit per CRSC.

4) Provide two NT6X3005 fillers when NT6X30--s are not provided.

RUL2 1) Provide one (1) NTBX31BC LCME Common CP Fill for each LCME (2B1Q) module required (maximum one per CRSC). NTBX31BC replaces NTBX31BB. Provide one NTBX31PA per CRSC for field application to upgrade an existing NTBX31BA to NTBX31BB. The NTBX31BB is MD'ed - replaced by the NTBX31BC. The NTBX31BB's and NTBX31BC's may be mixed in a frame. There are no specific software loads required for the Host office when the NTBX31BC is provisioned.

Provide one (1) NTBX31PB Upgrade Kit per LCME Module, for field upgrades only, when converting NTBX31BB LCME Common CP to NTBX31BC.

Change out existing NTBX34BC CPs to NTBX34CB CPs if the customer specifically requests so. The NTBX34CB resolves componet obselescence and robustness issues.

2) The LCME module is for the ISDN 2B1Q Access Subsystem. The LCME Line Drawers are numbered from left to right as seen from the front. The Line Sub Groups are numbered as follows:

Frame Shelf Pos.	Line Drawer	Line Sub Group (LSG)
33	0	00,01
33	1	02,03
33	2	04,05
33	3	06,07
47	4	08,09
47	5	10,11
47	6	12,13
47	7	14,15

3) Provide one NTBX31AB Filler Plate set when the LCME module is not to be equipped.

RUL3 1) Provide one (1) NTBX32BA Enhanced Line Drawer for the LCME to accommodate up to 60 line cards in two (2) logical drawers called Line Sub-Groups. Line Drawers are equipped in line drawer positions 1,5,9 and 13 on each Line Shelf Assembly.

2) The Data Line Cards cannot be mounted in the five line card position (slots 18 to 26) in the top LSG next to the PUPS line card. It is permitted to mount the Data Line Card in the lower LSG directly under the PUPS.

3) The LCME in RSC-S applications supports, in addition to ISDN lines, POTS, EBS and DATAPATH lines. Refer to the section on ISDN Enhanced Line Drawer NTBX32BA for more information.

4) For each unequipped line drawer position provide one (1) NT6X05AX Line Drawer Filler Plate.

5) Provide one (1) Cutoff Strap for each line drawer whose line cards are to be held simultaneously cutoff by this method.

Since straps can be re-used, the quantity to be provided is determined by the number of lines which are to be held simultaneously in this state.

RUL4 1) The following line cards may be assigned to the ISDN Line Drawer:

DESCRIPTION	PEC	# OF CARD SLOTS	MAX # PER LINE MODULE

ISDN 2B1Q 'U' I/F Line Card	NTBX27AA	1	480
ISDN 'S/T' I/F LC	NTBX26AA	2	240
Data Line Card	NT6X71AA/AB	2	240
Asynchronous I/F Line Card	NT6X76AC/AD***	2	240
Business Set Line Card	NT6X21AC	1	480
POTS Message Waiting	NT6X19AA*	1	472
Message Waiting Converter LC	NT6X20AA*	2	8
POTS Line Card	NT6X17AA/AB/AC	1	480
POTS Line Card	NT6X18--**	1	480
IBERT	NT6X99AA	2	1 per LCME

* The POTS Message Waiting cards require one (1) message waiting converter line card NT6X20AA (two slots high) per line drawer to function.

** The NT6X18-- line card type can be used if it is NOT configured as a Coin or ANI line. No high voltage NT6X18-- applications may be used.

*** The NT6X76AD Hayes Supported Asynchronous Interface Line Card is to replace NT6X76AC Asynchronous Interface Line Card.

2) Any of the line cards supported can be mixed with any other line cards of a Line Subgroup. However, if there are more than eight (8) S/T-Interface line cards in the same row as POTS line cards, then the POTS line cards will NOT stay in-service on PUPS failure.

The LCME provides flexible Time Division Multiplexing (TDM) groups. This enables an ISDN line to be placed anywhere in a drawer. Any four ISDN lines from the same physical drawer can belong to the same TDM group subject to rule that lines in a particular TDM group must come from the same physical drawer.

3) Provision IBERT for data path/ISDN loop testing. Provision only one per LCME.

4) Provision a maximum of 32 single slot cards in even line subgroups and 28 in odd line subgroups.

RUL5 1) Provide one (1) P0689450 French Warning Label when frame is required by Canadian customers. This label is to be affixed to the cabinet FSP.

2) Provide one (1) P0709652 Line Drawer Identification Labels per CRSC Cabinet. P0709652 provides enough labels for 16 Line Drawers.

3) Provide one each of the following LCME PDC Fuse Designation Labels per CRSC and/or CEXT Cabinet provided.

PEC	DESCRIPTION
P0711231	LCME 00 0- LCME 99 0
P0711232	LCME 00 1- LCME 99 1

4) Provide one each of the following LCME Module/Shelf Designation Labels per CRSC and/or CEXT Cabinet provided to be affixed to the FSP:

PEC	DESCRIPTION
P0711233	LCME:00 0 LCAI:0- LCME:99 0 LCAI:0
P0711234	LCME:00 0 LCAI:1- LCME:99 0 LCAI:1
P0711235	LCME:00 1 LCAI:0- LCME:99 1 LCAI:0
P0711236	LCME:00 1 LCAI:1- LCME:99 1 LCAI:1

RUL6 1) Provide either a fully configured RMM per NTZZ12JA or build the RMM by provisioning one (1) NT6X13AB and equipment per RULES 7, 8, and 9.

2) This shelf is generally needed in Mono RSCS installations. A second (2nd) RMM may be housed in the CEXT cabinet (if used) or a CMIS.

RUL7 1) The following Service Circuits are provisionable on the RMM:

- NT3X09BA - Remote Metallic Test Access
- NT0X10AA - Scan (SC) Point Card (14 SC Points Per Card)
- NT2X10BA/NT2X11BA - MTU
- NT2X57AA - Signal Distribution (SD) Card (14 SD Points Per Car
- NT2X90AD - INC/OG Test Trunk (Required For Metallic Testing)

2) Due to bulkhead cabling limitations, RMMs in RSC-S applications have aadditional mounting restrictions. Existing restrictions listed in Section 14 of the Engineering Manual

also apply. Refer to the following for allowable circuit pack mounting locations:

RMM SLOT	ALLOWED CIRCUIT PACK
3	NT2X10BA
4	NT2X11BA
5	NT0X10AA
6	NT3X09BA
7	NT2X90AD for MONTALK
8	NT2X90AD for MONTALK
9	NT2X90AD for VERIFICATION 90
10	NT2X90AD for VERIFICATION 90
11	FULLY PROVISIONABLE WITHIN RULES
12	FULLY PROVISIONABLE WITHIN RULES
13	FULLY PROVISIONABLE WITHIN RULES
14	FULLY PROVISIONABLE WITHIN RULES
15	FULLY PROVISIONABLE WITHIN RULES
16	FULLY PROVISIONABLE WITHIN RULES

RUL8 1) Any card slot 1 thru 16 not equipped with a circuit pack per RULE #7 above shall be equipped with an NT0X50AC Filler Face Plate.

2) Provide fillers for unequipped RMM slots as follows:
- NT0X50AG in shelf 19 slot 17
- NT0X50AA in shelf 19 slot 19
- NT0X50BE in shelf 19 slot 20

RUL9 1) Provide one (1) P0715089 CRSC door label sheet per NTMX89AA for applications using grey cabinets or one (1) P0746294 CRSC door label sheet per NTMX89AA for applications using brown cabinets. One sheet provides labels for both doors.

2) Provide one (1) P0742963 CRSC FSP label per NTMX89AA.

RUL10 1) Provide one (1) NTZZ12XB RCC2 packfill which contains NTMX77AA Processor pack. The NTZZ12XB must be applied to North American markets prior to XPM 08 software release.

The NTZZ12XB containing:

2 NTMX72AA Power Converter
2 NTMX77AA Processor
2 NTMX75AA Enhanced Matrix
2 NTMX73AA Signalling Processor
2 NTMX74AB 32 DS30A I/F Pack
2 P0744677 NTMX74AB Label

Existing sites with the NTMX77AA will work with XPM081 software releases and later.

2) Provide one (1) NTZZ12XF RCC2 packfill which contains NTAX74AA Processor pack.

The NTZZ12XF containing:

2 NTMX72AA Power Converter
2 NTAX74AA MCP - MCS Cellular Processor
2 P0800860 NTAX74AA Label
2 NTMX75AA Enhanced Matrix
2 NTMX73AA Signalling Processor
2 NTMX74AB 32 DS30A I/F Pack
2 P0744677 NTMX74AB Label

The NTAX74AA CPM Processor can be provisioned for North American, Asia Pacific, Global/International and European markets but must meet software release requirements:

Domestic/North American Markets - Available at XPM08
Required at XPM081
Global/Intn'l Markets with GL100 software - Required at XPM 08G
Asia Pacific Market - Required at XPM 10
Euro-100 for Europe - Required at XPM08E.

Provide the NTAX74AA for all initials and extensions that meet the market and software requirements listed above.

The NTAX74AA does not support the the NT7X05AA Peripheral Loader prior to XPM081. If the NT7X05AA Peripheral Loader is present, replace it with NT0X50AA filler and label.

The NTAX74AA OR NTMX77AA are provisionable at XPM08 Load. The NTAX74AA will be required with XPM081.

As of XPM081, the NT7X05AA will provide loadfile support for the NTAX74AA in the DMS100 RSCS Applications. Imaging capibility is NOT Supported for the NTAX74AA.

The Minimum baseline enhanced ISP Pack, required for proper NTAX74AA functionality, is the NTBX01BA.

3) Provide one NTZZ12XB/XF common CP fill per CRSC to utilize the BCS-35 enhancement of provisionable EISP. Prior to BCS-35, the EISP pack was required for all applications. BCS-35 allows the EISP to be provisioned only when ISDN

support is required. The NTZZ12XB/XF packfill contains no messaging packs to allow the user to choose either the NT6X69-- for standard distance (<100 miles in U.S. or <150 miles in Canada) or the NTMX76-- for extended distance applications. When the NTZZ12XB/XF packfill is provided, the following additional equipment must be supplied:

1. EITHER two (2) NTBX01BA EISP packs and
   two (2) P0809787 labels for ISDN support
   OR two (2) NT0X50AA fillers for non-ISDN

2. EITHER two (2) NT6X69AC packs and two (2) P0710476 labels for standard distance applications without ADSI SCWID support
   OR two (2) NTMX76AA packs and two (2) P0744109 labels for extended distance applications without ADSI SCWID support
   OR two (2) NTMX76AB packs and two (2) P0857783 labels for extended distance applications and ADSI SCWID support.
   OR two (2) NT6X69AD packs and two (2) P0809789 labels for standard distance applications with ADSI SCWID support

4) Provide only one packfill per CRSC.

RUL11 1) Provision DS1 packlets for C-side interface based on host traffic requirements. Two DS1 interfaces are provided per packlet. The Quad Carriers in slots 9 and 19 must be provided for all applications.

2) Assign packlets in the following order; slot 9:0,19:0,9:1,19:1,9:2, 19:2,9:3,19:3. (Note designation is slot:packlet)

3) Provide filler plates for all unused packlet positions.

RUL12 1) Provide two (2) NT6X78ABs in slots 5 & 23 when the CLASS Calling Number Delivery feature is provisioned.

2) Provide two (2) NT7X05AAs in slots 5 & 23 when support of fast recovery from lost load is required and support for Calling Number Delivery is not required. NT7X05AA requires XPM05-based software (like NA004), or later. Also refer to Rule 13. Provide one (1) Des. Label P0809790 per NT7X05AA CP provided.

The NTAX74AA does not support the the NT7X05AA Peripheral Loader prior to XPM081. If the NT7X05AA Peripheral Loader is present, replace it with NT0X50AA filler and label.

The NTAX74AA OR NTMX77AA are provisionable at XPM08 Load. The NTAX74AA will be required with XPM081.

As of XPM081, the NT7X05AA will provide loadfile support for the NTAX74AA in the DMS100 RSCS Applications.

3) If slots 5 and 23 are not equipped, provide two (2) NT0X50AA fillers.

RUL13 1) One UTR/GTR Pair in Slot 6 & 22 should be provisioned for each RCC2. NT6X92EA should now be provided in RCC2. DO NOT mix different NT6X92s in the same shelf. Provide des. labels as required.

2) The exact quantity required is based on offered traffic. The following general rule may be used for planning purposes only. If UTR CCS is 0 to 765, then one pair (6,22) is sufficient. If UTR CCS is 765 to 1600, then provide second pair (7,21). Note: A traffic analysis via REALQUICK or PRTCALC is required for exact provisioning.

3) Provide two (2) NT7X05AAs in slots 7 & 21 when support of fast recovery from lost load is required, support for Calling Number Delivery is required and a second pair of UTRs is not needed. NT7X05AAs can be provided in either slots 5 and 23 or slots 7 and 21 (whichever pair of slots is available). Provide only one pair of NT7X05AAs per RCC2. NT7X05AA requires XPM05-based software (like NA004). Provide one (1) Des. Label P0809790 per NT7X05AA CP provided.

4) Provide two (2) NTAX74AA CPM Processors per module.

The NTAX74AA does not support the the NT7X05AA Peripheral Loader prior to XPM081. If the NT7X05AA Peripheral Loader is present, replace it with NT0X50AA filler and label.

The NTAX74AA OR NTMX77AA are provisionable at XPM08 Load. The NTAX74AA will be required with XPM081.

As of XPM081, the NT7X05AA will provide loadfile support for the NTAX74AA in the DMS100 RSCS Applications. Imaging capibility is NOT Supported for the NTAX74AA.

Provide the NTAX74AA for all initials and extensions that meet the market and software requirements listed:

Domestic/North American Markets - Available at XPM08
Required at XPM081
Global/Intn'l Markets with GL100 software - Required at XPM 08
Asia Pacific Market - Required at XPM 10
Euro-100 for Europe - Required at XPM08E.

The Minimum baseline enhanced ISP Pack, required for proper NTAX74AA functionality, is the NTBX01BA.

4) If slots 7 and 21 are not equipped, provide two (2) NT0X50AA fillers.

RUL14 1) When provisioning DCHs, DS-30As and DS-1s for the RCC2 one must consider all three together to determine the hardware configuration required. Refer to Table H (Section 14 of the Engineering Manual) and select the configuration that best suits your need. Note: If the selected configuration indicates slots used in the extension shelf then the CEXT Cabinet must be provided to support this configuration.

2) Resistor networks for the DCH circuit packs are Always Provided as part of the shelf.

3) When neither a DCH nor a Quad Carrier CP is provided, provide one NT0X50AA for each unequipped slot (12,14,16).

4) Ports 0 (slot 12:0) and 8 (slot 16:0) must be the first interlinks in a Dual RCC2 configuration. Since the first two DS1 ports for the RCC2 inter-links must be assigned at locations 12:0 and 16:0 and these are two of the 20 ports available for DS1 trunks, ONLY 18 DS1 ports per RCC2 are actually available for CDO/PBX trunks. The limit of 36 DS1 trunks for Dual RSC-S Office.

5) DS30A ports are to be assigned beginning with port 53 and then descending.

6) A DCH in slot 12 uses port 1;a DCH in slot 14 uses port 17 ;a DCH in slot 16 uses port 9.

RUL15 1) Reference MSRX73 for all CRSC cabinet lineup provisioned endpanel, endcover, endguard, duct and column around hardware.

RUL16 1) Provide one NTRX2519 Frame/Logic ground Hardware kit per CRSC.

2) P0714698 and P0714699 are NOT to be ordered. These are included in the NTRX2516 kit.

RUL17 1) Reference NTRX07 for all CRSC cabinet provisioned endguard insert hardware.

RUL18 1) Provide one NTMX8943 when the CRSC is powered from a seven foot PDC, is operated as a standalone unit or when vertical powering is used. Provide one PCMX8943 drawing when the NTMX8943 kit is provided. Vertical powering should be provided for all new applications. Horizontal power should only be supplied to extend an existing horizontally-powered lineup.

2) Provide four P0715809 Cover plates and eight P0670923 screws when the NTMX8943 kit is NOT provided.

RUL19 1) Provide one of each item referenced against this Rule per CRSC.

RUL20 1) Provide one set of endguard labels per lineup. Enough labels are provided in this set for (2) CRSCs, (1) CEXT, (1) CPDC, (3) CLCEs and (1) CMIS. Refer to label docmentation if additional labels are required.

RUL21 1) Provide one NTNX5511 Cable Trough and one NTRX2516 EMI Door Kit for each grey trimmed CRSC.

2) Provide one NTRX5544 Cable Trough and one NTRX2531 EMI Door Kit for each brown trimmed CRSC.

RUL22 1) Provide one NTMX8955 ABS cable assembly when Alarm Battery Supply is required at the bulkhead. (Assemble per ADMX89AA.)

2) Provide two (2) P0741250 15-Pin cover plates and four (4) P0670923 screws when the NTMX8955 ABS cable is NOT required.

RUL23 1) Provide one NTZZ46GA BAMD Alarm/Power cable assembly Building Block when externally powering an Alarm Control Display Panel (NT0X63AC). This BB code includes the hardware required with this cable.

2) Provide one (1) NTEX5070 9-Pin cover plate and two (2) P0670923 screws when the NTZZ46GA BAMD Alarm/Power cable is NOT required.

RUL24 1) Provide one NTZZ46FA C01/C02 to Aisle Alm1/2/ cable assembly BB if external aisle alarm interface is required. This Building Block includes the hardware required with this cable.

2) Provide two (2) P0715775 25-Pin cover plates and four (4) P0670923 screws when the NTZZ46FA cable is NOT required.

3) Provide one (1) NTRX26CZ corrective cable to change the gender of the NTMX8950 cable (included in NTZZ46FA) if the NTMX8950 filtered connector gender is wrong due to installation prior to EC 011-17899. This part should not be supplied for new jobs unless a request has been received from the installer on site.

RUL25 1) Provide one NTRX2523 Leveling Foot Kit per CRSC for non-earthquake applications.

2) Provide one (1) NTRX2512 Earthquake Anchor kit for each CRSC in earthquake applications.

3) Anchoring hardware and leveling feet are provided by Building Studies.

RUL26 1) Provide one NT0X58BK Hardware kit to provide installation materials for initial and extension applications.

RUL27 1) Provide two NTMX73AA/AB when Fast SWACK Feature is required.

RUL28 1) Provide NTMX87AB Quad Carrier CPs in slot 9 and 19 when Additional Message Link is required.

RUL29 1) Provide one NTMX8515 Additional Message Link Upgrade Kit for additional message link to function. Refer to MSMX89AA for connectivity tables for wiring of the AML Kit. NOTE: The NTMX8515 Kit is MD'ed with no replacement. This Kit was never shipped to a customer.

CABINETIZED REMOTE SWITCHING CENTER (CRSC) OFFSHORE

PEC CODE: NTMX89BA

CPC CODE: B0234985

RATING: MD

REPLACES: Not Applicable

REPLACED BY: NTZZ47UC

ABBREVIATION NAME: CRSC

ENGINEERING DESCRIPTION: The NTMX89BA Cabinetized Remote Switching Center (CRSC) Offshore cabinet incorporates an FSP, LCME, RMM, RC02, and Cooling Unit.

The CRSC is part of the International Remote Switching Center Synchronized Digital Hierarchy (SDH) (RSC-S) product.

The CRSC is capable of being deployed as a single cabinet RSC-S supporting up to 480 lines (maximum 216 ISDN lines), service and maintenance circuits, and PCM30 links.

In addition, the CRSC may be deployed in a multi-cabinet RSC-S. Other cabinets which may be deployed in a multi-cabinet RSC-S, include NTMX88BA CRSC Extension Cabinet (CEXT) Offshore.

REFERENCE DOCUMENTATION: ISMX89BA 00 13
MSMX89BA 00 12

MARKETS: Applicable markets:

Europe
Asia/Pacific
CALA
Carrier

ISSUE AUTHOR: NTI: Deniece Land Dept. 3471 (PPK)

MAIN CONTACT: NTI: Deniece Land Dept. 3471 (PPK)

NTMX89BA EMR2-25-RCC2-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 01 27	ECM 639 04	Changes due to ECD 018 40314.
93 04 15	ECM 639 05	ECD 011-17820 - Replace NT6X76AC with NT6X76AD Hayes Supported AILC.
93 12 21	ECM 639 07	Reformat section; transfer ownership of product to RTP Product Rules group
95 01 27	ECM 639 10	EC 024-93218; Add NTRX3663 Power Fltr.
95 02 14	ECM 691 08	Remove NT6X1438 per SLMX89BA change.
95 05 04	ECM 691 09	Declare code status MD. Revisions per EC 011-21293.
96 04 02	ECM 691 15	Per EC#024-94829 add NTBX02BA, add label P0737724, add NTBX31PB upgrade kit. Also add changes per EC#024-93816 (NT6X69AC/AD, NTMX73AA/AB, NTMX74AA/AB, NTMX76AA) Per EC#024-93888 add NTMX87AB and NTMX8515 AML Kit. Introduce NT6X92EA.
96 10 24	ECM 691 17	Per EC 024-97137, reflect the NT6X92EA GTR (record only) and NTAX74AA CPM Processor introductions.
97 03 07	ECM 691 19	Per EC 024-97290 include NTMX76AB as provisionable.
97 05 02	ECM 691 21	Per EC 018-49903 MD NTMX74AA and replace with NTMX74AB. Per EC 024-97754 add NTAX74AA provisioning.
97 10 10	ECM 691 22	Per EC#018-51456 MD NT9X0102 and show NT9X0105 for Frame Fail Light Kit. Per EC 024-97867 MD NTBX31BB replace with NTBX31BC. MD the NTMX8515 Kit with No replacement per EC 024-98484. Per EC 024-96589 MD NTBX01AB/AC replaced by NTBX01BA. Clarify BX01 and NTAX74AA provisioning per 024-98265. Per EC 018-51489 add note for NT2X10AC and NT2X11AD LTU required for DMS-10.

The Cabinetized Remote Switching Center (CRSC) Offshore is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Streamline Cabinet	NTNX25EA		1			AP
	Frame Supervisory Panel	NTMX26BA	FSP		61		RUL15
	FSP Alarm CP	NT6X36AA		1	61		AP01
	Alarm CP for FSP	NT6X36AB		1	61		AP01
	Ringing Generator (analog)	NT6X30AA			61	1,2	RUL16
	Ringing Generator (UK)	NT6X30AB			61	1,2	RUL16
	Ringing Generator (Australia)	NT6X30AE			61	1,2	RUL16
	CRSC Stand Alone Power Kit	NTMX8943			61		RUL17
	Product Change Kit	PCMX8943			61		RUL17
	Power Filter Kit CRSC	NTRX3663			61		RUL17
	Frame&Logic Ground HW Kit	NTRX2519					RUL18
	Misc HW Kit	NT0X58CE					RUL23
	End Guard	NTRX73AA					RUL21
	End Guard Assembly	NTRX73AC					RUL21
	End Guard Assembly	NTRX73AB					RUL21
	Streamline End Guard Insert	NTRX07AA					RUL21
	Streamline E/G Ins Assy(WOSW)	NTRX07AB					RUL21
	Streamline E/G Ins Assy CPDC	NTRX07AC					RUL21
#	LCME Common CP	NTBX31BB	LCME				RUL1
	LCME Common CP	NTBX31BC	LCME				RUL1
	LCME Packfill Upgrade Kit	NTBX31PA					RUL1
	LCME Packfill Upgrade Kit	NTBX31PB					RUL1
	ISDN Cabinet LCA Shelf Assy	NTBX3118	LCAI	1	47		AP
	ISDN Enhanced Line Drawer	NTBX32BA	LD			1,5, 9,13	RUL2
	Line Drawer Filler Plate	NT6X05AX	FP			1,5, 9,13	RUL2
	ISDN Cabinet LCA Shelf Assy	NTBX3118	LCAI	0	33		AP
	ISDN Enhanced Line Drawer	NTBX32BA	LD			1,5, 9,13	RUL2
	Line Drawer Filler Plate	NT6X05AX	FP			1,5, 9,13	RUL2
	Subscriber Line Circuits	AR					RUL3
	Shelf Pos ID Label	P0707612					RUL4
	Line Drawer ID Label	P0709652					RUL4
	Warning Label (French)	P0689450					RUL4

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	RMM Shelf Assembly	NT6X1306		1	19		AP
	International RMM Common CP	NT6X13EA	RMM		19		RUL5
	Maintenance Trunk Card	AR			19	3-16	RUL5
	Filler Face Plate	NT0X50AC			19	11-16	RUL5
	RCC2 Main Shelf	NTMX8501		1	06		AP
	Power Converter	NTMX72AA			06	1,26	RUL6
	Processor	NTMX77AA			06	3,25	RUL6
	CPM Processor	NTAX74AA			06	3,25	RUL6
#	ISDN Signaling Pre-Proc CP	NTBX01AB			06	4,24	RUL6
	Peripheral Loader CP	NT7X05AA			06	5,23	RUL8
	Filler Face Plate	NT0X50AA			06	5,23	RUL8
#	Universal Tone Rec’vr (UTR)	NT6X92CA			06	6,22, 7,21	RUL9
	Global Tone Rec’vr (GTR)	NT6X92EA			06	6,22, 7,21	RUL9
	Filler Face Plate	NT0X50AA			06	7,21	RUL9
	Msg Protocol & Downld CP	NT6X69LB			06	8,20	RUL6
	Msg Protocol CP	NT6X69AC			06	8,20	RUL6
	Msg Protocol CP	NT6X69AD			06	8,20	RUL6
	Channel Supervision Msg CP	NTMX76AA			06	8,20	RUL6
	Channel Supervision Msg CP	NTMX76AB			06	8,20	RUL6
	Quad Frame Carrier	NTMX87AA			06	9,19	RUL6
	Quad Carrier	NTMX87AB			06	9,19	RUL25
#	AML Upgrade Kit	NTMX8515			06		RUL26
	Dual 2MB (PCM30) I/F Packlet	NTMX82AA			06	9 0-3 19 0-3	RUL7
	Filler Face Plate	NTMX83AA			06	9 0-3 19 0-3	RUL7
	Enhanced Matrix CP	NTMX75AA			06	10,18	RUL6
	PCM Signaling Processor	NTMX73AA			06	11,17	RUL6
	PCM Signaling Processor	NTMX73AB			06	11,17	RUL6
#	DS30A Interface CP	NTMX74AA			06	13,15	RUL6
	DS30A Interface CP	NTMX74AB			06	13,15	RUL6
#	ISDN D-Channel Handler (DCH)	NTBX02AA			06	12,14, 16	RUL10
	ISDN D-Channel Handler (DCH)	NTBX02BA			06	12,14, 16	RUL10
	Quad Frame Carrier	NTMX87AA			06	12	RUL10
	Dual 2MB (PCM30) I/F Packlet	NTMX82AA			06	12 0-3	RUL10
	Filler Face Plate	NTMX83AA			06	12 0-3	RUL10

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Quad Frame Carrier	NTMX87AA			06	14	RUL10
	Dual 2MB (PCM30) I/F Packlet	NTMX82AA			06	14 0-3	RUL10
	Filler Face Plate	NTMX83AA			06	14 0-3	RUL10
	Quad Frame Carrier	NTMX87AA			06	16	RUL10
	Dual 2MB (PCM30) I/F Packlet	NTMX82AA			06	16 0-3	RUL10
	Filler Face Plate	NTMX83AA			06	16 0-3	RUL10
	Fan Cooling Unit	NTNX27CA			00		RUL22
	CRSC Label	P0715089					RUL11
	Design Label (NT6X92CA)	P0677831					RUL20
	Design Label (NT6X92EA)	P0835224					RUL20
	Design Label (NTBX02AA)	P0697919					RUL20
	Design Label (NT6X69LB)	P0713213					RUL20
#	Design Label (NTBX01AB)	P0735418					RUL20
#	Design Label (NTMX74AA)	P0738857					RUL20
	Design Label (NT7X05AA)	P0809790					RUL20
	Design Label (NTBX01BA)	P0809787					RUL20
	Design Label (NTBX02BA)	P0737724					RUL20
	Design Label (NT6X69AC)	P0710476					RUL20
	Design Label (NT6X69AD)	P0809789					RUL20
	Design Label (NTMX74AB)	P0744677					RUL20
	Design Label (NTMX76AA)	P0744109					RUL20
	Design Label (NTMX76AB)	P0857783					RUL20
	Design Label (NTAX74AA)	P0800860					RUL20
	EMI Kit Single Bulkhead,Grey	NTRX2516					RUL12
	Frame Fail LP, Grey	NT9X0174					RUL12
	Dummy Fail LP, Grey	P0699441					RUL12
	EMI Door Kit, Brown	NTRX2531					RUL12
	EMI Gasket Vertical	P0691073					RUL12
#	Frame Fail LP, Brown Kit	NT9X0102					RUL12
	Frame Fail LP, Brown Kit	NT9X0105					RUL12
	Dummy Fail LP, Brown	P0674502					RUL12
	Cable Trough Assembly, Grey	NTNX5511					RUL13
	Cable Trough Assembly, Brown	NTRX5544					RUL13
	AUX Alarm Cable	NTMX8816					RUL24
	Leveling Foot Kit	NTRX2523					RUL14
	Bulkhead Assembly	NTMX8991					RUL19
	CA Assembly (SEND) CPMtoBHD	NTMX8995					RUL19
	CA Assembly (RECV) CPMtoBHD	NTMX8996					RUL19

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Bulkhead Assembly	NTMX8901					RUL19
CA Assembly (SEND)	NTMX8945					RUL19
CA Assembly (RECV)	NTMX8946					RUL19

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NTBX31BB	MD	NTBX31BC
NT6X92CA	STD*	NT6X92EA
NTMX74AA	MD	NTMX74AB
NT9X0102	MD	NT9X0105
NTBX02AA	MD	NTBX02BA
NTBX01AB	MD	NTBX01BA
NTMX8515	MD	No Replacement

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

Items marked AP01 are included with NTMX26BA and are shown for sparing purposes.

RCP in flaglist means that the Rating (status) of the pec is pending change.

STD* in flaglist means that the pec is still standard pending change. Check availablility of replacement pec before ordering.

RULES:

AP 1) When PEC NTMX89BA is ordered, these items are provided.

The break out of these items are shown here for completeness.
The bulkhead assemblies mount on the LEFT side of the frame, when viewing the frame from the rear.

RUL1 1) Provide one (1) NTBX31BC LCME Common CP Fill for each LCME (2B1Q) module required (maximum one per CRSC). NTBX31BC replaces NTBX31BB. Provide one NTBX31PA per CRSC for field application to upgrade an existing NTBX31BA to NTBX31BC. The NTBX31BB's and NTBX31BC's may be mixed in a frame. There are no specific software loads required for the Host office when the NTBX31BC is provisioned.

Provide one (1) NTBX31PB Upgrade Kit per LCME Module, for field upgrades only, when converting NTBX31BB LCME common CP to NTBX31BC.

2) The LCME module is for the ISDN 2B1Q Access Subsystem. The LCME Line Drawers are numbered from left to right as seen from the front. The Line Sub Groups are numbered as follows:

Frame Shelf Pos.	Line Drawer	Line Sub Group (LSG)
05 or 40	0	00,01
05 or 40	1	02,03
05 or 40	2	04,05
05 or 40	3	06,07
19 or 54	4	08,09
19 or 54	5	10,11
19 or 54	6	12,13
19 or 54	7	14,15

RUL2 1) Provide one (1) NTBX32BA Enhanced Line Drawer for the LCME to accommodate up to 60 line cards in two (2) logical drawers called Line Sub-Groups. Line Drawers are equipped in line drawer positions 1,5,9 and 13 on each Line Shelf Assembly.

2) The Data Line Cards cannot be mounted in the five line card position (slots 18 to 26) in the top LSG next to the PUPS line card. It is permitted to mount the Data Line Card in the lower LSG directly under the PUPS.

3) The LCME in RSC-S applications supports, in addition to ISDN lines, POTS, EBS and DATAPATH lines. Refer to the section on ISDN Enhanced Line Drawer NTBX32BA for more information.

4) For each unequipped line drawer position provide one (1) NT6X05AX Line Drawer Filler Plate.

5) Provide one (1) Cutoff Strap for each line drawer whose line cards are to be held simultaneously cutoff by this method.

Since straps can be re-used, the quantity to be provided is determined by the number of lines which are to be held simultaneously in this state.

RUL3 1) The following line cards may be assigned to the ISDN Line Drawer:

DESCRIPTION	PEC	# OF CARD SLOTS	MAX # PER LINE MODULE
ISDN 2B1Q 'U' I/F Line Card	NTBX27AA	1	480
ISDN 'S/T' I/F LC	NTBX26AA	2	240
Data Line Card	NT6X71AA/AB	2	240
Asynchronous I/F Line Card	NT6X76AC/AD***	2	240
Business Set Line Card	NT6X21AC	1	480
POTS Message Waiting	NT6X19AA*	1	472
Message Waiting Converter LC	NT6X20AA*	2	8
POTS Line Card	NT6X17AA/AB/AC	1	480
POTS Line Card	NT6X18--**	1	480
World Line Card Type 'A'	@NT6X17BA	1	480
World Line Card Type 'B'	&NT6X18BA	1	480
POTS Line Card (Australia)	NT6X93EA	1	480
International Line Card (UK)	NT6X98AA	1	480
IBERT	NT6X99AA	2	1 per LCME

@ The World Line Card Type 'A' replaces:

NT6X17AC North America
NT6X93AA Turkey, Belize
NT6X93BA Caribbean
NT6X93CA China
NT6X93DA Morocco
NT6X93EA Australia
NT6X99AA UK ScopeDial

NTMX29AA British telephone

& The World Line Card Type 'B' replaces:

NT6X18AA North America
NT6X94AB Turkey, Belize, Guyana
NT6X94BB Caribbean
NT6X94CA China
NT6X94DA Morocco
NT6X33AA Japan Type 'A'

* The POTS Message Waiting cards require one (1) message waiting converter line card NT6X20AA (two slots high) per line drawer to function.

** The NT6X18-- line card type can be used if it is NOT configured as a Coin or ANI line. No high voltage NT6X18-- applications may be used.

*** The NT6X76AD Hayes Supported Asynchronous Line Card replaces NT6X76AC AILC.

2) Any of the line cards supported can be mixed with any other line cards of a Line Subgroup. However, if there are more than eight (8) S/T-Interface line cards in the same row as POTS line cards, then the POTS line cards will NOT stay in-service on PUPS failure.

The LCME provides flexible Time Division Multiplexing (TDM) groups. This enables an ISDN line to be placed anywhere in a drawer. Any four ISDN lines from the same physical drawer can belong to the same TDM group subject to rule that lines in a particular TDM group must come from the same physical drawer.

3) Provision IBERT for data path/ISDN loop testing. Provision only one per LCME.

4) Provision a maximum of 32 single slot cards in even line subgroups and 28 in odd line subgroups.

RUL4 1) Provide one (1) P0689450 French Warning Label when frame is required by Canadian customers. This label is affixed to the cabinet FSP.

2) Provide one (1) P0709652 Line Drawer Identification Labels per CRSC Cabinet. P0709652 provides enough labels for 16 Line Drawers.

3) Provide one each of the following LCME PDC Fuse Designation Labels per CRSC and/or CEXT Cabinet provided.

PEC	DESCRIPTION
P0711231	LCME 00 0- LCME 99 0
P0711232	LCME 00 1- LCME 99 1

4) Provide one each of the following LCME Module/Shelf Designation Labels per CRSC and/or CEXT Cabinet provided to be affixed to the FSP:

PEC	DESCRIPTION
P0711233	LCME:00 0 LCAI:0- LCME:99 0 LCAI:0
P0711234	LCME:00 0 LCAI:1- LCME:99 0 LCAI:1
P0711235	LCME:00 1 LCAI:0- LCME:99 1 LCAI:0
P0711236	LCME:00 1 LCAI:1- LCME:99 1 LCAI:1

RUL5 1) For the Remote Maintenance Module (RMM) always provide:

- one (1) NT6X13EA International RMM Common CP and

The NT6X1438 -48V SP Battery Supply Cable has been added to the stocklist for NTMX89BA and should no longer be ordered separately.

2) Provision the following CPs for the RMM in shelf position 19:

Card Type	PEC	Slot	Note
INCOMING/OUTGOING TEST TRUNK	NT2X90AD	7-10	A
SCAN CIRCUIT PACK	NT0X10AA	5	B
SD CIRCUIT PACK	NT2X57AA	13-14	C
8X8 METALLIC TEST ACCESS	NT3X09BA	06	D
MULTILINE TEST CONTROLLER	NT4X98BB	03	E
MULTILINE TEST (ANALOG)	NT4X97AA	04	E
BALANCE NETWORK	NT2X77AA		F

Note:

A Provide one (1) NT2X90AD test trunk on an as required basis. A NT2X90AD must always be combined with an LTU to provide a talk monitor feature. The TR & TT leads on NT2X90AD shall be connected to the same metallic test access as the LTU leads T & R. Slots 7-10 are dedicated for NT2X90. Note: the NT2X10AC/NT2X11AD LTU is required by DMS-10.

B Provide one scan circuit pack (NT0X10AA) for every 14 scan points required in a remote office. Slot 5 is dedicated for NT0X10. When connected to out-of-office leads, the NT0X10AA must be located in even slots.

C Provide one miscellaneous SD Type 1 circuit pack NT2X57AA for every 14 signal distributor points required for the remote office.

D Provide one (1) 8X8 Metallic Test Access circuit pack NT3X09BA for each four LCMs in the remote site. Each NT3X09BA can serve up to eight (8) Service Circuits and must be mounted in even slot positions only. Slot 6 is dedicated for NT3X09.

E Provide the Multiline Test Unit (MTU) which consists of one NT4X98BB and one NT4X97AA circuit pack. The MTU must be installed in adjacent slots with the NT4X98BB occupying the odd numbered slot position. A minimum of one MTU per office is required. -48v SP (Special Power) is required. This unit is also required when electronic business sets are used. Slot 3 is dedicated for NT4X98 and slot 4 is dedicated for NT4X97.

F Provide one (1) NT2X77AA for every NT2X90AD.

The total 48 volt power consumption of the provisionable circuit packs in the RMM (NT6X1306) must not exceed 110 watts. Rating of circuit packs is as follows:

CIRCUIT PACK CODE	MAXIMUM POWER CONSUMPTION
NT2X59 & NT6X74	25.0 WATTS
NT0X10AA	2.0 WATTS
NT2X10AA/AB	9.0 WATTS
NT2X11AA/AD	8.5 WATTS
NT2X48AB	12.0 WATTS
NT2X57AA	4.5 WATTS
NT2X90AB	1.5 WATTS
NT3X04AA	28.0 WATTS
NT3X09AA	4.0 WATTS
NT3X09BA	11.5 WATTS
NT4X98BB	20.0 WATTS
NT4X97AA	9.0 WATTS

3) Provide one (1) NT0X50AC Filler Face Plate for each slot 11-16 not equipped with a circuit pack.

RUL6 1) Always provide the following common circuit packs per CRSC Cabinet when PCM30 Ports are required:

two (2) Msg Protocol & Downld CP	NT6X69LB/AC/AD
two (2) ISDN Signaling Pre-Proc CP	NTBX01AB/AC/BA
two (2) Power Converter	NTMX72AA
two (2) PCM Signaling Processor	NTMX73AA/AB
two (2) DS30A Interface CP	NTMX74AA/AB
two (2) Enhanced Matrix CP	NTMX75AA
two (2) Processor	NTMX77AA/NTAX74AA
two (2) Quad Frame Carrier C-Side	NTMX87AA

Note:
The common CP packfill was not available at the time of writing, so common circuit packs have to be provided individually.

2) Provide two (2) NT6X69AC when the distance from the host is less than 100 miles in US applications and less than 150 miles in Canadian applications or provide two (2) NT6X69AD when the SWID feature is required.

3) Provide two (2) NTMX76AA when the extended distance feature is required. The NTMX76AA does not include the ADSI/SCWID capability. Also, the NTMX76AA must be provisioned in the host as well as in the remote for extended distance capability to function.

4) Provide two (2) NTAX74AA CPM Processors per module. The NTZZ03AC provides (2) NTAX74AA CP's and (2) P0800860 Labels.

The NTAX74AA does not support the the NT7X05AA Peripheral Loader prior to XPM081. If the NT7X05AA Peripheral Loader is present, replace it with NT0X50AA filler and label.

The NTAX74AA OR NTMX77AA are provisionable at XPM08 Load. The NTAX74AA will be required with XPM081.

As of XPM081, the NT7X05AA will provide loadfile support for the NTAX74AA in the DMS100 RSCS Applications. Imaging capibility is NOT Supported for the NTAX74AA.

Provide the NTAX74AA for all initials and extensions that meet the market and software requirements listed:

Domestic/North American Markets - Available at XPM08
Required at XPM081
Global/Intn'l Markets with GL100 software - Required at XPM 08
Asia Pacific Market - Required at XPM 10
Euro-100 for Europe - Required at XPM08E.

The Minimum baseline enhanced ISP Pack, required for proper NTAX74AA functionality, is the NTBX01BA.

Provide the NTAX74AA for all initials and extensions that meet the market and software requirements listed above. Existing sites with the NTMX77AA will work with XPM 08 software releases and later.

5) Provide two (2) NTMX77AA Processor if above requirements are not met.ior to XPM

7) Provide two (2) NTMX76AB when the extended distance capability and ADSI/SCWID feature is required. The NTMX76AB must be provisioned in the host as well as in the remote for extended distance capability and ADSI/SCWID capability.

RUL7 1) Provision NTMX82AA Dual 2MB (PCM30) I/F Packlets for C-side interface based on host traffic requirements. Two PCM30 interfaces are provided per packlet.

Always provide two (2) NTMX82AA packlets in slots 9 and 19, position 0.

2) Assign packlets in the following order:

9:0
19:0
9:1
19:1
9:2
19:2
9:3
19:3

3) Provide one (1) NTMX83AA Filler Face Plate for each unused packlet position on the NTMX87AA Quad Frame Carrier.

RUL8 1) Provide two (2) NT7X05AAs in slots 5 & 23 to provide support for the fast recovery from lost software load feature. This feature requires XPM05-based software (like NA004).

The NTAX74AA does not support the the NT7X05AA Peripheral Loader prior to XPM081.

The NTAX74AA OR NTMX77AA are provisionable at XPM08 Load. The NTAX74AA will be required at XPM081. 2) Provide two (2) NT0X50AAs in slots 5 & 23 when the NT7X05AAs are not equipped.

RUL9 1) One UTR Pair in Slot 6 & 22 should be provisioned for each RCC2.
Provide a pair of NT6X92EA as per customer requirements.

DO NOT mix NT6X92s in the same shelf.

2) The exact quantity required is based on offered traffic. The following general rule may be used for planning purposes only. If UTR CCS is 0 to 765, then one pair (6,22) is sufficient. If UTR CCS is 765 to 1600, then provide second pair (7,21).

3) When only one UTR pair is required provide two (2) NT0X50AAs in slots 7 & 21.

RUL10 1) When provisioning DCHs, DS-30As and PCM30s for the RCC2 one must consider all three together to determine the hardware configuration required. Refer to Table H in the Engineering Manual (section EMA14-08-000) and select the configuration that bests suits your need.

RUL11 1) Provide one P0715089 CRSC Label per CRSC cabinet.

RUL12 1) Provide one NTRX2516, EMI Kit Single Bulkhead, per cabinet when Grey doors are required. Provide one (1) NT9X0174 and one (1) P0699441 per NTRX2516 Kit.

2) Provide one NTRX2531, EMI Door Kit (Brown), per cabinet when Brown doors are required. Also provide one P0691073, EMI Gasket Vertical, with each NTRX2531 Kit provided. Provide one (1) NT9X0105 and one (1) P0674502 per NTRX2531 Kit. NT9X0102 is MD'ed and replaced by NT9X0105.

RUL13 1) Provide one NTNX5511, Grey Cable Trough Assembly, per cabinet when overhead cabling is required.

2) Provide one NTNX5544, Cable Trough Assembly, per cabinet when Brown cable trough is required.

RUL14 1) Provide one NTRX2523, Leveling Foot Kit, per cabinet for Non-Earthquake offices.

RUL15 1) Provide one NTMX26BA -48V FSP per cabinet.

RUL16 1) Provide:
two (2) NT6X30AA when analog ringing is required,
OR
two (2) NT6X30AB when ringing for the UK market is required,

OR
two (2) NT6X30AE when ringing for the Australian market is required.

RUL17 1) Provide one (1) NTMX8943 CRSC Stand Alone Power Kit (and one (1) PCMX8943 Product Change Kit drawing) when the CRSC is powered from a seven (7) foot Power Distribution Center (PDC) or is operated as a stand alone unit or when external power filters (vertical power) are used. Also provide one (1) NTRX3663 Power Filter kit whenever the NTMX8943 kit is provided. This kit provides separate power and return feeds for the RCO2 shelf to resolve an issue of DCH cards going System Busy during lightning storms. The NTRX3663 kit should be supplied wherever the NTMX8943 kit is applied.

RUL18 1) Provide one (1) NTRX2519 Frame&Logic Ground HW Kit for each CRSC cabinet.

RUL19 1) Provide the following equipment when COAX PCM-30 is specified by the customer:

one (1) Bulkhead Assembly (NTMX8991)
one (1) CA Assembly (SEND) CPMtoBHD (NTMX8995)
one (1) CA Assembly (RECV) CPMtoBHD (NTMX8996)

2) Provide the following equipment when twisted pair PCM-30 is specified by the customer:

one (1) Bulkhead Assembly (NTMX8901)
one (1) CA Assembly (SEND) (NTMX8945)
one (1) CA Assembly (RECV) (NTMX8946)

RUL20 1) Provide the designation labels for individual circuit packs as required.

RUL21 1) Provide:
two (2) NTRX73AA End Guards
AND
two (2) NTRX73AC End Guard Assemblies
for overhead cable installations.
OR
two (2) NTRX73AA End Guards
AND
two (2) NTRX73AB End Guard Assemblies
for under floor cable installations.

2) Provide one (1) NTRX07AA at the non-CPDC end of each cabinetized lineup when AC switches and/or AC receptacles are required.

3) Provide one (1) NTRX07AB at the non-CPDC end of each cabinetized lineup when AC switches and/or AC receptacles are NOT required.

4) Provide one (1) NTRX07AC at the CPDC end of each cabinetized lineup when AC switches and/or AC receptacles are required.

RUL22 1) Always provide one (1) NTNX27CA Fan Cooling Unit per CRSC cabinet.

RUL23 1) Always provide one (1) NT0X58CE, MISC HW KIT, per RSC/S.

RUL24 1) Provide one NTMX8816 Auxillary Cable when CRSC frame is being used in a 7ft line up or for a stand alone application.

RUL25 1) Provide NTMX87AB Quad Carrier CPs in slot 9 and 19 when Additional Message Link is required.

RUL26 1) Provide one NTMX8515 Additional Message Link Upgrade Kit for additional message link to function. Refer to MSMX89AA for connectivity tables for wiring of the AML Kit. This Kit NTMX8515 is MD'ed with No replacement. It was never shipped to a customer.

8W TRUNK MODULE SHELF PACKFILL

PEC CODE:	NT2X52AS
CPC CODE:	B0232738
RATING:	MD
REPLACES:	Not Applicable
REPLACED BY:	No Replacement
ABBREVIATION NAME:	TM8
ENGINEERING DESCRIPTION:	NT2X52AS is the Trunk Module 8 Wire (TM8) shelf packfill for use in DMS-100 Cabinetized applications only.
REFERENCE DOCUMENTATION:	SL2X52AS 01 02
MARKETS:	Applicable markets: US Canada CALA

ISSUE AUTHOR: NTI: Steve Martin Dept. 3471 (PPK)

MAIN CONTACT: NTI: Steve Martin Dept. 3471 (PPK)

NT2X52AS EMR2-25-TM8 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
96 09 12	ECM 601 34	MD per EC018-48743

The 8W Trunk Module Shelf Packfill is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
TM Network Interface	NT2X45AB		1	XX	01	AP
TM Processor	NT0X70AA		1	XX	02	AP
TM Control	NT2X53AA		1	XX	03	AP
Group Codec	NT2X59AA		1	XX	04	AP
Trunk Card	AR			XX	05-19	RUL1
Filler Face Plate 1.125	NT0X50AC			XX	05-19	RUL2
Multioutput Power Converter	NT2X09AA		1	XX	20	AP
Desig Strip	P0586970		1	XX		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) "XX" in SHF POS can be one of 47,33,19,05.

RULES:

AP 1) When PEC NT2X52AS is ordered, these items are provided.

RUL1 1) Up to 15 trunk CP's can be accomodated per module. Refer to Table A, Section 43G-01-000, for trunk CP's that can be mounted on a TM8.

RUL2 1) Provide one (1) NT0X50AC, Filler Face Plate, for each location, 05-19, which is not to be equipped with a trunk card.

INTERNATIONAL DIGITAL TRUNK CONTROLLER CP

PEC CODE:	NT6X02JA
CPC CODE:	B0225500
RATING:	MD
REPLACES:	None
REPLACED BY:	NT6X02GM
ABBREVIATION NAME:	IDTC
ENGINEERING DESCRIPTION:	The NT6X02JA is the common circuit pack fill for the Digital Trunk Controller used for Turkey DMS-300 applications.
REFERENCE DOCUMENTATION:	N/A
MARKETS:	Applicable markets: Europe Asia/Pacific

ISSUE AUTHOR: Darrell Deeds Dept. 3471 (PPK)

MAIN CONTACT: Ken Clisso Dept. 3471 (PPK)

NT6X02JA EMR2-6-IDTC-10 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 02 19	ECM 373 36	Change to MD status per EC 11-17823. Retire this Engineering Manual.
95 03 30	ECM 644 16	Add "Replaced by" information.

The International Digital Trunk Controller CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Time Switch	NT6X44AB		1	X+14	7	AP
MSG Interface CP	NT6X43GA		1	X+14	10	AP
Filler Face Plate 0.875	NT0X50AA		1	X+14	11	AP
LGC/DTC Processor CP	NT6X45AD		1	X+14	12	AP
SP Memory Plus CP	NT6X46AB		1	X+14	13	AP
CPC Back Panel Paddle Board	NT6X1205		1	X+14	13R	AP
LGC/DTC Processor CP	NT6X45AD		1	X+14	14	AP
Filler Face Plate 0.875	NT0X50AA		1	X+14	15	AP
MP Memory Plus CP	NT6X47AB		1	X+14	16	AP
SP Memory Plus CP	NT6X46AB		1	X+14	17	AP
LGC/DTC Processor CP	NT6X45AD		1	X+14	18	AP
Filler Face Plate 0.875	NT0X50AA		1	X+14	20	AP
CPC Back Panel Paddle Board	NT6X1205		1	X+14	20R	AP
Channel Supervision Mgs CP	NT6X42AA		1	X+14	21	AP
Speech Bus Formatter CP	NT6X41AB		1	X+14	22	AP
DS-30 Network I/F CP	NT6X40AB		1	X+14	23	AP
Filler Face Plate 0.875	NT0X50AA		1	X+14	24	AP
Pwr Conv +-5,12V 50 amp CP	NT2X70AD		1	X+14	25	AP
Designation Strip	P0689932		1	X+14		AP
Time Switch	NT6X44AB		1	X	7	AP
MSG Interface CP	NT6X43GA		1	X	10	AP
Filler Face Plate 0.875	NT0X50AA		1	X	11	AP
LGC/DTC Processor CP	NT6X45AD		1	X	12	AP
SP Memory Plus CP	NT6X46AB		1	X	13	AP
CPC Back Panel Paddle Board	NT6X1205		1	X	13R	AP
LGC/DTC Processor CP	NT6X45AD		1	X	14	AP
Filler Face Plate 0.875	NT0X50AA		1	X	15	AP
MP Memory Plus CP	NT6X47AB		1	X	16	AP
SP Memory Plus CP	NT6X46AB		1	X	17	AP
LGC/DTC Processor CP	NT6X45AD		1	X	18	AP
Filler Face Plate 0.875	NT0X50AA		1	X	20	AP
CPC Back Panel Paddle Board	NT6X1205		1	X	20R	AP
Channel Supervision Mgs CP	NT6X42AA		1	X	21	AP
Speech Bus Formatter CP	NT6X41AB		1	X	22	AP
DS-30 Network I/F CP	NT6X40AB		1	X	23	AP
Filler Face Plate 0.875	NT0X50AA		1	X	24	AP
Pwr Conv +-5,12V 50 amp CP	NT2X70AD		1	X	25	AP
Designation Strip	P0689932		1	X		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) One IDTC Common CP can be assigned on the frame to shelf mounting positions 65 and 51 and the other to shelf mounting positions 32 and 18. For one module X=18 and for the other module X=51.

2) For more information on the frame refer to the section on NT6X01BA (Section EMA2-06-I00).

RULES:

AP 1) When PEC NT6X02JA is ordered, these items are provided.

INTERNATIONAL DIGITAL TRUNK CONTROLLER CP

PEC CODE: NT6X02KE

CPC CODE: B0229718

RATING: MD

REPLACES: NT6X02KA, NT6X02KC

REPLACED BY:

ABBREVIATION NAME: IDTC

ENGINEERING DESCRIPTION: The NT6X02KE is the common circuit pack fill for the Digital Trunk Controller used for China applications. It contains some upgraded Memory CPs.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Asia/Pacific

ISSUE AUTHOR: Darrell Deeds Dept. 3471 (PPK)

MAIN CONTACT: Steve Martin Dept. 3471 (PPK)

NT6X02KE EMR2-6-IDTC-11 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 02 19	ECM 373 36	Change to MD status per EC 24-93165. Retire this Engineering Manual.

The International Digital Trunk Controller CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Time Switch	NT6X44AB		1	X+14	7	AP
MSG Interface CP	NT6X69KA		1	X+14	10	AP
Filler Face Plate 0.875	NT0X50AA		1	X+14	11	AP
SP Memory Plus CP	NT6X46BA		1	X+14	13	AP
Filler Face Plate 0.875	NT0X50AA		1	X+14	15	AP
MP Memory Plus CP	NT6X47AB		1	X+14	16	AP
SP Memory Plus CP	NT6X46BA		1	X+14	17	AP
Filler Face Plate 0.875	NT0X50AA		1	X+14	20	AP
Channel Supervision Mgs CP	NT6X42AA		1	X+14	21	AP
Speech Bus Formatter CP	NT6X41AB		1	X+14	22	AP
DS-30 Network I/F CP	NT6X40AC		1	X+14	23	AP
Filler Face Plate 0.875	NT0X50AA		1	X+14	24	AP
Designation Label	P0703373		1	X+14		AP
Time Switch	NT6X44AB		1	X	7	AP
MSG Interface CP	NT6X69KA		1	X	10	AP
Filler Face Plate 0.875	NT0X50AA		1	X	11	AP
SP Memory Plus CP	NT6X46BA		1	X	13	AP
Filler Face Plate 0.875	NT0X50AA		1	X	15	AP
MP Memory Plus CP	NT6X47AB		1	X	16	AP
SP Memory Plus CP	NT6X46BA		1	X	17	AP
Filler Face Plate 0.875	NT0X50AA		1	X	20	AP
Channel Supervision Mgs CP	NT6X42AA		1	X	21	AP
Speech Bus Formatter CP	NT6X41AB		1	X	22	AP
DS-30 Network I/F CP	NT6X40AC		1	X	23	AP
Filler Face Plate 0.875	NT0X50AA		1	X	24	AP
Designation Label	P0703373		1	X		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) One IDTC Common CP can be assigned on the frame to shelf mounting positions 65 and 51 and the other to shelf mounting positions 32 and 18. For one module X=18 and for the other module X=51.

2) For more information on the frame refer to the section on NT6X01BA (Section EMA2-06-I00).

RULES:

AP 1) When PEC NT6X02KE is ordered, these items are provided.

INTERNATIONAL DIGITAL TRUNK CONTROLLER COMMON CP

PEC CODE: NT6X02QA

CPC CODE: B0229161

RATING: MD

REPLACES: NT6X02BA

REPLACED BY:

ABBREVIATION NAME: IDTC

ENGINEERING DESCRIPTION: The NT6X02QA is the common circuit pack fill for the Digital Trunk Controller used for International applications (Turkey).

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Europe
Asia/Pacific

ISSUE AUTHOR: Darrell Deeds Dept. 3471 (PPK)

MAIN CONTACT: Steve Martin Dept. 3471 (PPK)

NT6X02QA EMR2-6-IDTC-8 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 02 19	ECM 373 36	Change to MD status per EC 11-17823. Retire this Engineering Manual.

The International Digital Trunk Controller Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Time Switch CP	NT6X44AB		2	X+14	7	AP
Msg Interface CP	NT6X43BA		2	X+14	10	AP
Filler Faceplate .875	NT0X50AA		2	X+14	11	AP
LGC/DTC Processor CP	NT6X45AD		2	X+14	12	AP
SP Memory Plus CP	NT6X46AB		2	X+14	13	AP
Comm Periph Ctl Paddleboard	NT6X1205		2	X+14	13R	AP
LGC/DTC Processor CP	NT6X45AD		2	X+14	14	AP
Filler Faceplate .875	NT0X50AA		2	X+14	15	AP
MP Memory Plus CP	NT6X47AB		2	X+14	16	AP
SP Memory Plus CP	NT6X46AB		2	X+14	17	AP
LGC/DTC Processor CP	NT6X45AD		2	X+14	18	AP
Filler Faceplate .875	NT0X50AA		2	X+14	20	AP
Comm Periph Ctl Paddleboard	NT6X1205		2	X+14	20R	AP
Channel Supervision Mgs CP	NT6X42AA		2	X+14	21	AP
Speech Bus Format (Turkey)	NT6X41AB		2	X+14	22	AP
DS30 Network Interface CP	NT6X40AC		2	X+14	23	AP
Design. Label (NT6X40AC)	P0695397		2	X+14	23	AP
Filler Faceplate .875	NT0X50AA		2	X+14	24	AP
Power Converter CP	NT2X70AD		2	X+14	25	AP
Designation Strip	P0679488		2	X+14		AP
Time Switch CP	NT6X44AB		2	X	7	AP
Msg Interface CP	NT6X43BA		2	X	10	AP
Filler Faceplate .875	NT0X50AA		2	X	11	AP
LGC/DTC Processor CP	NT6X45AD		2	X	12	AP
SP Memory Plus CP	NT6X46AB		2	X	13	AP
Comm Periph Ctl Paddleboard	NT6X1205		2	X	13R	AP
LGC/DTC Processor CP	NT6X45AD		2	X	14	AP
Filler Faceplate .875	NT0X50AA		2	X	15	AP
MP Memory Plus CP	NT6X47AB		2	X	16	AP
SP Memory Plus CP	NT6X46AB		2	X	17	AP
LGC/DTC Processor CP	NT6X45AD		2	X	18	AP
Filler Faceplate .875	NT0X50AA		2	X	20	AP
Comm Periph Ctl Paddleboard	NT6X1205		2	X	20R	AP
Channel Supervision Mgs CP	NT6X42AA		2	X	21	AP
Speech Bus Format (Turkey)	NT6X41AB		2	X	22	AP
DS30 Network Interface CP	NT6X40AC		2	X	23	AP
Design. Label (NT6X40AC)	P0695397		2	X	23	AP
Filler Faceplate .875	NT0X50AA		2	X	24	AP
Power Converter CP	NT2X70AD		2	X	25	AP
Designation Strip	P0679488		2	X		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) One IDTC Common CP can be assigned on the frame to shelf mounting positions 65 and 51 (X=51) and the other to shelf mounting positions 32 and 18 (X=18).

2) For more information on the frame refer to the section on NT6X01BA (Section EMA2-06-I00).

RULES:

AP 1) When PEC NT6X02QA is ordered, these items are provided.

INTERNATIONAL DIGITAL TRUNK CONTROLLER CP

PEC CODE: NT6X02GB

CPC CODE: B0230009

RATING: MD

REPLACES: NT6X02GA

REPLACED BY:

ABBREVIATION NAME: IDTC

ENGINEERING DESCRIPTION: The NT6X02GB is the common circuit pack fill for the Digital Trunk Controller used for Caribbean Expansion Project.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US
Canada
CALA

ISSUE AUTHOR: Darrell Deeds Dept. 3471 (PPK)

MAIN CONTACT: Steve Martin Dept. 3471 (PPK)

NT6X02GB EMR2-6-IDTC-9 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 02 19	ECM 373 36	Change to MD status per EC 24-93165. Retire this Engineering Manual.

The International Digital Trunk Controller CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Time Switch	NT6X44AB		1	X+14	7	AP
CPP MSG Protocol & Tones	NT6X69FA		1	X+14	10	AP
SP Memory Plus CP	NT6X46BA		1	X+14	13	AP
MP Memory Plus CP	NT6X47AB		1	X+14	16	AP
CP Memory Plus CP	NT6X46BA		1	X+14	17	AP
Channel Supervision Mgs CP	NT6X42AA		1	X+14	21	AP
Speech Bus Formatter CP	NT6X41AB		1	X+14	22	AP
DS-30 Network I/F CP	NT6X40AC		1	X+14	23	AP
Filler Face Plate 0.875	NT0X50AA		1	X+14	24	AP
Designation Strip	P0701830		1	X+14		AP
Time Switch	NT6X44AB		1	X	7	AP
CPP MSG Protocol & Tones	NT6X69FA		1	X	10	AP
SP Memory Plus CP	NT6X46BA		1	X	13	AP
MP Memory Plus CP	NT6X47AB		1	X	16	AP
CP Memory Plus CP	NT6X46BA		1	X	17	AP
Channel Supervision Mgs CP	NT6X42AA		1	X	21	AP
Speech Bus Formatter CP	NT6X41AB		1	X	22	AP
DS-30 Network I/F CP	NT6X40AC		1	X	23	AP
Filler Face Plate 0.875	NT0X50AA		1	X	24	AP
Designation Strip	P0701830		1	X		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) One (1) IDTC Common CP can be assigned on the frame to shelf mounting positions 65 and 51 and the other to shelf mounting positions 32 and 18. For one module X=18 and for the other module X=51.

2) For more information on the frame refer to the section on NT6X01BA (Section EMA2-06-I00).

RULES:

AP 1) When PEC NT6X02GB is ordered, these items are provided.

DIGITAL TRUNK CONTROLLER COMMON CP

PEC CODE: NT6X02AS

CPC CODE: B0227091

RATING: MD

REPLACES: NT6X02AQ

REPLACED BY: NT6X02IC

ABBREVIATION NAME: DTC

ENGINEERING DESCRIPTION: The NT6X02AS is the common circuit pack fill for a field-upgraded DTC. The NT6X02AS DTC cannot be ordered for new modules.

The Digital Trunk Controller (DTC) Module is the host office peripheral controller module for digital trunking in a host location.

NT6X02AS is required for a BCS-27 field-upgraded office if new MSG exists or if used for CCS7.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US
Canada

ISSUE AUTHOR: Darrell Deeds Dept. 3471 (PPK)

MAIN CONTACT: Steve Martin Dept. 3471 (PPK)

NT6X02AS EMR2-6-6X02AS CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 02 19	ECM 373 36	Change to MD status per EC 11-17790. Retire this Engineering Manual.

The Digital Trunk Controller Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Master Processor Memory CP	NT6X47AB		1	X+14	10	AP
Signal Processor Memory CP	NT6X46AC		1	X+14	11	AP
Comm Periph Ctl Term Bd	NT6X1205		1	X+14	11R	AP
Time Switch CP	NT6X44AA		1	X+14	14	AP
CPP Message Protocol CP	NT6X69AA		1	X+14	18	AP
CPCE Tone Generator CP	NT6X79AA		1	X+14	19	AP
Channel Supervision Mgs CP	NT6X42AA		1	X+14	20	AP
Speech Bus Formatter	NT6X41AA		1	X+14	21	AP
Filler Face Plate 0.875	NT0X50AA		1	X+14	24	AP
Desig. Strip for NT6X01AA	P0698739		1	X+14	1	AP
Master Processor Memory CP	NT6X47AB		1	X	10	AP
Signal Processor Memory CP	NT6X46AC		1	X	11	AP
Comm Periph Ctl Term Bd	NT6X1205		1	X	11R	AP
Time Switch CP	NT6X44AA		1	X	14	AP
CPP Message Protocol CP	NT6X69AA		1	X	18	AP
CPCE Tone Generator CP	NT6X79AA		1	X	19	AP
Channel Supervision Mgs CP	NT6X42AA		1	X	20	AP
Speech Bus Formatter	NT6X41AA		1	X	21	AP
Filler Face Plate 0.875	NT0X50AA		1	X	24	AP
Desig. Strip for NT6X01AA	P0698739		1	X	1	AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) One DTC Common CP can be assigned on the frame to shelf mounting positions 65 and 51 and the other to shelf mounting positions 32 and 18. For one module X=18 and for the other module X=51.

2) For more information on the frame refer to the section on NT6X01AA (Section EMA2-06-000).

RULES:

AP 1) When PEC NT6X02AS is ordered, these items are provided.

DIGITAL TRUNK CONTROLLER COMMON CP

PEC CODE: NT6X02IC

CPC CODE: B0230867

RATING: MD

REPLACES: NT6X02IA, NT6X02AS

REPLACED BY: NT6X02IG

ABBREVIATION NAME: DTC

ENGINEERING DESCRIPTION: The NT6X02IC is the common circuit pack fill for DTC application. The Digital Trunk Controller (DTC) module is the host office peripheral controller module for digital trunking in a host location.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA

ISSUE AUTHOR: Darrell Deeds Dept. 3471 (PPK)

MAIN CONTACT: Steve Martin Dept. 3471 (PPK)

NT6X02IC EMR2-6-6X02IC CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
94 10 28	ECM 373 33	Change to MD status per EC 24-92942.
95 02 19	ECM 373 36	Retire this Engineering Manual.

The Digital Trunk Controller Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Time Switch CP	NT6X44AA		1	X+14	14	AP
Channel Supervision Mgs CP	NT6X42AA		1	X+14	20	AP
Speech Bus Formatter	NT6X41AA		1	X+14	21	AP
Filler Face Plate	NT0X50AA		1	X+14	24	AP
Designation Strip	P0708170		1	X+14		
Time Switch CP	NT6X44AA		1	X	14	AP
Channel Supervision Mgs CP	NT6X42AA		1	X	20	AP
Speech Bus Formatter	NT6X41AA		1	X	21	AP
Filler Face Plate	NT0X50AA		1	X	24	AP
Designation Strip	P0708170		1	X		

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) For frame mounting, X = 18 for one module and X = 51 for the other.

2) For cabinet mounting, X = 5 for one module and X= 33 for the other.

RULES:

AP 1) When PEC NT6X02IC is ordered, these items are provided.

DIGITAL TRUNK CONTROLLER COMMON CP

PEC CODE: NT6X02RA

CPC CODE: B0229372

RATING: MD

REPLACES:

REPLACED BY: NT6X02IC

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The NT6X02RA is the common circuit pack fill for a field-upgraded DTC for Canadian offices only. The NT6X02RA DTC cannot be ordered for new modules.

The Digital Trunk Controller (DTC) Module is the host office peripheral controller module for digital trunking in a host location.

The NT6X02RA is required to allow field upgrade from NT6X46AB and NT6X1205 to NT6X46BA Extended SP Memory CP.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Canada

ISSUE AUTHOR: Darrell Deeds Dept. 3471 (PPK)

MAIN CONTACT: Steve Martin Dept. 3471 (PPK)

NT6X02RA EMR2-6-6X02RA CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 02 19	ECM 373 36	Change to MD status per EC 11-17790. Retire this Engineering Manual.

The Digital Trunk Controller Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
MP Memory Plus CP	NT6X47AB		1	X+14	10	AP
SP Memory Plus CP	NT6X46BA		1	X+14	11	AP
Time Switch CP	NT6X44AA		1	X+14	14	AP
CPP Msg Protocol Cp	NT6X69AA		1	X+14	18	AP
CPCE Tone Generator Cp	NT6X79AA		1	X+14	19	AP
Channel Supervision Mgs CP	NT6X42AA		1	X+14	20	AP
Speech Bus Formatter CP	NT6X41AA		1	X+14	21	AP
Filler Faceplate	NT0X50AA		1	X+14	24	AP
Designation Strip	P0703899		1	X+14		AP
MP Memory Plus CP	NT6X47AB		1	X+14	10	AP
SP Memory Plus CP	NT6X46BA		1	X+14	11	AP
Time Switch CP	NT6X44AA		1	X+14	14	AP
CPP Msg Protocol Cp	NT6X69AA		1	X+14	18	AP
CPCE Tone Generator Cp	NT6X79AA		1	X+14	19	AP
Channel Supervision Mgs CP	NT6X42AA		1	X+14	20	AP
Speech Bus Formatter CP	NT6X41AA		1	X+14	21	AP
Filler Faceplate	NT0X50AA		1	X+14	24	AP
Designation Strip	P0703899		1	X+14		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) One DTC Common CP can be assigned on the frame to shelf mounting positions 65 and 51 (X=51), and the other to shelf mounting positions 32 and 18 (X=18).

2) For more information on the frame refer to the section on NT6X01AA (Section EMA2-06-000).

RULES:

AP 1) When PEC NT6X02RA is ordered, these items are provided.

PROVISIONING TABLE FOR PRODUCT CHANGE KITS ON DCM/DES/LMC MODULES

PEC CODE: T_DCM_KITS

CPC CODE: Not Applicable

RATING: MD

REPLACES: Not Applicable

REPLACED BY: No Replacement

ABBREVIATION NAME: Not Applicable

ENGINEERING DESCRIPTION: This section lists the change kits available for converting from one vintage of a Series I Peripheral Controller to another vintage.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US
CANADA
Europe
Asia/Pacific
CALA

ISSUE AUTHOR: NTI: Steve Martin Dept. 3471 (PPK)

MAIN CONTACT: NTI: Steve Martin Dept. 3471 (PPK)

T DCM KITS EMR2-96-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
96 09 12	ECM 601 34	MD NT2X32AA, NT2X33AB, NT2X34AA per EC024-96341. Reformat EMS.
97 04 22	ECM 288 07	MD NT2X31AS per EC024-96214. MD and Retire EMS.

The Provisioning Table For Product Change Kits on DCM/DES/LMC Modules is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT2X12AA	MD	No Replacement
NT2X12AB	MD	No Replacement
NT2X12AD	MD	No Replacement
NT2X32AA	MD	No Replacement
NT2X33AB	MD	NT2X33AE
NT2X34AA	MD	No Replacement
NT2X31AS	MD	No Replacement

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

The following PC kit must be ordered when field upgrading existing DCM/DES/LMC peripheral modules for interface with ENET:

MODULE TYPE	PC KIT
NT2X31AA (DCM)	NT2X31AS
NT2X31AB (DCM)	NT2X31AS
NT2X31AC (DCM)	NT2X31AS
NT2X31AH (DCM)	NT2X31AS
NT2X31AJ (DCM)	NT2X31AS
NT2X31AK (DCM)	NT2X31AS
NT2X31AL (DCM)	NT2X31AS
NT2X12AA (DES)	NT2X31AS
NT2X12AB (DES)	NT2X31AS
NT2X12AD (DES)	NT2X31AS

NT2X14AA (LMC)	NT2X31AS
NT2X14AC (LMC)	NT2X31AS
NT2X14AG (LMC)	NT2X31AS
NT2X14AE (LMC)	NT2X31AS

RTP will order the PC Kit NT2X31AS for U.S. jobs as required.

SAE in Canada will NOT order this PC kit because Change Application will field upgrade offices (on an ON GOING basis), which will be getting ENET. However, after Change Application field upgrades an office, Systems Application Engineering will update the office records accordingly.

NOTES:

1) For further information on each change kit, refer to the appropriate Engineering Manual section.

2) Office records shall be changed and maintained to agree with the common circuit pack fill PEC and not with the product change kit PEC.

RULES:

AP 1) When PEC T_DCM_KITS is ordered, these items are provided.

EXTENDED LCM PROCESSOR CHANGE KIT

PEC CODE: NT6X04ZZ

CPC CODE: B0227512

RATING: MD

REPLACES: N/A

REPLACED BY: NT6X04ZY

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides hardware modification to the LCE frame when converting a LCM module equipped with NT6X51AA LCM Processor CP to a LCM module equipped with NT6X51AB LCM Processor CP. This retrofit increases processor memory from 64KB to 256KB, and also increases 'on-board' diagnostics.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US
CALA
Asia/Pacific
Canada
Europe

ISSUE AUTHOR: Ron Hogan Dept. 3471 (PPK)

MAIN CONTACT: Ron Hogan Dept. 3471 (PPK)

NT6X04ZZ EMR2-97-LCM-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
97 03 21	ECM 619 43	Reflect MD status as per EC 024-96698. (PEC NT6X51AB MD per above EC). Replaced by NT6X04ZY.

The Extended LCM Processor Change Kit is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	LCM Processor	NT6X51AA		2	04,21 or 38,55	04	AP
REMOVE	Des Label (NT6X51AA)	P0633541		2	04,21 or 38,55	04	AP
ADD	Ext. LCM Processor	NT6X51AB		2	04,21 or 38,55	04	AP
ADD	Des Label (NT6X51AB)	P0701604		2	04,21 or 38,55	04	AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Provide minimum one (1) maximum two (2) NT6X04ZZ Extended LCM Processor Kit per frame when converting a NT6X04AA LCM Module to a NT6X04AB LCM Module. One NT6X04ZZ kit is required for each LCM module to be upgraded.

RULES:

ISDN LCMI TO LCME UPGRADE KIT

PEC CODE:	NTBX30BA
CPC CODE:	B0231079
RATING:	MD
REPLACES:	N/A
REPLACED BY:	NTBX30BB
ABBREVIATION NAME:	N/A
ENGINEERING DESCRIPTION:	This change kit provides hardware modification to the LCEI frame (NTBX30AB) when converting an AMI LCMI module equipped with NTBX31AA/AC common circuit pack fill to a 2B1Q LCME module equipped with NTBX31BA.
REFERENCE DOCUMENTATION:	MSBX30BA 00 01
MARKETS:	Applicable markets: US Canada Europe Asia/Pacific CALA Carrier Wireless

ISSUE AUTHOR: NTI: Ron Hogan Dept. 3471 (PPK)

MAIN CONTACT: NTI: James Marsden Dept. 3471 (PPK)

NTBX30BA EMR2-97-LCME-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
94 11 23	ECM 685 06	Replaced by NTBX30BB per EC 11-20992
95 07 13	ECM 685 07	MD per EC 11-21026

The ISDN LCMI to LCME Upgrade Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	ISDN Line Drawer	NTBX32AA			05,19 or 40,54	1,5, 9,13	RUL1
REMOVE	Line Drawer Filler	NT6X05AX			05,19 or 40,54	1,5, 9,13	RUL1
REMOVE	Line Cards	AR			05,19 or 40,54		RUL2
REMOVE	LCMI Processor CP	NTBX34AA		2	05,19 or 40,54	21	
REMOVE	LCMI Processor CP	NTBX34AB		2	05,19 or 40,54	21	
REMOVE	Power Converter	NT6X53EA		2	05,19 or 40,54	22	
REMOVE	Power Converter	NT6X53BA		2	05,19 or 40,54	25	
ADD	ISDN Enh. Ln Drawer	NTBX32BA			05,19 or 40,54	1,5, 9,13	RUL1
ADD	Line Drawer Filler	NT6X05AX			05,19 or 40,54	1,5, 9,13	RUL1
ADD	Line Cards	AR			05,19 or 40,54		RUL2
ADD	LCMI Digroup Control	NTBX35AA			05,19 or 40,54	19,20	RUL4
ADD	LCME Processor CP	NTBX34BA		2	05,19 or 40,54	21	AP
ADD	LCME Power Converter	NT6X53CA		2	05,19 or 40,54	22	AP
ADD	LCME Bat. & Ring.	NTBX72AA		2	05,19 or 40,54	25	AP
ADD	Design. Strip (LCME)	P0709653		2	05,19 or 40,54		AP
ADD	Warning Label	P0709654		2	05,19 or 40,54		AP
ADD	Line Drawer ID Label	P0709652					RUL1
ADD	LCME Frm Des Label	As Req.					RUL3
ADD	LCME Shf Des Label	As Req.					RUL3

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Provide minimum one (1) maximum two (2) NTBX30BA ISDN LCMI to LCME Upgrade Kit per frame when converting an AMI LCMI equipped with NTBX31AA/AC Common Circuit Pack Fill to a 2B1Q LCME equipped with NTBX31BA Common Circuit Pack Fill.

2) Office Records shall be changed and maintained to agree with the Common Circuit Pack Fills and not the Common Circuit Pack Kits.

3) The order in which the circuit cards appear above is not necessarily the order in which they are to be removed from or added to the controller module.

4) When upgrading an LCMI to an LCME, if the LCMI module that is being upgraded must NOT BE IN SERVICE; that is, there was never service on the LCMI or the service can be transferred completely to the other LCMI for the duration of the upgrade.

5) The converted module is to have all Line Drawer Tip/Ring switchboard cables to the DF removed (CA designation LDMD09, LDMD10 per CA0X06). Replace with cables LDMD03 or LDMD04 (32 pair cable), or LDMD11 or LDMD12 (64 pair cable) as per CA0X06 Cable Assignment Drawing.

6) Office must be equipped with BCS31 or later software before applying the change kit. As well, 4 x 30 Amp feeds are required for the each LCEI (2A and 2B). All existing LCEI jobs, equipped with 20 Amp fusing, must be upgraded to 30

Amp fusing. In existing offices, it is possible that the cables between LCEI and PDC will not support a 30 Amp rating based on their length and gauge. In this case, it will be necessary to provide a larger gauge cable, or re-route the cable to reduce the length, or move the LCEI closer to the PDC. Reference CA0X04 for further details on power cabling.

RULES:

RUL1 1) Remove ALL ISDN Line Drawers (NTBX32AA) from the LCMI. Provide the required ISDN Enhanced Line Drawers (NTBX32BA).

2) Move or provide the Line Drawer Filler Plates (NT6X05AX) to fill the vacant Line Drawer positions.

3) Provide Line Drawers and Line Drawer Filler Plates as you would for LCEI. Designate Line Drawers (on the converted module only) using P0709652 Drawer Designation Label. Refer to the section on the ISDN Line Concentrating Equipment Frame (LCEI) NTBX30AB for more information on the Line Drawers supported in the LCEI.

RUL2 1) Remove ALL Line Cards from the LCMI. Provide the required ISDN 2B1Q 'U' Interface Line Cards (NTBX27AA) to be mounted in the LCME.

2) Provide line cards as you would for LCME. Refer to the section on the ISDN Enhanced Line Drawer NTBX32BA for more information on the line cards supported in the LCME.

RUL3 1) At the PDC, change the fuse assignment labels for the converted modules from LCMI to LCME by using the following:

PEC	DESCRIPTION
P0711231	LCME 00 0- LCME 99 0
P0711232	LCME 00 1- LCME 99 1

2) At the FSP, change the shelf designation labels for the converted modules from LCMI to LCME by using the following:

PEC	DESCRIPTION

P0711233	LCME:00 0 LCAI:0- LCME:99 0 LCAI:0
P0711234	LCME:00 0 LCAI:1- LCME:99 0 LCAI:1
P0711235	LCME:00 1 LCAI:0- LCME:99 1 LCAI:0
P0711236	LCME:00 1 LCAI:1- LCME:99 1 LCAI:1

RUL4 1) When adding an LCME module to an unequipped module position on an existing LCEI frame already equipped with only one LCMI module, provide four (4) NTBX35AA LCMI Digroup Group Controller CPs with the NTBX30BA Kit.

ISDN LCMI TO LCME UPGRADE KIT

PEC CODE:	NTBX30BB
CPC CODE:	B0241271
RATING:	MD
REPLACES:	NTBX30BA
REPLACED BY:	NTBX30BC
ABBREVIATION NAME:	Not Applicable
ENGINEERING DESCRIPTION:	This change kit provides hardware modification to the LCEI frame (NTBX30AB) when converting an AMI LCMI module equipped with NTBX31AA/AC common circuit pack fill to a 2B1Q LCME module equipped with NTBX31BA.
REFERENCE DOCUMENTATION:	MSBX30BB 00 01
MARKETS:	Applicable markets: US Canada Europe Asia/Pacific CALA Carrier Wireless

ISSUE AUTHOR: NTI: Ron Hogan Dept. 3471 (PPK)

MAIN CONTACT: NTI: Ron Hogan Dept. 3471 (PPK)

NTBX30BB EMR2-97-LCME-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
94 11 23	ECM 685 06	Intro new kit per EC 011-20992
96 02 09	ECM 685 10	Change status to A&M per EC 011-21510. Replaced by NTBX30BC.
97 03 07	ECM 685 12	Change status to MD per EC 024-97867 and EC 024-97180.

The ISDN LCMI to LCME Upgrade Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	ISDN Line Drawer	NTBX32AA			05,19 or 40,54	1,5, 9,13	RUL1
REMOVE	Line Drawer Filler	NT6X05AX			05,19 or 40,54	1,5, 9,13	RUL1
REMOVE	Line Cards	AR			05,19 or 40,54		RUL2
REMOVE	LCMI Processor CP	NTBX34AA		2	05,19 or 40,54	21	
REMOVE	LCMI Processor CP	NTBX34AB		2	05,19 or 40,54	21	
REMOVE	Power Converter	NT6X53EA		2	05,19 or 40,54	22	
REMOVE	Power Converter	NT6X53BA		2	05,19 or 40,54	25	
ADD	ISDN Enh. Ln Drawer	NTBX32BA			05,19 or 40,54	1,5, 9,13	RUL1
ADD	Line Drawer Filler	NT6X05AX			05,19 or 40,54	1,5, 9,13	RUL1
ADD	Line Cards	AR			05,19 or 40,54		RUL2
ADD	LCMI Digroup Control	NTBX35AA			05,19 or 40,54	19,20	RUL4
ADD	LCME Processor CP	NTBX34BC		2	05,19 or 40,54	21	AP
ADD	LCME Power Converter	NT6X53CA		2	05,19 or 40,54	22	AP
ADD	LCME Bat. & Ring.	NTBX72AA		2	05,19 or 40,54	25	AP
ADD	Design. Strip (LCME)	P0744678		2	05,19 or 40,54		AP
ADD	Warning Label	P0745939		2	05,19 or 40,54		AP
ADD	Line Drawer ID Label	P0709652					RUL1
ADD	LCME Frm Des Label	As Req.					RUL3
ADD	LCME Shf Des Label	As Req.					RUL3

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NTBX34BC	MD	NTBX34CB

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Provide minimum one (1) maximum two (2) NTBX30BB ISDN LCMI to LCME Upgrade Kit per frame when converting an AMI LCMI equipped with NTBX31AA/AC Common Circuit Pack Fill to a 2B1Q LCME equipped with NTBX31BA Common Circuit Pack Fill.

2) Office Records shall be changed and maintained to agree with the Common Circuit Pack Fills and not the Common Circuit Pack Kits.

3) The order in which the circuit cards appear above is not necessarily the order in which they are to be removed from or added to the controller module.

4) When upgrading an LCMI to an LCME, the LCMI module that is being upgraded must NOT BE IN SERVICE; that is, there was never service on the LCMI or the service can be transferred completely to the other LCMI for the duration of the upgrade.

5) The converted module is to have all Line Drawer Tip/Ring switchboard cables to the DF removed (CA designation LDMD09, LDMD10 per CA0X06). Replace with cables LDMD03 or LDMD04 (32 pair cable), or LDMD11 or LDMD12 (64 pair cable) as per CA0X06 Cable Assignment Drawing.

6) Office must be equipped with BCS31 or later software before applying the change kit. As well, 4 x 30 Amp feeds are required for the each LCEI (2A and 2B). All existing LCEI

jobs, equipped with 20 Amp fusing, must be upgraded to 30 Amp fusing. In existing offices, it is possible that the cables between LCEI and PDC will not support a 30 Amp rating based on their length and gauge. In this case, it will be necessary to provide a larger gauge cable, or re-route the cable to reduce the length, or move the LCEI closer to the PDC. Reference CA0X04 for further details on power cabling.

RULES:

RUL1 1) Remove ALL ISDN Line Drawers (NTBX32AA) from the LCMI. Provide the required ISDN Enhanced Line Drawers (NTBX32BA).

2) Move or provide the Line Drawer Filler Plates (NT6X05AX) to fill the vacant Line Drawer positions.

3) Provide Line Drawers and Line Drawer Filler Plates as you would for LCEI. Designate Line Drawers (on the converted module only) using P0709652 Drawer Designation Label. Refer to the section on the ISDN Line Concentrating Equipment Frame (LCEI) NTBX30AB for more information on the Line Drawers supported in the LCEI.

RUL2 1) Remove ALL Line Cards from the LCMI. Provide the required ISDN 2B1Q 'U' Interface Line Cards (NTBX27AA) to be mounted in the LCME.

2) Provide line cards as you would for LCME. Refer to the section on the ISDN Enhanced Line Drawer NTBX32BA for more information on the line cards supported in the LCME.

RUL3 1) At the PDC, change the fuse assignment labels for the converted modules from LCMI to LCME by using the following:

PEC	DESCRIPTION
P0711231	LCME 00 0- LCME 99 0
P0711232	LCME 00 1- LCME 99 1

2) At the FSP, change the shelf designation labels for the converted modules from LCMI to LCME by using the following:

PEC	DESCRIPTION

P0711233	LCME:00 0 LCAI:0- LCME:99 0 LCAI:0
P0711234	LCME:00 0 LCAI:1- LCME:99 0 LCAI:1
P0711235	LCME:00 1 LCAI:0- LCME:99 1 LCAI:0
P0711236	LCME:00 1 LCAI:1- LCME:99 1 LCAI:1

RUL4 1) When adding an LCME module to an unequipped module position on an existing LCEI frame already equipped with only one LCMI module, provide four (4) NTBX35AA LCMI Digroup Group Controller CPs with the NTBX30BB Kit.

PRODUCT CHANGE KIT TO PROVIDE NT0X70AC

PEC CODE: NT2X58CH

CPC CODE: B0231815

RATING: MD

REPLACES: Not Applicable

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This product change kit provides for the replacement of a TM Processor CP NT0X70AA with an NT0X70AC when an Audio Tone Detector CP NT5X29AC is mounted on an MTM for BCS-28 or higher.

The PECs of the shelves to which this change is applicable are as follows:NT2X58CA/AC/AN.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA
Carrier

ISSUE AUTHOR: NTI: Steve Martin Dept. 3471 (PPK)

MAIN CONTACT: NTI: Steve Martin Dept. 3471 (PPK)

NT2X58CH EMR2-98-CH CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
96 09 12	ECM 601 34	MD per EC018-48743

The Product Change Kit to Provide NT0X70AC is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	TM Processor CP	NT0X70AA		1	XX	02	AP
REMOVE	Des Label (NT0X70AA)	P0622869		1	XX	02	AP
ADD	TM Processor CP	NT0X70AC		1	XX	02	AP
ADD	Des Label (NT0X70AC)	P0664846		1	XX	02	AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Description of circuit pack changes is given for one shelf only and operations must be repeated for as many shelves as are equipped.

2) Shelf position XX can be one of 04,18,32,51,65.

RULES:

AP 1) When PEC NT2X58CH is ordered, these items are provided.

PROVISIONING TABLE FOR PRODUCT CHANGE KITS ON TRUNK MODULE EQUIPMENT FRAMES

PEC CODE:	T_TM_KITS
CPC CODE:	N/A
RATING:	MD
REPLACES:	N/A
REPLACED BY:	N/A
ABBREVIATION NAME:	N/A
ENGINEERING DESCRIPTION:	This section lists the change kits available for upgrading circuit pack requirements for Trunk Module Equipment.
REFERENCE DOCUMENTATION:	N/A
MARKETS:	Applicable markets: US CALA Europe Asia/Pacific

ISSUE AUTHOR: NTI: Steve Martin Dept. 3471 (PPK)

MAIN CONTACT: NTI: Steve Martin Dept. 3471 (PPK)

T TM KITS EMR2-98-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-------- 96 06 20	---------- ECM 601 32	Previous history not available MD and Retire this EMS per EC#018-46900. (MDs NT2X58CG)

The Provisioning Table For Product Change Kits on Trunk Module Equipment Frames is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

Trunk Module Codes

PRODUCT CHANGE KIT	2X58AC	2X58AN	2X58AG	2X58AK
NT2X58CG	1	1	1	1

RULES:

AP 1) When PEC T_TM_KITS is ordered, these items are provided.

NOTES:

1) This table shows which product change kits are associated on Trunk Module. Included in the table is a note number which refers to the note section where further information about the product change kit can be found.

2) Provide one NT2X58CG Product Change Kit per MTM NT2X58AC/AN or DRA NT2X58AG/AK if these modules contain NT3X05AA/AC cards.

ISDN UPGRADE CP CHANGE KIT

PEC CODE: NT6X02ZA

CPC CODE:

RATING: Manufacture Discontinued

REPLACES:

REPLACED BY:

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides hardware modification to the LGE/LTE/DTE/SME frame (NT6X01AA) or the CPCE frame (NT6X01AB) when converting from non-ISDN peripheral controller common CP fills to ISDN common peripheral equipment. This upgrade adds ISDN functionality to the frame. Canadian applications only.

REFERENCE DOCUMENTATION: MS6X02ZA 00 03

MARKETS: Applicable markets:

Canada

ISSUE AUTHOR: NTI: Barbara Berkley Dept. 3471 (PPK)

MAIN CONTACT: NTI: Barbara Berkley Dept. 3471 (PPK)

NT6X02ZA EMR2-99-ISDN-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-------- 96 11 22	---------- ECM 314 23	No previous history avail MD section.

The ISDN Upgrade CP Change Kit is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	DS1 Interface CP or SCM DS1 I/F CP or Filler FP	NT6X50AA NT6X85__ NT0X50AA		10	X+14, X	1-5	
REMOVE	LGC/DTC Processor CP	NT6X45__		4	X+14, X	8,12	
REMOVE	Master Proc Mem CP or Filler FP	NT6X47AA NT0X50AA		2	X+14, X	9	
REMOVE	Master Proc Mem CP	NT6X47AA		2	X+14, X	10	RUL1
REMOVE	Signal Proc Mem CP	NT6X46__		2	X+14, X	11	RUL2

REMOVE	A-Bit Msg Card CP or SCM ABitBWord CP or Cont Tone Det CP	NT6X86AA NT6X81AA NT6X70AA	2	X+14, X	13	RUL3
REMOVE	Time Switch CP or Time Sw A/Mu CP or Time Sw SMU CP	NT6X44AB NT6X44BA NT6X44CA	2	X+14, X	14	RUL4
REMOVE	Univer Tone Rcvr CP or Filler FP	NT6X92BA NT0X50AA	2	X+14, X	15	RUL5
REMOVE	Univer Tone Rcvr CP or Filler FP	NT6X92__ NT0X50AA	2	X+14, X	16	
REMOVE	Message Interface CP or CPP Msg Proto CP	NT6X43__ NT6X69AA	2	X+14, X	18	RUL6
REMOVE	CPCE Tone Generat CP or SCM Pad/Ring CP	NT6X79AA NT6X80__	2	X+14, X	19	RUL7
REMOVE	DS30 Network I/F CP	NT6X40AA	4	X+14, X	22	RUL8
REMOVE	DS30 Network I/F CP	NT6X40AA	4	X+14, X	23	RUL9
REMOVE	Power Converter CP	NT2X70AB	2	X+14, X	25	RUL10
REMOVE	CPC Term Paddleboard	NT6X1205	2	X+14, X	11R	

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
ADD	DS-1 EFF CP	NT6X50AB			X+14, X	1-5	RUL11
ADD	D-Channel Handler CP	NTBX02AA			X+14, X	1-5	RUL11
ADD	DS30A LCM I/F CP	NT6X48AA			X+14, X	6,7	RUL12
ADD	LGC/DTC Processor	NT6X45BA		4	X+14, X	8,12	RUL13
ADD	Master Proc Mem CP	NT6X47AB		2	X+14, X	9	RUL14

ADD	Master Proc Mem CP	NT6X47AB	2	X+14, X	10	RUL1
ADD	Signal Proc Mem CP	NT6X46BA	2	X+14, X	11	RUL2
ADD	Filler Face Plate	NT0X50AA	2	X+14, X	13	RUL3
ADD	Time Switch CP	NT6X44AA	2	X+14, X	14	RUL4
ADD	Univers Tone Rcvr CP	NT6X92BB	2	X+14, X	15	RUL5
ADD	ISDN Sig PreProc CP	NTBX01AA	2	X+14, X	16	AP
ADD	CPP Msg Prot&Tone CP	NT6X69AB	2	X+14, X	18	RUL6
ADD	Filler Face Plate	NT0X50AA	2	X+14, X	19	RUL7
ADD	DS30 Network I/F CP	NT6X40AC	2	X+14, X	22	RUL8
ADD	Filler Face Plate	NT0X50AA	2	X+14, X	23	RUL9

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
ADD	Power Converter CP	NT2X70AD		2	X+14, X	25	RUL10
ADD	Power Converter CP	NT2X70AE		2	X+14, X	25	RUL10
ADD	Des. Label NTBX02AA	P0697919			X+14, X	1-5	RUL11
ADD	Des. Label NT6X50AB	P0690976			X+14, X	1-5	RUL11
ADD	Des. Label NT6X48AA	P0626877			X+14, X	6,7	RUL12

ADD	Des. Label	NT6X45BA	P0665152		X+14, X	8,12	RUL13
ADD	Des. Label	NT6X47AB	P0666374		X+14, X	9	RUL14
ADD	Des. Label	NT6X47AB	P0666374		X+14, X	10	RUL1
ADD	Des. Label	NT6X46BA	P0689315		X+14, X	11	RUL2
ADD	Des. Label	NT0X50AA	P0578498		X+14, X	13	RUL3
ADD	Des. Label	NT6X44AA	P0698316		X+14, X	14	RUL4
ADD	Des. Label	NT6X92BB	P0690565		X+14, X	15	RUL5
ADD	Des. Label	NTBX01AA	P0697918		X+14, X	16	AP
ADD	Des. Label	NT6X69AB	P0689317		X+14, X	18	RUL6

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
ADD	Des. Label	NT0X50AA	P0578498		X+14, X	19	RUL7
ADD	Des. Label	NT6X40AC	P0695397		X+14, X	22	RUL8
ADD	Des. Label	NT0X50AA	P0578498		X+14, X	23	RUL9
ADD	Des. Label	NT2X70AD	P0664133		X+14, X	23	RUL10
ADD	Des. Label	NT2X70AE	P0698943		X+14, X	25	RUL10

NOTE: 1) Provide one (1) NT6X02ZA CPCI ISDN Upgrade Circuit Pack Change Kit per each non-ISDN peripheral controller module

(LGC, LTC, DTC, SMR, SMS, SMU) when converting to NT6X02NA CPCI modules (ISDN). Note that where two peripheral controller modules are equipped in a frame, both modules in the frame must be converted to ISDN service together. It is not possible to have both ISDN and non-ISDN controller modules on one frame. One Change Kit is to be applied to the module in shelf mounting positions 65 and 51 (X=51) and a second Change Kit to the module in shelf mounting positions 32 and 18 (X=18).

2) Office Records shall be changed and maintained to agree with the NT6X02NA ISDN Common Peripheral Controller Common CP and NT6X01AB ISDN Common Peripheral Controller Equipment Frame, not the NT6X02ZA CPCI ISDN Upgrade Circuit Pack Change Kit.

3) The order in which the circuit cards appear above is not necessarily the order in which they are to be removed from or added to the controller module.

4) The NT6X02ZA change kit changes slots 9-11, 14, 18, 19 and 25 of the module to provisionable slots. This change will ease future design development.

5) This change kit applies when upgrading from the following CP fills:

NT6X02AA	LGC	NT6X02AR	DTC
NT6X02AC	DTC	NT6X02AZ	LGC
NT6X02AE	LGC	NT6X02CA	SCM-R
NT6X02AG	LTC	NT6X02DA	SCM-S
NT6X02AH	LGC	NT6X02DB	SCM-S
NT6X02AK	LTC	NT6X02EA	SCM-U
NT6X02AL	LGC	NT6X02IA	DTC
NT6X02AM	DTC	NT6X02LA	LGC
NT6X02AQ	DTC	NT6X02MA	LTC
NT6X02AF	DTC	NT6X02AS	DTC
NT6X02AT	LGC	NT6X02AU	LTC
NT6X02AW	SCM-U	NT6X02AY	LGC
NT6X02EB	SCM-U	NT6X02AI	DTC

6) Some existing circuit pack fills have some of the correct circuit packs for ISDN application already in place. In these cases, which are identified below in the RULes, do not apply the ADD action.

7) This change kit is to be applied together with the NT6X01ZZ CPCE ISDN Upgrade Wiring Change Kit, which converts the NT6X01AA LGE/LTE/DTE/SME frame and NT0X28AM FSP to NT6X01AB CPEI frame and NT0X28EB FSP.

8) When applying this Change Kit to the NT6X01AB frame, insure that the strapping on the backpanel NT6X0103 Slot 12 between pins 7A and 8A (provided with the DTC Wiring Option NT6X01WC) is removed in order that the module will support ISDN.

RULES:

AP 1) When PEC NT6X02ZA is ordered, these items are provided.

RUL1 1) When upgrading from CP fills NT6X02AA or NT6X02AC, remove NT6X47AA CP and replace with NT6X47AB CP. Also provide one (1) P0666374 Designation Label.

2) When upgrading from all other CP fills, leave the existing NT6X47AB in place.

RUL2 1) When upgrading from CP fills NT6X02AR, NT6X02AM, NT6X02IA, NT6X02AL, NT6X02LA, NT6X02AK, NT6X02EB, or NT6X02MA, leave the existing NT6X46BA CP in place.

2) When upgrading from CP fills, NT6X02AS, NT6X02AT, NT6X02AU, or NT6X02AW, leave the existing NT6X46AC in place.

3) When upgrading from all other CP fills, remove the CP currently in this slot and replace with NT6X46BB CP. Also provide one (1) P0711664 Designation Label.

RUL3 1) When upgrading from CP fills NT6X02AL, NT6X02BC NT6X02AH, NT6X02LA, NT6X02EA, NT6X02AE, NT6X02AY or NT6X02AZ, leave the existing NT0X50AA Filler FP in place.

2) When upgrading from all other CP fills, remove the CP currently in this slot and replace with NT0X50AA Filler FP. Also provide one (1) P0578498 Designation Label.

RUL4 1) When upgrading from CP fill NT6X02BC, remove NT6X44BA CP and replace with NT6X44AA CP. Also provide one (1) P0698316 Designation Label.

2) When upgrading from CP fills NT6X02DA, or NT6X02DB, remove NT6X44AB CP and replace with NT6X44AA CP. Also provide one (1) P0698316 Designation Label.

3) When upgrading from CP fills NT6X02EA, NT6X02EB, or NT6X02AW remove NT6X44CA CP and replace with NT6X44AA CP. Also provide one (1) P0698316 Designation Label

4) When upgrading from all other CP fills, leave the existing NT6X44AA CP in place.

RUL5 1) The NT6X92BB CP is provisionable in this slot in the NT6X01AA CPCE frame. If it has already been provisioned, leave it in place.

2) If the NT6X92BB CP has not been previously provisioned in this slot, remove the NT0X50AA Filler FP currently provisioned and replace with NT6X92BB CP. Also provide one (1) P0690565 Designation Label.

3) Refer to NT6X01AB section for more information on the NT6X92BB CP provisioning.

RUL6 1) When upgrading from CP fills NT6X02AR, NT6X02IA, NT6X02AL, NT6X02LA, NT6X02AK, NT6X02MA, NT6X02EA, NT6X02EB, or NT6X02AW, leave the existing NT6X69AB CP in place.

2) When upgrading from all other CP fills, remove the CP currently in this slot and replace with NT6X69AB. Also provide one (1) P0689317 Designation Label.

RUL7 1) When upgrading from CP fills NT6X02AM, NT6X02AQ, NT6X02AH, NT6X02AS, NT6X02AT, NT6X02AU, NT6X02AY or NT6X02AG, remove NT6X79AA CP and replace with NT0X50AA Filler FP. Also provide one (1) P0578498 Designation Label.

2) When upgrading from CP fills NT6X02DA, NT6X02DB, or NT6X02CA, remove NT6X80AA CP and replace with NT0X50AA Filler FP. Also provide one (1) P0578498 Designation Label.

3) When upgrading from CP fills NT6X02EA, NT6X02EB, or NT6X02AW, remove NT6X80BA CP and replace with NT0X50AA Filler FP. Also provide one (1) P0578498 Designation Label.

4) When upgrading from all other CP fills, leave the existing NT0X50AA Filler FP in place.

RUL8 1) When upgrading from an NT6X01AA CPCE frame in which the NT6X40AC CP has been provisioned in this slot, leave this card in place.

2) When upgrading from all other CP fills, remove the CP currently in this slot and replace with NT6X40AC CP. Also provide one (1) P0695397 Designation Label.

RUL9 1) When upgrading from CP fills NT6X02BC, or NT6X02DB, leave the existing NT0X50AA Filler FP in place.

2) When upgrading from all other CP fills, remove NT6X40AA CP and replace with NT0X50AA Filler FP. Also provide one (1) P0578498 Designation Label.

RUL10 1) When upgrading from CP fills NT6X02AA, NT6X02AY, or NT6X02AZ, remove NT2X70AB CP and replace with NT2X70__ CP. Check RTO/RTS before ordering NT2X70AE. Also provide either one (1) P0664133 Designation Label when NT2X70AD is ordered, or one (1) P0698943 Designation Label when NT2X70AE is ordered.

2) When upgrading from all other CP fills, leave the existing NT2X70AD or NT2X70AE CP in place.

RUL11 1) Provisionable circuit packs NT6X50AB, NTBX02AA are to be engineered in these slots as per rules in MS6X01AB. Also provide one (1) P0690976 Designation Label for each NT6X50AB engineered, and one (1) P0697919 Designation Label for each NTBX02AA engineered.

RUL12 1) Provisionable circuit pack NT6X48AA is to be re-engineered in these slots as per rules in MS6X01AB. Note that the existing quantity of NT6X48AA provisioned in NT6X01AA may be sufficient and thus can be left in place. Also provide one (1) P0626877 Designation Label for each new NT6X48AA engineered.

RUL13 1) Always provision two (2) NT6X45BA CP in slots 8,12. Also provision two (2) P0665152 Designation Labels.

RUL14 1) Always provision one (1) NT6X47AB CP in slot 9. Also provision one (1) P0666374 Designation Label.

LGC COMMON CIRCUIT PACK CHANGE KIT

PEC CODE:	NT6X02ZR
CPC CODE:	B0223179
RATING:	MD
REPLACES:	N/A
REPLACED BY:	NO REPLACEMENT
ABBREVIATION NAME:	N/A
ENGINEERING DESCRIPTION:	This change kit provides hardware modification to the LGE frame (NT6X01AA) when converting an LGC module equipped with NT6X02AA common circuit pack fill and without DS1 (NT6X50AA) to NT6X02AY CP fill.
REFERENCE DOCUMENTATION:	N/A
MARKETS:	Applicable markets: US CANADA CALA

ISSUE AUTHOR: NTI: David Terwey Dept. 3471(PPK)

MAIN CONTACT: NTI: David Terwey Dept. 3471(PPK)

NT6X02ZR EMR2-99-LGC-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 08 30	ECM 373 21	EC 011-17823 MD this product

The LGC Common Circuit Pack Change Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Filler Face Plate	NT0X50AA		2	18,32 or 51,65	19	RUL1
REMOVE	MSG Interface	NT6X43AA		2	18,32 or 51,65	18	
REMOVE	LGC/DTC Processor	NT6X45AA		4	18,32 or 51,65	8,12	
REMOVE	SP Memory	NT6X46AA		2	18,32 or 51,65	11	
REMOVE	MP Memory	NT6X47AA		4	18,32 or 51,65	9,10	
REMOVE	Des Strip (NT6X02AA)	P0626885		2	18,32 or 51,65	1	
ADD	LGC/DTC Processor	NT6X45AC		4	18,32 or 51,65	8,12	
ADD	SP Memory	NT6X46AB		2	18,32 or 51,65	11	
ADD	MP Memory	NT6X47AB		2	18,32 or 51,65	10	
ADD	CPP MSG Protocol	NT6X69AA		2	18,32 or 51,65	18	
ADD	CPCE Tone Generator	NT6X79AA		2	18,32 or 51,65	19	
ADD	Filler Face Plate	NT0X50AA		2	18,32 or 51,65	9	RUL1
ADD	Des Strip (NT6X01AA)	P0663291		2	18,32 or 51,65	1	
ADD	Comm Per Ctl Term Bd	NT6X1025		2	51,65 or 18,32	11R	

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
N/A		

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Provide minimum one (1) maximum two (2) NT6X02ZR Common Circuit Pack Kit per frame when converting an LGC Module equipped with NT6X02AA Common Circuit Pack Fill and without DS1 (NT6X50AA) to NT6X02AY Common Circuit Pack Fill.

2) Office Records shall be changed and maintained to agree with the Common Circuit Pack Fills and not the Common Circuit Pack Kits.

3) The order in which the circuit cards appear above is not necessarily the order in which they are to be removed from or added to the controller module.

RULES:

RUL1 1) Relocate Filler Face Plate (NT0X50AA) from circuit pack position 19 to 9.

LGC COMMON CIRCUIT PACK CHANGE KIT

PEC CODE:	NT6X02ZS
CPC CODE:	B0223180
RATING:	MD
REPLACES:	N/A
REPLACED BY:	NO REPLACEMENT
ABBREVIATION NAME:	N/A
ENGINEERING DESCRIPTION:	This change kit provides hardware modification to the LGE frame (NT6X01AA) when converting an LGC module equipped with NT6X02AZ common circuit pack fill to NT6X02AY common circuit pack fill. The retrofit provides revised messaging function.
REFERENCE DOCUMENTATION:	N/A
MARKETS:	Applicable markets: US CANADA CALA

ISSUE AUTHOR: NTI: David Terwey Dept. 3471(PPK)

MAIN CONTACT: NTI: David Terwey Dept. 3471(PPK)

NT6X02ZS EMR2-99-LGC-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 08 30	ECM 373 21	EC 011-17790 MD this product

The LGC Common Circuit Pack Change Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	MSG Interface	NT6X43AA		2	18,32 or 51,65	18	
REMOVE	Filler Face Plate	NT0X50AA		2	18,32 or 51,65	19	
REMOVE	Designation Strip	P0663289		2	18,32 or 51,65	1	
ADD	CPP MSG Protocol	NT6X69AA		2	18,32 or 51,65	18	
ADD	CPCE Tone Generator	NT6X79AA		2	18,32 or 51,65	19	
ADD	Des Strip (NT6X01AA)	P0663291		2	18,32 or 51,65	1	
ADD	Comm Per Ctl Term Bd	NT6X1205		2	18,32 or 51,65	11R	

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
N/A		

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Provide minimum one (1) maximum two (2) NT6X02ZS Common Circuit Pack Kit per frame when converting an LGC Module equipped with NT6X02AZ Common Circuit Pack Fill to NT6X02AY Common Circuit Pack Fill.

2) Office Records shall be changed and maintained to agree with the Common Circuit Pack Fills and not the Common Circuit Pack Kits.

3) The order in which the circuit cards appear above is not necessarily the order in which they are to be removed from or added to the controller module.

4) For U.S. offices this PC kit will be used along with the NT6X02ZU and NT6X02ZL. When converting a NT6X02AA to a NT6X02AY Common Circuit Pack Fill.

RULES:

LGC COMMON CIRCUIT PACK CHANGE KIT

PEC CODE:	NT6X02ZU
CPC CODE:	B0223182
RATING:	MD
REPLACES:	N/A
REPLACED BY:	NO REPLACEMENT
ABBREVIATION NAME:	N/A
ENGINEERING DESCRIPTION:	This change kit provides hardware modification to the LGE frame (NT6X01AA) when converting an LGC module equipped with NT6X02AA common circuit pack fill and without DS1 (NT6X50AA) to NT6X02AZ common circuit pack fill. This retrofit provides increased memory.
REFERENCE DOCUMENTATION:	N/A
MARKETS:	Applicable markets: US CANADA CALA

ISSUE AUTHOR: NTI: David Terwey Dept. 3471(PPK)

MAIN CONTACT: NTI: David Terwey Dept. 3471(PPK)

NT6X02ZU EMR2-99-LGC-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 08 30	ECM 373 21	EC 011-17790 MD this product

The LGC Common Circuit Pack Change Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	LGC/DTC Processor	NT6X45AA		4	18,32 or 51,65	8,12	
REMOVE	SP Memory	NT6X46AA		2	18,32 or 51,65	11	
REMOVE	MP Memory	NT6X47AA		4	18,32 or 51,65	9,10	
REMOVE	Des Strip (NT6X02AA)	P0626885		2	18,32 or 51,65	1	
ADD	LGC/DTC Processor	NT6X45AC		4	18,32 or 51,65	8,12	
ADD	SP Memory	NT6X46AB		2	18,32 or 51,65	11	
ADD	MP Memory	NT6X47AB		2	18,32 or 51,65	10	
ADD	Filler Face Plate	NT0X50AA		2	18,32 or 51,65	9	
ADD	Des Strip (NT6X01AA)	P0663289		2	18,32 or 51,65	1	

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
N/A		

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Provide minimum one (1) maximum two (2) NT6X02ZU Common Circuit Pack Kit per frame when converting an LGC Module equipped with NT6X02AA Common Circuit Pack Fill and without DS1 (NT6X50AA) to NT6X02AZ Common Circuit Pack Fill.

2) This retrofit is done on LGC's that are terminating just lines, no remotes; hence, no DS-1's are required.

3) Office Records shall be changed and maintained to agree with the Common Circuit Pack Fills and not the Common Circuit Pack Kits.

4) The order in which the circuit cards appear above is not necessarily the order in which they are to be removed from or added to the controller module.

5) For U.S. offices, this PC kit will be used along with the NT6X02ZS and NT6X02Zl when converting a NT6X02AA to a NT6X02AY common circuit pack fill.

RULES:

LTC/LGC COMMON CIRCUIT PACK CHANGE KIT

PEC CODE: NT6X02ZT

CPC CODE: B0223181

RATING: MD

REPLACES: N/A

REPLACED BY: NO REPLACEMENT

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: For Canadian applications only, this change kit provides hardware modification to the DTC/LTE/LGE frame (NT6X01AA) when converting an LTC module equipped with NT6X02AA common circuit pack fill to NT6X02AG common circuit pack fill, OR an LGC module equipped with DS1 (NT6X50AA) and NT6X02AA common circuit pack fill to NT6X02AH common circuit pack fill.

DTC module equipped with NT6X02AA circuit pack fill to a NT6X02AQ common circuit pack fill.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US
CANADA
CALA

ISSUE AUTHOR: NTI: David Terwey Dept. 3471(PPK)

MAIN CONTACT: NTI: David Terwey Dept. 3471(PPK)

NT6X02ZT EMR2-99-LTC-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 08 30	ECM 373 21	EC 011-17823 MD this product

The LTC/LGC Common Circuit Pack Change Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Power Converter	NT2X70AB		2	18,32 or 51,65	25	
REMOVE	LGC/DTC Processor	NT6X45AA		4	18,32 or 51,65	8,12	
REMOVE	SP Memory	NT6X46AA		2	18,32 or 51,65	11	
REMOVE	MP Memory	NT6X47AA		4	18,32 or 51,65	9,10	
REMOVE	MSG Interface	NT6X43AA		2	18,32 or 51,65	18	
REMOVE	Filler Face Plate	NT0X50AA		2	18,32 or 51,65	19	RUL1
REMOVE	Des Strip (NT6X02AA)	P0626885		2	18,32 or 51,65	1	
ADD	Power Converter	NT2X70AD		2	18,32 or 51,65	25	
ADD	LGC/DTC Processor	NT6X45AC		4	18,32 or 51,65	8,12	
ADD	SP Memory	NT6X46AB		2	18,32 or 51,65	11	
ADD	MP Memory	NT6X47AB		2	18,32 or 51,65	10	
ADD	CPP MSG Protocol	NT6X69AA		2	18,32 or 51,65	18	
ADD	CPCE Tone Generator	NT6X79AA		2	18,32 or 51,65	19	RUL1
ADD	Filler Face Plate	NT0X50AA		2	18,32 or 51,65	9	RUL1
ADD	Des Strip (NT6X01AA)	P0663293		2	18,32 or 51,65	1	
ADD	Comm Per Ctl Term Bd	NT6X1205		2	18,32 or 51,65	11R	

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
N/A		

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) For Canadian offices provide minimum one (1) maximum two (2) NT6X02ZT Common Circuit Pack Kit per frame when converting an LTC Module equipped with NT6X02AA Common Circuit Pack Fill to NT6X02AG Common Circuit Pack fill.

2) For Canadian offices provide minimum one (1) maximum two (2) NT6X02ZT Common Circuit Pack Kit per frame when converting an LGC Module equipped with DS1 (NT6X50AA) and NT6X02AA Common Circuit Pack Fill to NT6X02AH Common Circuit Pack Fill.

3) Office Records shall be changed and maintained to agree with the Common Circuit Pack Fills and not the Common Circuit Pack Kits.

4) The order in which the circuit cards appear above is not necessarily the order in which they are to be removed from or added to the controller module.

5) For Canadian Offices provide minimum one (1), maximum two (2) NT6X02ZT common circuit pack kit per frame when converting a DTC module equipped with a NT6X02AA pack fill to NT6X02AQ pack fill.

6) For U.S. offices, this PC Kit will be used along with the NT6X02ZL when converting a DTC module equipped with a NT6X02AA pack fill to a NT6X02AQ common circuit pack fill.

RULES:

RUL1 1) Relocate Filler Face Plate (NT0X50AA) from circuit pack position 19 to 9.

LTC/LGC COMMON CIRCUIT PACK CHANGE KIT

PEC CODE:	NT6X02ZV
CPC CODE:	B0223183
RATING:	MD
REPLACES:	N/A
REPLACED BY:	NO REPLACEMENT
ABBREVIATION NAME:	N/A
ENGINEERING DESCRIPTION:	This change kit provides hardware modification to the LTE/LGE frame (NT6X01AA) when converting an LTC module equipped with NT6X02AA common circuit pack fill to NT6X02AD common circuit pack fill OR an LGC module equipped with DS1 (NT6X50AA) and NT6X02AA common circuit pack fill to NT6X02AE common circuit pack fill. This retrofit provides added power and increased memory.
REFERENCE DOCUMENTATION:	N/A
MARKETS:	Applicable markets: US CANADA CALA

ISSUE AUTHOR: NTI: David Terwey Dept. 3471(PPK)

MAIN CONTACT: NTI: David Terwey Dept. 3471(PPK)

NT6X02ZV EMR2-99-LTC-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 08 30	ECM 373 21	EC 011-17790 MD this product

The LTC/LGC Common Circuit Pack Change Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Power Converter	NT2X70AB		2	18,32 or 51,65	25	
REMOVE	LGC/DTC Processor	NT6X45AA		4	18,32 or 51,65	8,12	
REMOVE	SP Memory	NT6X46AA		2	18,32 or 51,65	11	
REMOVE	MP Memory	NT6X47AA		4	18,32 or 51,65	9,10	
REMOVE	Des Strip (NT6X02AA)	P0626885		2	18,32 or 51,65	1	
ADD	Power Converter	NT2X70AD		2	18,32 or 51,65	25	
ADD	LGC/DTC Processor	NT6X45AC		4	18,32 or 51,65	8,12	
ADD	SP Memory	NT6X46AB		2	18,32 or 51,65	11	
ADD	MP Memory	NT6X47AB		2	18,32 or 51,65	10	
ADD	Filler Face Plate	NT0X50AA		2	18,32 or 51,65	9	
ADD	Des Strip (NT6X01AA)	P0663290		2	18,32 or 51,65	1	

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
N/A		

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Provide minimum one (1) maximum two (2) NT6X02ZV Common Circuit Pack Kit per frame when converting an LTC Module equipped with NT6X02AA Common Circuit Pack Fill to NT6X02AD Common Circuit Pack Fill.

   Provide minimum one (1) maximum two (2) NT6X02ZV Common Circuit Pack Kit per frame when converting an LGC Module equipped with DS1 (NT6X50AA) and NT6X02AA Common Circuit Pack Fill to NT6X02AE Common Circuit Pack Fill.

2) Office Records shall be changed and maintained to agree with the Common Circuit Pack Fills and not the Common Circuit Pack Kits.

3) The order in which the circuit cards appear above is not necessarily the order in which they are to be removed from or added to the controller module.

4) For U.S. offices, this PC kit will be used along with the NT6X02ZY and NT6X02ZL when converting a NT6X02AA to a NT6x02AH Common Circuit Pack Fill.

RULES:

LTC/LGC COMMON CIRCUIT PACK CHANGE KIT

PEC CODE: NT6X02ZW

CPC CODE: B0223184

RATING: MD

REPLACES: N/A

REPLACED BY: NO REPLACEMENT

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides hardware modification to the DTC/LTE/LGE frame (NT6X01AA) when converting an LTC module equipped with NT6X02AC common circuit pack fill to NT6X02AG common circuit pack fill, OR an LGC module equipped with NT6X02AC common circuit pack fill to NT6X02AH common circuit pack fill or a DTC equipped with NT6X02AC common circuit pack fill.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US
CANADA
CALA

ISSUE AUTHOR: NTI: David Terwey Dept. 3471(PPK)

MAIN CONTACT: NTI: David Terwey Dept. 3471(PPK)

NT6X02ZW EMR2-99-LTC-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 08 30	ECM 373 21	EC 011-17823 MD this product

The LTC/LGC Common Circuit Pack Change Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	LGC/DTC Processor	NT6X45AA		4	18,32 or 51,65	8,12	
REMOVE	SP Memory	NT6X46AA		2	18,32 or 51,65	11	
REMOVE	MP Memory	NT6X47AA		4	18,32 or 51,65	9,10	
REMOVE	MSG Interface	NT6X43AA		2	18,32 or 51,65	18	
REMOVE	Filler Face Plate	NT0X50AA		2	18,32 or 51,65	19	RUL1
REMOVE	Des Strip (NT6X02AC)	P0660560		2	18,32 or 51,65	1	
ADD	LGC/DTC Processor	NT6X45AC		4	18,32 or 51,65	8,12	
ADD	SP Memory	NT6X46AB		2	18,32 or 51,65	11	
ADD	MP Memory	NT6X47AB		2	18,32 or 51,65	10	
ADD	CPP MSG Protocol	NT6X69AA		2	18,32 or 51,65	18	
ADD	CPCE Tone Generator	NT6X79AA		2	18,32 or 51,65	19	
ADD	Filler Face Plate	NT0X50AA		2	18,32 or 51,65	9	RUL1
ADD	Des Strip (NT6X01AA)	P0663293		2	18,32 or 51,65	1	
ADD	Comm Per Ctl Term Bd	NT6X1205		2	18,32 or 51,65	11R	

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
N/A		

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) For Canadian offices provide minimum one (1) maximum two (2) NT6X02ZW Common Circuit Pack Kit per frame when converting an LTC Module equipped with NT6X02AC Common Circuit Pack Fill to NT6X02AG Common Circuit Pack Fill.

2) For Canadian offices provide minimum one (1) maximum two (2) NT6X02ZW Common Circuit Pack Kit per frame when converting an LGC Module equipped with NT6X02Ac Common Circuit Pack Fill to NT6X02AH Common Circuit Pack Fill.

3) Office Records shall be changed and maintained to agree with the Common Circuit Pack Fills and not the Common Circuit Pack Kits.

4) The order in which the circuit cards appear above is not necessarily the order in which they are to be removed from or added to the controller module.

5) For Canadian offices provide minimum one (1), maximum two (2) NT6X02ZW common circuit pack kit per frame when converting a DTC module equipped with NT6X02AC common circuit pack fill to NT6X02AQ pack fill.

6) For U.S. offices, this PC Kit will be used along with the NT6X02ZL when converting a NT6X02AC DTC module to a NT6X02AQ Common Circuit Pack Fill.

RULES:

RUL1 1) Relocate Filler Face Plate (NT0X50AA) from circuit pack position 19 to 9.

LTC/LGC COMMON CIRCUIT PACK CHANGE KIT

PEC CODE: NT6X02ZY

CPC CODE: B0223186

RATING: MD

REPLACES: N/A

REPLACED BY: NO REPLACEMENT

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides hardware modification to the LTE/LGE frame (NT6X01AA) when converting an LTC module equipped with NT6X02AD common circuit pack fill to NT6X02AG common circuit pack fill OR an LGC module equipped with NT6X02AE common circuit pack fill to NT6X02AH common circuit pack fill. This retrofit provides revised messaging function.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US
CANADA
CALA

ISSUE AUTHOR: NTI: David Terwey Dept. 3471(PPK)

MAIN CONTACT: NTI: David Terwey Dept. 3471(PPK)

NT6X02ZY EMR2-99-LTC-4 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 08 30	ECM 373 21	EC 011-17790 MD this product

The LTC/LGC Common Circuit Pack Change Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	MSG Interface	NT6X43AA		2	18,32 or 51,65	18	
REMOVE	Filler Face Plate	NT0X50AA		2	18,32 or 51,65	19	
REMOVE	Designation Strip	P0663290		2	18,32 or 51,65	1	
ADD	CPP MSG Protocol	NT6X69AA		2	18,32 or 51,65	18	
ADD	CPCE Tone Generator	NT6X79AA		2	18,32 or 51,65	19	
ADD	Des Strip (NT6X01AA)	P0663293		2	18,32 or 51,65	1	
ADD	Comm Periph Ctl Bd	NT6X1205		2	18,32 or 51,65	11R	

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
N/A		

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) For Canadian offices provide minimum one (1) maximum two (2) NT6X02ZY Common Circuit Pack Kit per frame when converting

an LTC Module equipped with NT6X02AD Common Circuit Pack Fill to NT6X02AG Common Circuit Pack Fill.

2) For Canadian offices provide minimum (1) maximum two (2) NT6X02ZY Common Circuit Pack Kit per frame when converting an LGC Module equipped with NT6X02AE Common Circuit Pack Fill to NT6X02AH Common Circuit Pack Fill.

3) Office Records shall be changed and maintained to agree with the Common Circuit Pack Fills and not the Common Circuit Pack Kits.

4) The order in which the circuit cards appear above is not necessarily the order in which they are to be removed from or added to the controller module.

5) For U.S. offices, this PC Kit will be used along with the NT6X02ZL when converting the following:

FROM	TO
NT6X02AD	NT6X02AG (LTC)
NT6X02AD	NT6X02AQ (DTC)
NT6X02AE	NT6X02AH (LGC)
NT6X02AE	NT6X02AQ (DTC)

6) For U.S. offices, this PC kit will be used along with the NT6X02ZV and NT6X02ZL when converting a NT6X02AA to a NT6X02AG or NT6X02AH Common Circuit Pack Fill.

RULES:

LTC/LGC COMMON CIRCUIT PACK CHANGE KIT

PEC CODE: NT6X02ZZ

CPC CODE: B0223187

RATING: MD

REPLACES: N/A

REPLACED BY: NO REPLACEMENT

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides hardware modification to the LTE/LGE frame (NT6X01AA) when converting an LTC module equipped with NT6X02AC common circuit pack fill to NT6X02AD common circuit pack fill OR an LGC module equipped with NT6X02AC common circuit pack fill to NT6X02AE common circuit pack fill. This retrofit provides increased memory.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US
CANADA
CALA

ISSUE AUTHOR: NTI: David Terwey Dept. 3471(PPK)

MAIN CONTACT: NTI: David Terwey Dept. 3471(PPK)

NT6X02ZZ EMR2-99-LTC-5 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 08 30	ECM 373 21	EC 011-17823 MD this product

The LTC/LGC Common Circuit Pack Change Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	LGC/DTC Processor	NT6X45AA		4	18,32 or 51,65	8,12	
REMOVE	SP Memory	NT6X46AA		2	18,32 or 51,65	11	
REMOVE	MP Memory	NT6X47AA		4	18,32 or 51,65	9,10	
REMOVE	Des Strip (NT6X02AC)	P0660560		2	18,32 or 51,65	1	
ADD	LGC/DTC Processor	NT6X45AC		4	18,32 or 51,65	8,12	
ADD	SP Memory	NT6X46AB		2	18,32 or 51,65	11	
ADD	MP Memory	NT6X47AB		2	18,32 or 51,65	10	
ADD	Filler Face Plate	NT0X50AA		2	18,32 or 51,65	9	
ADD	Des Strip (NT6X01AA)	P0663290		2	18,32 or 51,65	1	

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
N/A		

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Provide minimum one (1) maximum two (2) NT6X02ZZ Common Circuit Pack Kit per frame when converting an LTC Module equipped with NT6X02AC Common Circuit Pack Fill to NT6X02AD Common Circuit Pack Fill.

2) Provide minimum one (1) maximum two (2) NT6X02ZZ Common Circuit Pack Kit per frame when converting an LGC Module equipped with NT6X02AC Common Circuit Pack Fill to NT6X02AE Common Circuit Pack Fill.

3) Office Records shall be changed and maintained to agree with the Common Circuit Pack Fills and not the Common Circuit Pack Kits.

4) The order in which the circuit cards appear above is not necessarily the order in which they are to be removed from or added to the controller module.

RULES:

LTC/LGC COMMON CIRCUIT PACK CHANGE KIT

PEC CODE:	NT6X02ZN
CPC CODE:	B0223592
RATING:	MD
REPLACES:	N/A
REPLACED BY:	NO REPLACEMENT
ABBREVIATION NAME:	N/A
ENGINEERING DESCRIPTION:	This change kit provides hardware modification to the LTE/LGE frame (NT6X01AA) when converting an LTC module equipped with NT6X02AC common circuit pack fill to NT6X02AG common circuit pack fill OR an LGC module equipped with NT6X02AC common circuit pack fill to NT6X02AH common circuit pack fill. This retrofit provides increased memory. This kit is for U.S. applications only.
REFERENCE DOCUMENTATION:	N/A
MARKETS:	Applicable markets: US CANADA CALA

ISSUE AUTHOR: NTI: David Terwey Dept. 3471(PPK)

MAIN CONTACT: NTI: David Terwey Dept. 3471(PPK)

NT6X02ZN EMR2-99-LTC-6 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 08 30	ECM 373 21	EC 011-17823 MD this product

The LTC/LGC Common Circuit Pack Change Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	SP Memory	NT6X46AA		2	18,32 or 51,65	11	
REMOVE	MP Memory	NT6X47AA		4	18,32 or 51,65	9,10	
REMOVE	Des Strip (NT6X02AC)	P0665711		2	18,32 or 51,65	1	
ADD	SP Memory	NT6X46AB		2	18,32 or 51,65	11	
ADD	MP Memory	NT6X47AB		2	18,32 or 51,65	10	
ADD	Filler Face Plate	NT0X50AA		2	18,32 or 51,65	9	
ADD	Des Strip (NT6X01AA)	P0665712		2	18,32 or 51,65	1	

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
N/A		

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Office Records shall be changed and maintained to agree with the Common Circuit Pack Fills and not the Common Circuit Pack Kits.

2) The order in which the circuit cards appear above is not necessarily the order in which they are to be removed from or added to the controller module.

RULES:

FMT-150B HARDWARE MOUNTING KIT

PEC CODE:	NT0X1978
CPC CODE:	B0230949
RATING:	MD
REPLACES:	N/A
REPLACED BY:	NO REPLACEMENT
ABBREVIATION NAME:	Not Applicable
ENGINEERING DESCRIPTION:	This kit contains all required hardware to mount the Telco provided FMT-150B Fiber Unit into the OPM-256.
REFERENCE DOCUMENTATION:	AD0X1978 01 02 SL0X1978 01 02
MARKETS:	Applicable markets: US Canada CALA

ISSUE AUTHOR: NTI: Mark Sorrell Dept. 3471 (PPK)

MAIN CONTACT: NTI: Mark Sorrell Dept. 3471 (PPK)

NT0X1978 EMR2-99-OPM-4 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 96 08 29	--- --- -- ECM 514 15	Previous history not available. MD per EC 024-96253.

The FMT-150B Hardware Mounting Kit is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
BRACKET WELDMENT-LH	NT0X1975		2			AP
CABLE RETAINER	P0708633		1			AP
COVER	P0708634		1			AP
SCREW PAN HD #8X.38	P0613078		4			AP
SCREW PHM .138-32X.250	P0092619		2			AP
WASHER .196ID,43803	P0483753		4			AP
SCREW HHT .216-24X.500	P097F813		8			AP
LENS RED	A0300045		1			AP
1/30 AWG RED HOOK UP WIRE	R0106319		2.50m			AP
CABLE ASSY -48V 18AWG WIRE	NT8W0103		2			AP
CABLE ASSY LOGIC RTN 18AWG	NT8W0105		2			AP
LED & HOLDER MTG FACEPLATE	QDL1D		1			AP
SELF LK CA TIE A1.25 B4.6	P0633701		20			AP
LC "CAUTION" NAMEPLATE	P0708739		2			AP
1/22 SOL NT-CR WIRE GREEN	R0109330		2.50M			AP
SPLICE TRAY	A0351643		1			AP
WASHER FL .223-.500X.057	P0284154		8			AP
WS LOCK 3. 221-/475X.028	P0183220		8			AP
PLATE COVER	P0713078		1			AP
NUT HEX .190-32	P049C307		4			AP
WS LOCK EXT .190-.410X.02	P099Q900		4			AP
MM PIGTAIL E/W VOA (5MT)	NT3E44AA		2			AP
SM PIGTAIL (5MT)	NT3E19AA		2			AP
CABLE 6PR SHEILD PULSE TR	R0113572		12			AP
CABLE 6PR SHEILD PULSE TR	R0113572		12			AP
SCR .216-24X.250	P097F811		1			AP
SPG WASHER .255-.495-.077	P0218566		1			AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

DDM-1000 HARDWARE MOUNTING KIT

PEC CODE:	NT0X1979
CPC CODE:	B0230905
RATING:	MD
REPLACES:	N/A
REPLACED BY:	NO REPLACEMENT
ABBREVIATION NAME:	Not Applicable
ENGINEERING DESCRIPTION:	This kit contains all required hardware to mount the Telco provided DDM-1000 Fiber Unit into the OPM-256. Caution Provision this kit on the NT8X01BB OPM voids the UL Listing.
REFERENCE DOCUMENTATION:	AD0X1978 01 04 SL0X1978 01 04
MARKETS:	Applicable markets: US Canada CALA

ISSUE AUTHOR: NTI: Mark Sorrell Dept. 3471 (PPK)

MAIN CONTACT: NTI: Mark Sorrell Dept. 3471 (PPK)

NT0X1979 EMR2-99-OPM-5 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 96 08 29	--- --- -- ECM 514 15	Previous history not available. MD per EC 024-96253.

The DDM-1000 Hardware Mounting Kit is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
SCREW PAN HD #8X.38	P0613078		4			AP
SCR PHM .138-32X.250	P0092619		4			AP
WASHER .196ID,438OD	P0483753		4			AP
SCREW HHT .216-24X.500	P097F813		16			AP
MOUNTING BRACKET-DDM-1000	P0709861		2			AP
CABLE ASSY -48VOLT 18AWG	NT8W0108		2			AP
LOGIC RTN 18AWG	NT8W0109		2			AP
SELF LK CA TIE A1.25	P0633701		20			AP
SPLICE TRAY	A0351643		1			AP
PLATE COVER	P0713078		1			AP
LC "CAUTION" NAMEPLATE	P0708739		2			AP
NUT HEX .190-32	P049C307		4			AP
LOCK EXT .190-.410X.02	P099Q900		4			AP
MM PIGTAIL E/W VOA (5MT)	NT3E44AA		2			AP
SM PIGTAIL (5MT)	NT3E19AA		2			AP
MAIN GROUND BAR CABLE ASSY	NT8W0117		1			AP
SCR .216-24X.250	P097F811		1			AP
SPG WASHER .255-.495-.077	P0218566		1			AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

SIGNALLING PROCESSOR CHANGE KIT

PEC CODE:	NT6X02ZF
CPC CODE:	B0228440
RATING:	MD
REPLACES:	Not Applicable
REPLACED BY:	No Replacement (RSC-S)
ABBREVIATION NAME:	N/A
ENGINEERING DESCRIPTION:	This change kit provides hardware modification to the RCE frame when converting the RCC module equipped with an NT6X45AF LGC/DTC Processor CP to a RCC module equipped with an NT6X45BA LGC/DTC Processor CP. This retrofit provides increased processor memory. NOTE: THIS PC KIT IS CURRENTLY APPLICABLE TO THE RCE FRAME AND THE RCC MODULE ONLY.
REFERENCE DOCUMENTATION:	N/A
MARKETS:	Applicable markets: US Canada CALA

ISSUE AUTHOR: NTI: Ron Hogan Dept. 3471 (PPK)

MAIN CONTACT: NTI: Ron Hogan Dept. 3471 (PPK)

NT6X02ZF EMR2-99-RCC-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-------- 97 03 07	---------- ECM 618 28	Previous history not available. MD BB per EC 024-96090. Replaced by RSC-S.

The Signalling Processor Change Kit is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Signalling Processor	NT6X45AF		4	18,32	8,13	AP
REMOVE	Des Strip (NT6X45AF)	P0685029		4	18,32		AP
ADD	Expanded Signaling Processor	NT6X45BA		4	18,32	8,13	AP
ADD	Des Strip (NT6X45BA)	P0665152		4	18,32		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Provide one (1) NT6X02ZF Common Circuit Pack Kit per frame when converting NT6X12 XPM Modules as follows:

DESCRIPTION	FROM	TO
RCC Common CP	NT6X12AC	NT6X12CA

RULES:

AP 1) When PEC NT6X02ZF is ordered, these items are provided.

RCC COMMON CP CHANGE KIT

PEC CODE: NT6X12ZY

CPC CODE: B0229412

RATING: MD

REPLACES: Not Applicable

REPLACED BY: NT6X69AC

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit upgrades the RCC Common NT6X12AD to NT6X12AF or NT6X12AE to NT6X12CA. The NT6X12AD and NT6X12AE have two NT6X69AA and two NT6X79AA CPs. This PC Kit replaces two NT6X69AA and two NT6X79AA cards with two NT6X69AB CPs. The NT6X69AB is a single CP that replaces the NT6X69AA and NT6X79AA CPs. This allows NT6X78AA/AB to be provisioned in slot 18 of the RCC module for CLASS applications with CND.

For Canadian Applications Only

Provisioning NT6X78AA/AB into LGC, LTC or SMS modules may require the NT6X12ZY (which replaces NT6X69AA/NT6X79AA card combination with NT6X69AB) to keep the shelf's +5V power requirement below 55A. Refer to NT6X01AA EMS for more information.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US
Canada

ISSUE AUTHOR: NTI: Barry Bond Dept. 3471 (PPK)

MAIN CONTACT: NTI: James Marsden Dept. 3471 (PPK)

NT6X12ZY EMR2-99-RCC-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available.
93 10 15	ECM 332 07	Update reference to CMR card from NT6X78AA to NT6X78AA/AB.
94 03 21	ECM 618 12	MD. Replaced by NT6X69AC per ECD 11-17790.

The RCC Common CP Change Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	CPP Msg Protocol CP	NT6X69AA		2	18,32	17	AP
REMOVE	CPCE Tone Generator CP	NT6X79AA		2	18,32	18	AP
ADD	CPP Msg Protocol and Tone CP	NT6X69AB		2	18,32	17	AP
ADD	Des Strip (NT6X12AF)	P0702108		2	18,32		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Provide one (1) NT6X12ZY Common Circuit Pack Kit per frame when converting NT6X12 XPM Modules as follows:

DESCRIPTION	FROM	TO
RCC Common CP	NT6X12AD	NT6X12AF
RCC Common CP	NT6X12AE	NT6X12CA

RULES:

RCC TO RCCI PRODUCT CHANGE KIT

PEC CODE: NT6X1022

CPC CODE: B0232644

RATING: MD

REPLACES: None

REPLACED BY: RSC-SONET

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The NT6X1022 Change Kit provides the equipment and instructions required to convert an RCC that is equipped with packfill NT6X12CA to an RCCI. Some circuit packs from the RCC ar reused on the RCCI. Working lines on the RCC must be temporarily transferred to another RCC (supplied by the Installation group) while the conversion is performed. Provisionable RCC interfaces (NT6X50AAs) must be replaced with ISDN interfaces (NT6X50ABs) on the RCCI. After this conversion is complete, the new RCCI packfill is NT6X12AD and the frame becomes a NT6X10AD RCEI.

REFERENCE DOCUMENTATION: MS6X10AD 00 10

MARKETS: Applicable markets:

US
Canada

ISSUE AUTHOR: NTI: Ron Hogan Dept. 3471 (PPK)

MAIN CONTACT: NTI: Ron Hogan Dept. 3471 (PPK)

NT6X1022 EMR2-99-RCC-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
94 04 18	ECM 610 10	Change to A&M per Product Line Mgr. This product is replaced by RSC-SONET.
97 03 14	ECM 610 16	Change rating to MD per EC 024-96090, EC 024-95726, EC 024-96637, and EC 024-96698.

The RCC TO RCCI PRODUCT CHANGE KIT is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
RCEI FSP	NT0X28EC		1			AP
RCEI FRAME LOCAL	NT6X1015		1			AP
RCEI FR SUPV PNL	NT6X1016		1			AP
RCEI FR SUPV PNL	NT6X1018		1			AP
ISDN RMT CTRL ARRAY SH.	NT6X1206		2			AP
ISDN SIG. PREPROCESSOR	NTBX01AA		2			AP
FILLER FP .875	NT0X50AA		2			AP
LGC/DTC PROCESSOR	NT6X45BC		4			AP
MASTER PROCESSOR	NT6X47AB		2			AP
DS-1 E.F.F. CARD	NT6X50AB		2			AP
REMOTE FORMATTER	NT6X72AB		2			AP
POWER CABLE ASSY	NT0X95BA		1			AP
POWER CABLE ASSY	NT0X95BD		1			AP
POWER CABLE ASSY	NT0X95BF		1			AP
POWER CABLE ASSY	NT0X95BG		1			AP
CABLE ASSEMBLY	NT6X0317		1			AP
26 AWG CABLE	NT6X1023		1			AP
26 AWG CABLE ASSY	NT6X1025		1			AP
43" CABLE ASSY	NT6X1406		1			AP
RCC/RCCI CONV. BRKT. ASSY	NT6X1024		2			AP
NUT HEX	P0065747		10			AP
SCR HHC	P0069242		10			AP
HEXAGON NUT	P0125953		4			AP
WS FL	P0160739		10			AP
WS SPR	P0183028		10			AP
MACHINE SCREW	P0201510		12			AP
WASHER FL	P0284154		4			AP
CONNECTOR KEY BRKT	P0638261		4			AP
CABLE SUPPORT BRKT	P0638290		1			AP
DESIGNATION STRIP (NT6X12AD)	P0705186		2			AP
RCC/RCCI CONV. KIT PLATE	P0729166		2			AP
WS LOCK	P097F579		20			AP
SCREW	P097F813		12			AP
CA TIE	SSC2S-S10-M69		7			AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NT6X1022 is ordered, these items are provided.

NOTE: When this conversion is made installers will move traffic from the existing RCC to a temporary RCC (supplied by Installation) and will then convert the RCC using the NT6X1022 kit. The FSP and ISDN Remote Controller Array shelves for the RCCI are included in the kit. After they have been mounted, existing circuit packs from the RCC will be relocated as follows:

CP PEC	RCC Slot	Action	RCCI Slot
NT6X47AB	11	Move to	11
NT6X46BA	12	Move to	12
NT6X44AA	15	Move to	15
NT6X92BB	16	Move to	14
NT6X69AB	17	Move to	17
NT6X72AA	19	Return to customer	
NT0X50AA	23	Move to	24

Additional required circuit packs and mounting locations are provided as part of the kit. All provisionable NT6X50AAs on the RCC must be replaced with NT6X50ABs for RCCI applications. Existing Line Test Unit (LTU) pairs must be replaced with Multiline Test Unit (MTU) pairs to support 1B1Q lines. RCCI labels must e provisioned when converting an RCC to RCCI. Refer to the Engineering Manual for details of RCCI requirements.

PRODUCT CHANGE KIT
XPM PLUS RCCI

PEC CODE:	NT6X12ZE
CPC CODE:	B0235962
RATING:	MD
REPLACES:	None
REPLACED BY:	RSC-SONET
ABBREVIATION NAME:	RCCI
ENGINEERING DESCRIPTION:	The contents of this PEC provide the material necessary to change a NT6X12DA or NT6X12DC RCCI Common CP fill to a NT6X12DE RCCI XPM Plus Common CP fill. The NT6X12DE RCCI XPM Plus Common CP fill provides XPM Plus capability.
REFERENCE DOCUMENTATION:	MS6X10AD 00 10 SL6X12DE 00 01 PC6X12DE 00 01
MARKETS:	Applicable markets: US Canada

ISSUE AUTHOR: NTI: Ron Hogan Dept. 3471 (PPK)

MAIN CONTACT: NTI: Ron Hogan Dept. 3471 (PPK)

NT6X12ZE EMR2-99-RCC-4 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 10 15	ECM 610 05	Initial introduction of the PEC.
94 04 18	ECM 610 10	Change to A&M per Product Line Mgr. This product is replaced by RSC-SONET.
97 03 14	ECM 610 16	Change rating to MD per EC 024-96090, EC 024-95726, and EC 024-96698.

The Product Change Kit XPM Plus RCCI is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Signaling Processor	NT6X45BC		4	XX	08,13	
REMOVE	Master Proc Mem	NT6X47AC		2	XX	11	
REMOVE	Signaling Processor	NT6X46BA		2	XX	12	
or							
REMOVE	Signaling Processor	NT6X46BB		2	XX	12	
REMOVE	ISDN Sig Pre-Proc	NTBX01AA		2	XX	16	
ADD	Universal Processor	NTMX77AA		2	XX	13	AP
ADD	Enh ISDN Sig Pre-Prc	NTBX01AB		2	XX	16	AP
ADD	XPM Plus Term PB	NTMX71AA		2	XX	18R	AP
ADD	Filler Face Plate	NT0X50AA		6	XX	08,11 12	AP
ADD	Des. Label NT0X50AA	P0578498		6	XX	08,11 12	
ADD	Filler Face Plate	NT0X50AA		2	XX	10	RUL1
ADD	Des. Label NT0X50AA	P0578498		2	XX	10	RUL1

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) "XX" in SHF POS is equal to 18,32 or 51,65.

2) This Product Change kit may be applied to the NT6X12DA or NT6X12DC Common CP fills changing them to a NT6X12DE Common CP fill. For the NT6X12DA Common CP fill this kit makes slots 10 and 17 provisionable.

RULES:

AP 1) When PEC NT6X12ZE is ordered, these items are provided.

RUL1 1) If the NT6X12ZE Product Change Kit is applied to a NT6X12DA RCCI Common CP pack fill, provide two NT0X50AA Filler Face Plates for slot 10 in addition to the NT6X12ZE Product Change Kit. For the NT6X12DC RCCI Common CP pack fill, slot 10 was already equipped with a NT0X50AA.

PC KIT (6X12AD TO 6X12AG)

PEC CODE:	NT6X12ZC
CPC CODE:	B0235067
RATING:	MD
REPLACES:	Not Applicable
REPLACED BY:	No Replacement (RSC-S)
ABBREVIATION NAME:	N/A
ENGINEERING DESCRIPTION:	This PC Kit provides information required for upgrading the NT6X12AD Packfill to a NT6X12AG Packfill.
REFERENCE DOCUMENTATION:	PC6X12ZC 00 01 SL6X12ZC 00 01
MARKETS:	Applicable markets: US Canada Europe

ISSUE AUTHOR: NTI:	Ron Hogan	Dept. 3471	(PPK)
MAIN CONTACT: NTI:	Ron Hogan	Dept. 3471	(PPK)

NT6X12ZC EMR2-99-RCC-5 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 10 28 97 03 07	ECM 618 05 ECM 618 28	Introduce NT6X12ZC per ECD 024-67192 MD BB per EC 024-96637. (MD NT6X72AB).

The PC KIT (6X12AD TO 6X12AG) is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Remote Formatter	NT6X72AA		2	18,32	19	
REMOVE	Comm Periph Ctl PB	NT6X1205		2	18,32	12R	
REMOVE	SP Memory Plus	NT6X46AC		2	18,32	12	
REMOVE	Master Memory Proc.	NT6X47AB		2	18,32	10	NOTE 2
ADD	Remote Formatter	NT6X72AB		2	18,32	19	
ADD	Des Label (NT6X72AB)	P0733837		2	18,32	19	
ADD	Sig. Proc Memory	NT6X46BB		2	18,32	12	
ADD	Des Label (NT6X46BB)	P0711664		2	18,32	12	
ADD	4 MB MP MEMORY	NT6X47AC		2	18,32	11	
ADD	Des Label (NT6X47AC)	P0711821		2	18,32	11	
ADD	Filler Face Plate	NT0X50AA		2	18,32	10	
ADD	Des Label (NT0X50AA)	P0578498		2	18,32	10	
INFO	CPCE Tone Gen	NT6X79AA		2	18,32	18	NOTE 1
INFO	CPP MSG Protocol	NT6X69AA		2	18,32	17	NOTE 1
INFO	Filler Face Plate	NT0X50AA		2	18,32	09	NOTE 3

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) This slot is now provisionable; fill per MS6X10AC.

1) Slot 10 was provisionable with a NT6X47AB; a NT0X50AA is now always provided in this slot.

1) Slot 09 was provisionable with NT0X50AA. This filler is now always provided in this slot.

RULES:

AP 1) When PEC NT6X12ZC is ordered, these items are provided.

PC KIT (6X12CA TO 6X12AG)

PEC CODE:	NT6X12ZD
CPC CODE:	B0235133
RATING:	MD
REPLACES:	N/A
REPLACED BY:	NONE.
ABBREVIATION NAME:	RCC
ENGINEERING DESCRIPTION:	This pc kit provides information required for upgrading the NT6X12CA packfill to a NT6X12AG Packfill.
REFERENCE DOCUMENTATION:	SL6X12ZD 00 01 PC6X12ZD 00 01
MARKETS:	Applicable markets: US Canada

ISSUE AUTHOR: NTI: Barry Bond Dept. 3471 (PPK)

MAIN CONTACT: NTI: Barry Bond Dept. 3471 (PPK)

NT6X12ZD EMR2-99-RCC-6 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 10 28	ECM 618 05	Introduce the NT6X12ZD per ECD ECD 024-67192
95 09 01	ECM 618 22	Changed rating status to MD per EC 11-17790.

The PC KIT (6X12CA TO 6X12AG) is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	MP Memory Plus	NT6X47AB		2	18,32	10	AP
REMOVE	MP Memory Plus	NT6X47AB		2	18,32	11	AP
REMOVE	Remote Formatter	NT6X72AA		2	18,32	19	AP
REMOVE	SP Memory Plus	NT6X46BA		2	18,32	12	AP
ADD	Filler Face Plate	NT0X50AA		2	18,32	10	AP
ADD	Des Label (NT0X50AA)	P0578498		2	18,32	10	AP
ADD	4 MB MP Memory	NT6X47AC		2	18,32	11	AP
ADD	Sig Proc. Memory	NT6X46BB		2	18,32	12	AP
ADD	Des Label (NT6X47AC)	P0711821		2	18,32	11	AP
ADD	Des Label (NT6X46BB)	P0711664		2	18,32	12	AP
ADD	Des Label (NT6X72AB)	P0733837		2	18,32	19	AP
ADD	Remote Formatter	NT6X72AB		2	18,32	19	AP
INFO	CPP MSG Proto & Tone	NT6X69AB		2	18,32	17	AP
INFO	Filler Face Plate	NT0X50AA		2	18,32	09	AP
INFO	Filler Face Plate	NT0X50AA		2	18,32	09	NOTE 1
REMOVE	MP Memory Plus	NT6X47AB		2	18,32	10	NOTE 2
INFO	CPP MSG Proto & Tone	NT6X69AB		2	18,32	17	NOTE 3

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Slot 09 was previously provisionalbe wiht a NT0X50AA Filler. This slot is now always provided with a NT0X50AA. The StockList (SL6X12ZD) does not contain a NT0X50AA for slot 9 since there will already be there.

2) Slot 10 was previously provisionable with a NT0X47AB PACK. This slot is now always provided with a NT0X50AA Filler.

3) Slot 18 was previously Always Provided with a NT6X69AB CP. This slot is now provisionable. When used in a Non ENET environment the NT6X69AB may remain per MS6X10AC. However, if the RSC is deploy in an ENET environment; the NT6X69AB must be changed to NT6X69AC.

RULES:

AP 1) When PEC NT6X12ZD is ordered, these items are provided.

PC KIT (6X12AF TO 6X12CA)

PEC CODE:	NT6X12ZZ
CPC CODE:	B0234529
RATING:	MD
REPLACES:	Not Applicable
REPLACED BY:	No Replacement (RSC-S)
ABBREVIATION NAME:	N/A
ENGINEERING DESCRIPTION:	This pc kit provides information required for upgrading the NT6X12AF packfill to a NT6X12CA packfill.
REFERENCE DOCUMENTATION:	SL6X12ZZ 00 01 PC6X12ZZ 00 01
MARKETS:	Applicable markets: US Canada

ISSUE AUTHOR: NTI: Ron Hogan Dept. 3471 (PPK)

MAIN CONTACT: NTI: Ron Hogan Dept. 3471 (PPK)

NT6X12ZZ EMR2-99-RCC-7 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 10 28	ECM 618 05	Introduce NT6X12ZZ per ECD 024-67192
94 06 17	ECM 618 14	Correct typo by changing NT6X45BA to NT6X46BA.
97 03 07	ECM 618 28	MD BB per EC 024-96637. (MD NT6X46BA).

The PC KIT (6X12AF TO 6X12CA) is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	COMM PERIPH CTL PB	NT6X1205			18,32	12R	AP
REMOVE	SP MEMORY PLUS	NT6X46AC			18,32	12	AP
ADD	SP MEMORY PLUS	NT6X46BA			18,32	12	AP
ADD	DES LABEL (NT6X46BA)	P0698315			18,32	12	AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NT6X12ZZ is ordered, these items are provided.

DUAL RCC PC KIT

PEC CODE:	NT6X12ZG
CPC CODE:	B0236948
RATING:	MD
REPLACES:	Not Applicable
REPLACED BY:	No Replacement (RSC-S)
ABBREVIATION NAME:	Not Applicable
ENGINEERING DESCRIPTION:	This kit shall be applied to all Dual RCC Applications or Mono to Dual RCC applications. An RCC XPM+ Upgrade may be applied in lieu of this upgrade effective BCS 34 and later.
REFERENCE DOCUMENTATION:	MS6X10AC 00 00 IS6X12 01 07 SL6X12ZG 01 01
MARKETS:	Applicable markets: US Canada Europe Asia/Pacific CALA Carrier Wireless

ISSUE AUTHOR: NTI: Ron Hogan Dept. 3471 (PPK)

MAIN CONTACT: NTI: Ron Hogan Dept. 3471 (PPK)

NT6X12ZG EMR2-99-RCC-8 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 01 07 97 03 07	ECM 678 09 ECM 618 28	Initial introduction. Close ET 45363. MD EMS per EC 024-96090.

The Dual RCC PC Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
ADD	PROC CP FOR DUAL RCC	NT6X45BD		4	18	8,13	AP
					32	8,13	
ADD	Des Lable (NT6X45BD)	P0739326		4	18	8,13	AP
					32	8,13	
REMOVE	MP Processor CP	NT6X45--		4	18	8,13	
					32	8,13	
REMOVE	Des Strip (NT6X45__)	P0------		4	32	8,13	
					32	8,13	

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NT6X12ZG is ordered, these items are provided.

RUL1 1) Provision either XPM+ or NT6X12ZG for all Dual RCC applications, including Mono to Dual RCC upgrades.

RCE FILLER PANEL PC KIT

PEC CODE:	NT6X10ZY
CPC CODE:	B0244560
RATING:	MD
REPLACES:	Not Applicable
REPLACED BY:	Not Applicable
ABBREVIATION NAME:	N/A
ENGINEERING DESCRIPTION:	This change kit replaces the RCC shelves with filler shelves during conversions from RCC to RCC2.
REFERENCE DOCUMENTATION:	N/A
MARKETS:	Applicable markets: US Canada

ISSUE AUTHOR: NTI: Ron Hogan Dept. 3471 (PPK)

MAIN CONTACT: NTI: Ron Hogan Dept. 3471 (PPK)

NT6X10ZY EMR2-99-RCC-9 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 10 27 96 08 09	ECM 618 23 ECM 618 27	Introduce product change kit. MD NT6X10ZY Product Change Kit per EC 024-96698.

The RCE Filler Panel PC Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	RCC Shelf	NT6X1201		2	18,32		AP
ADD	RCC Shelf Filler	NT0X84AA		2	18,32		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Provide one (1) NT6X10ZY RCE Filler Panel PC Kit per frame when converting from RCC to RCC2.

RULES:

PC KIT (6X12AL TO 6X12AN)

PEC CODE: NT6X12ZJ

CPC CODE: B0241552

RATING: MD

REPLACES: Not Applicable

REPLACED BY: No Replacement (RSC-S)

ABBREVIATION NAME: Not Applicable

ENGINEERING DESCRIPTION: The NT6X12ZJ provides instructions to upgrade an existing NT6X12AL CP Fill to an NT6X12AN CP Fill. Only field upgrades are supported by this kit. This upgrade make the NT6X72__ and NT6X92__ provisionable.

REFERENCE DOCUMENTATION: MS6X10AC 01 13

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA

ISSUE AUTHOR: Ron Hogan Dept. 3471 (PPK)

MAIN CONTACT: Ron Hogan Dept. 3471 (PPK)

NT6X12ZJ EMR2-99-RCC9 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 10 17 97 03 07	ECM 618 17 ECM 618 28	Initial Introduction. MD per EC 024-96090.

The PC KIT (6X12AL TO 6X12AN) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE

NONE

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
None		

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) This kit contains no equipment, only intructions to the effect that the NT6X72__ and NT6X92__ have been made provisionable with the NT6X12AN CP Fill.

RULES:

REMOTE MAINTENANCE EQUIPMENT KIT (RCEI 65)

PEC CODE:	NT6X10AJ
CPC CODE:	B0235963
RATING:	MD
REPLACES:	None
REPLACED BY:	RSC-SONET
ABBREVIATION NAME:	Not Applicable.
ENGINEERING DESCRIPTION:	This unit contains the RMM Card cage for the RCEI shelf position 65. Also, included in one NT0X10AA in slot 10.
REFERENCE DOCUMENTATION:	MS6X10AC 00 00 SL6X10AJ 00 01
MARKETS:	Applicable markets: US Canada

ISSUE AUTHOR: NTI: Ron Hogan Dept. 3471 (PPK)

MAIN CONTACT: NTI: Ron Hogan Dept. 3471 (PPK)

NT6X10AJ EMR2-99-RMM-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 10 15	ECM 610 05	Initial introduction of this PEC.
97 03 14	ECM 610 16	Change rating to MD per EC 024-96090.

The REMOTE MAINTENANCE EQUIPMENT KIT (RCEI 65) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
CABLE BRAID ASSY 7.00IN.	NT0X9501		1	65		AP
POWER CABLE ASSEMBLY 50.5 IN.	NT0X95CE		2	65		AP
POWER CABLE ASSEMBLY 49.0 IN.	NT0X95CC		1	65		AP
3.75IN CABLE BRAID ASSY	NT0X9538		1	65		AP
RMM SHELF Assembly	NT6X1301		1	65		AP
43" CABLE ASSEMBLY	NT6X1406		1	65		AP
RMM CABLE ASSEMBLY (-48V SP)	NT6X1438		1	65		AP
HDBK153 HEX NUT	P0065747		2	65		AP
HDBK153 CAP SCREW	P0069242		2	65		AP
HDBK153 WASHER	P0160739		2	65		AP
HDBK153 LOCK WASHER	P0183028		2	65		AP
HDBK153 LOCKWASHER EXT	P0183220		1	65		AP
NPS50578-01 Washer Flat Metal	P0284154		1	65		AP
HDBK153 SCREW .216-24 X .500	P097F813		4	65		AP
HDBK153 EXT TOOTH LOCKWASHER	P097Y579		4	65		AP
Misc. Scan Point CP	NT0X10AA			65	10	RUL1
# PC Kit RMM RCEI 65	NT6X10AJ			65		RUL2
Jumper Wire NT-26CR BL/GR pr	R0109478					RUL2
Jumper Wire NT-26CR GR/OR pr	R0109503					RUL2

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES: equipped in the office (i.e RMM 00 to 03 inclusive).

RULES:

AP 1) When PEC NT6X10AJ is ordered, these items are provided.

RUL1 1) One NT0X10AA is always required in slot 10 on each NT6X10AJ equipped in the office (i.e RMM 00 to 03 inclusive).

2) Note: Pin 2A of the RMM Backplance is connected to the NT0X10AA which corresponds to scan point SC100. This scan point must be always reserved for the RMM Power Feed Alarm monitoring function. The remaining 13-scan points are available for other assignments as applicable.

RUL2 1) NT6X10AJ Ship Loose Rule: When the NT6X10AJ is shippped loose to the job site always provide the following:

* One PC Kit PC6X10AJ to provide a loose wiring diagram. Note: An Engineering Manual Insert for PC6X10AJ was not created as this kit documents a Change Procedure only and does not include any hardware.

* Always provision 8.0 meters of R0109478 and 10.0 meters of R0190503 NT-26CR Jumper wire.

CONVERSION FROM SMR TO DTC OR LGC CHANGE KIT

PEC CODE:	NT6X02ZG
CPC CODE:	B0228004
RATING:	MD
REPLACES:	N/A
REPLACED BY:	NO REPLACEMENT
ABBREVIATION NAME:	N/A
ENGINEERING DESCRIPTION:	This change kit provides hardware modification to the NT6X01AA frame when converting an SMR module to a DTC or LGC module.
REFERENCE DOCUMENTATION:	N/A
MARKETS:	Applicable markets: US CANADA CALA

ISSUE AUTHOR: NTI: David Terwey Dept. 3471(PPK)

MAIN CONTACT: NTI: David Terwey Dept. 3471(PPK)

NT6X02ZG EMR2-99-SMR-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 08 30	ECM 373 21	EC 011-17790 MD this product

The Conversion From SMR to DTC or LGC Change Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	SCM A Bit/B Word CP	NT6X81AA		2	18,32 or 51,65	13	AP
REMOVE	Msg Interface	NT6X43AA		2	18,32 or 51,65	18	AP
REMOVE	SCM Pad/Ring Card	NT6X80AA		2	18,32 or 51,65	19	AP
REMOVE	Des Strip	P0667783		2	18,32 or 51,65		
ADD	Filler Face Plate	NT0X50AA		2	18,32 or 51,65	13	AP
ADD	CPP Msg Protocall	NT6X69AA		2	18,32 or 51,65	18	AP
ADD	CPCE Tone Generator	NT6X79AA		2	18,32 or 51,65	19	AP
ADD	Des Strip	P0663293		2	18,32 or 51,65		

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
N/A		

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Provide minimum one (1) maximum two (2) NT6X02ZG Common Circuit Pack Kit per frame when converting NT6X02 Modules as follows:

FROM		TO	
DESCRIPTION	MODULE	DESCRIPTION	MODULE
SMR Common CP	NT6X02CA	DTC Common CP	NT6X02AQ
SMR Common CP	NT6X02CA	LGC Common CP	NT6X02AH

2) Office records shall be changed and maintained to agree with the Common Circuit Pack Fills and not the Common Circuit Pack Kits.

3) The order in which the circuit cards appear above is not necessarily the order in which they are to be removed from or added to the Controller Module.

RULES:

EXPANDED SIGNALLING PROCESSOR CHANGE KIT

PEC CODE: NT6X02YW

CPC CODE: B0230115

RATING: Cancelled.

REPLACES: N/A

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides hardware modification to the SME frame when converting a SMS module equipped with NT6X46AB Signal Processor CP and a NT6X43AA Msg Interface CP to a SMS module equipped with NT6X46AC Signal Processor CP and a NT6X69AB CPP Msg Protocal & Tone CP. This upgrade is required for BCS-28 and to implement the CLASS feature.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Erica Keltner Dept. 3471 (PPK)

NT6X02YW EMR2-99-SMS-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 10 19	--- --- -- ECM 328 25	Previous history not available. Retire document for cancelled PEC.

The Expanded Signalling Processor Change Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Signaling Processor	NT6X46AB		2	XX	11	
REMOVE	Msg Interface CP	NT6X43AA		2	XX	18	
ADD	SP Memory Plus CP	NT6X46AC		2	XX	11	AP
ADD	CPP Msg Protocal CP	NT6X69AB		2	XX	18	AP
ADD	Des Label (NT6X46AC)	P0696600		2	XX	11	AP
ADD	Des Label (NT6X69AB)	P0698317		2	XX	18	AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

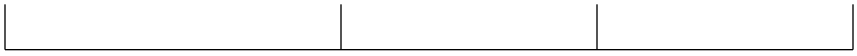
A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Provide minimum one (1) maximum two (2) NT6X02YW Common Circuit Pack Kit per frame when converting NT6X02 XPM Modules as follows:

DESCRIPTION	FROM	TO
SMS Common CP	NT6X02DA	NT6X02DC
SMS Common CP	NT6X02DB	NT6X02DC



2) The NT6X02YW Product Change Kit changes slots 06-08,12,16,18,22-23, & 25 of the upgraded modules to provisionable slots. These slots are being made provisionable to ease future design development.

3) If CLASS Feature/Hardware is provided, replace the two (2) NT6X40AA circuit packs with one (1) NT6X40BA circuit pack in slot 22.

4) The NT6X02DC Common CP Fill is the PEC used for the field upgrade of SMS peripheral modules ONLY. The NT6X02DC Common CP Fill CANNOT be ordered.

5) When modifying SMS modules, XX in SHF POS is equal to 18,32 or 51,65.

RULES:

CONVERSION FROM SMS TO SMU CHANGE KIT

PEC CODE:	NT6X02ZH
CPC CODE:	B0228005
RATING:	MD
REPLACES:	N/A
REPLACED BY:	NO REPLACEMENT
ABBREVIATION NAME:	N/A
ENGINEERING DESCRIPTION:	This change kit provides hardware modification to the NT6X01AA frame when converting an SMS module to an SMU module.
REFERENCE DOCUMENTATION:	N/A
MARKETS:	Applicable markets: US CANADA CALA

ISSUE AUTHOR: NTI: David Terwey Dept. 3471(PPK)

MAIN CONTACT: NTI: David Terwey Dept. 3471(PPK)

NT6X02ZH EMR2-99-SMU-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 08 30	ECM 373 21	EC 011-17790 MD this product

The Conversion From SMS To SMU Change Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	A Bit Message Card	NT6X86AA		2	18,32 or 51,65	13	AP
REMOVE	Time Switch	NT6X44AB		2	18,32 or 51,65	14	AP
REMOVE	Msg Interface	NT6X43AA		2	18,32 or 51,65	18	AP
REMOVE	SCM Pad/Ring Card	NT6X80AA		2	18,32 or 51,65	19	AP
REMOVE	Des Strip	P0673900		2	18,32 or 51,65		
ADD	Filler Face Plate	NT0X50AA		2	18,32 or 51,65	13	AP
ADD	Time Switch	NT6X44CA		2	18,32 or 51,65	14	AP
ADD	CPP Msg Proto&Tone	NT6X69AB		2	18,32 or 51,65	18	AP
ADD	SMU Pad/Ring	NT6X80BA		2	18,32 or 51,65	19	AP
ADD	Des Strip	P0678464		2	18,32 or 51,65		

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
N/A		

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Provide minimum one (1) maximum two (2) NT6X02ZH Common Circuit Pack Kit per frame when converting NT6X02 Modules as follows:

FROM		TO	
DESCRIPTION	MODULE	DESCRIPTION	MODULE
SMS Common CP	NT6X02DA	SMU Common CP	NT6X02EA

RULES:

SMU COMMON CIRCUIT PACK KIT

PEC CODE:	NT6X02CK
CPC CODE:	B0230795
RATING:	MD
REPLACES:	N/A
REPLACED BY:	N/A
ABBREVIATION NAME:	N/A
ENGINEERING DESCRIPTION:	This change kit provides hardware modification to the NT6X01AA frame when converting a NT6X02DA/DB(SMS) module to a NT6X02EB(SMU) module.
REFERENCE DOCUMENTATION:	SL6X02CK
MARKETS:	Applicable markets: US Canada CALA

ISSUE AUTHOR: NTI: Steve Martin Dept. 3471 (PPK)

MAIN CONTACT: NTI: Steve Martin Dept. 3471 (PPK)

NT6X02CK EMR2-99-SMU-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history unavailable
95 06 29	ECM 314 21	Reformat, MD and Retire

The SMU Common Circuit Pack Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	SMS Processor	NT6X45AC		4	18,32 or 51,65	8,12	AP
REMOVE	SMS Processor	NT6X45CA		4	18,32 or 51,65	8,12	AP
REMOVE	SP Memory Plus CP	NT6X46AB		2	18,32 or 51,65	11	AP
REMOVE	Control BP Paddle	NT6X1205		2	18,32 or 51,65	11R	AP
REMOVE	A Bit Message Card	NT6X86AA		2	18,32 or 51,65	13	AP
REMOVE	Time Switch	NT6X44AB		2	18,32 or 51,65	14	AP
REMOVE	Msg Interface	NT6X43AA		2	18,32 or 51,65	18	AP
REMOVE	SCM Pad/Ring Card	NT6X80AA		2	18,32 or 51,65	19	AP
REMOVE	DS30 Network Intrf	NT6X40AA		4	18,32 or 51,65	22,23	AP
REMOVE	DS30 Network Intrf	NT6X40BA		2	18,32 or 51,65	22	AP
REMOVE	Des Strip	P0685042/ P0673900		2	18,32 or 51,65		
ADD	LGC/DTC Processor	NT6X45BA		4	18,32 or 51,65	8,12	AP
ADD	SP Memory Plus CP	NT6X46BA		2	18,32 or 51,65	11	AP
ADD	Filler Faceplate	NT0X50AA			18,32 or 51,65	13,23	RUL1
ADD	Time Switch	NT6X44CA		2	18,32 or 51,65	14	AP
ADD	CPP Msg Proto&Tone	NT6X69AB		2	18,32 or 51,65	18	AP
ADD	SMU Pad/Ring	NT6X80BA		2	18,32 or 51,65	19	AP
ADD	DS30 Network Intrf	NT6X40AC		2	18,32 or 51,65	22	AP
ADD	Des Strip	P0695483		2	18,32 or 51,65		

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Provide minimum one (1) maximum two (2) NT6X02CK Common Circuit Pack Kit per frame when converting NT6X02 Modules as follows:

FROM		TO	
DESCRIPTION	MODULE	DESCRIPTION	MODULE
SMS Common CP	NT6X02DA	SMU Common CP	NT6X02EB
SMS Common CP	NT6X02DB	SMU Common CP	NT6X02EB

RULES:

AP 1) When PEC NT6X02CK is ordered, these items are provided.

RUL1 1) Provide NT0X50AA Filler Faceplate for each of slot 13 and 23 that becomes unequipped.

SMU COMMON CIRCUIT PACK KIT

PEC CODE:	NT6X02CL
CPC CODE:	B0230796
RATING:	MD
REPLACES:	N/A
REPLACED BY:	NT6X02CM
ABBREVIATION NAME:	N/A
ENGINEERING DESCRIPTION:	This change kit provides hardware modification to the NT6X01AA frame when converting a NT6X02DC(SMS) module to a NT6X02EB(SMU) module.
REFERENCE DOCUMENTATION:	SL6X02CL 00 01
MARKETS:	Applicable markets: US Canada CALA

ISSUE AUTHOR: NTI: Barbara Berkley Dept. 3471 (PPK)

MAIN CONTACT: NTI: Barbara Berkley Dept. 3471 (PPK)

NT6X02CL EMR2-99-SMU-4 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history unavailable
95 06 29	ECM 314 21	Reformat section.
96 11 22	ECM 314 23	Per SR RR60487 add note for E911 applications on SMU. Per EC 24-96637, replace 6X46BA with 6X46BB.
97 04 01	ECM 714 03	Per ECD 024 97224, MD the NT6X02CL product change kit...and retire this section.
97 04 23	ECM 714 04	Show "rep by" NT6X02CM on cover sheet (per SR RR74572).

The SMU Common Circuit Pack Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	XPM Processor CP	NT6X45CA			18,32 or 51,65	8,12	RUL1
REMOVE	SP Memory Plus CP	NT6X46AC		2	18,32 or 51,65	11	AP
REMOVE	Control BP Paddle	NT6X1205		2	18,32 or 51,65	11R	AP
REMOVE	A Bit Message Card	NT6X86AA		2	18,32 or 51,65	13	AP
REMOVE	Time Switch	NT6X44AB		2	18,32 or 51,65	14	AP
REMOVE	SCM Pad/Ring Card	NT6X80AA		2	18,32 or 51,65	19	AP
REMOVE	Des Strip	P0673900		2	18,32 or 51,65		
ADD	XPM Processor CP	NT6X45BA			18,32 or 51,65	8,12	RUL1
ADD	SP Memory Plus CP	NT6X46BB		2	18,32 or 51,65	11	AP
ADD	Filler Faceplate	NT0X50AA			18,32 or 51,65	13	RUL2
ADD	Time Switch	NT6X44CA		2	18,32 or 51,65	14	AP
ADD	SMU Pad/Ring	NT6X80BA		2	18,32 or 51,65	19	AP
ADD	Des Strip	P0695483		2	18,32 or 51,65		

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Provide minimum one (1) maximum two (2) NT6X02CL Common Circuit Pack Kit per frame when converting NT6X02 Modules as follows:

2) SMUs supporting LDTPSAPS (Line Appear on Digital Trunks, Public Service Answering Point) (E911 service) must remain dedicated only to LDTPSAPS to ensure priority service to E911. Due to this consideration, SMUs with LDTs will NOT allow NT6X92BB/BC/EA (UTR/GTR) to be datafilled.

FROM		TO	
DESCRIPTION	MODULE	DESCRIPTION	MODULE
SMS Common CP	NT6X02DC	SMU Common CP	NT6X02EB

RULES:

AP 1) When PEC NT6X02CL is ordered, these items are provided.

RUL1 1) Replace all NT6X45CA XPM Processor CPs with NT6X45BA CPs.

RUL2 1) Provide one (1) NT0X50AA Filler Faceplate for each slot 13 that becomes unequipped.

SMU PRODUCT CHANGE KIT

PEC CODE: NT6X02EH

CPC CODE: B0231405

RATING: MD

REPLACES: N/A

REPLACED BY: N/A

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides hardware modification to field upgrade a NT6X02EB/AW SMU module to a NT6X02EF SMU module. The NT6X02EH change kit does not contain any circuit packs. However, slots 10,11, 11R and 18 become provisionable with the application of this kit.

REFERENCE DOCUMENTATION: SL6X02EH

MARKETS: Applicable markets:

US
Canada
CALA

ISSUE AUTHOR: NTI: Barbara Berkley Dept. 3471 (PPK)

MAIN CONTACT: NTI: Barbara Berkley Dept. 3471 (PPK)

NT6X02EH EMR2-99-SMU-6 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history unavailable
95 06 29	ECM 314 21	Reformat section.
96 11 22	ECM 314 23	Per SR RR60487 add note for E911 applications on SMU.
97 04 01	ECM 714 03	Per EC 24-97224, MD NT6X02EH.

The SMU Product Change Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
ADD	Des Strip (NT6X02EF)	P0711630		2	XX		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Provide minimum one (1) maximum two (2) NT6X02EH Common Circuit Pack Kit per frame when converting NT6X02 XPM Modules as follows:

DESCRIPTION	FROM	TO
SMU Common CP	NT6X02EB	NT6X02EF
SMU Common CP	NT6X02AW	NT6X02EF

2) The NT6X02EH Product Change Kit changes Slots 10, 11, 11R, and 18 of the modules to provisionable slots. These slots are being made provisionable to ease future design development.

3) The NT6X02EF Common CP Fill is the PEC used for the field upgrade of existing peripheral modules ONLY. The NT6X02EF Common CP Fill CANNOT be ordered.

4) XX in SHF POS is equal to 18,32 or 51,65.

5) SMUs supporting LDTPSAPS (Line Appear on Digital Trunks, Public Service Answering Point) (E911 service) must remain dedicated only to LDTPSAPS to ensure priority service to E911. Due to this consideration, SMUs with LDTs will NOT allow NT6X92BB/BC/EA (UTR/GTR) to be datafilled.

RULES:

AP 1) When PEC NT6X02EH is ordered, these items are provided.

XPM PLUS PACKFILL CHANGE KIT
CCPE MODEL A (ISDN)

PEC CODE: NTRX36DA

CPC CODE: B0238631

RATING: A&M

REPLACES: None

REPLACED BY: NT6X02XG

ABBREVIATION NAME:

ENGINEERING DESCRIPTION: The NTRX36DA provides materials to upgrade one existing LGCI, LTCI or DTCI to XPM PLUS capabilities. This kit is not to be applied to new equipment. Only field upgrades on existing Model A CCPE cabinets are supported by this kit.

REFERENCE DOCUMENTATION: MSRX36AB 00 07
SLRX36DA 00 01

MARKETS: Applicable markets:

US
Canada
CALA

ISSUE AUTHOR: Darrell Deeds Dept. 3471 (PPK)

MAIN CONTACT: Darrell Deeds Dept. 3471 (PPK)

NTRX36DA EMR2-99-XPM-10 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 06 02	ECM 678 03	Introduce NTRX36DA per EC 011-18238.
94 03 08	ECM 616 19	Add RUL3 for the remove of NTBX01AAs when upgrading to XPM PLUS
94 12 07	ECM 643 10	Retire this EMS.

The XPM PLUS Packfill Change Kit CCPE Model A (ISDN) is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	XPM Processor CP	NT6X45--		2	X,X+14	8	RUL2
REMOVE	MP Memory Plus CP	NT6X47--		2	X,X+14	9	RUL2
REMOVE	MP Memory Plus CP	NT6X47--		2	X,X+14	10	RUL2
REMOVE	Signaling Processor	NT6X46--		2	X,X+14	11	RUL2
REMOVE	XPM Processor CP	NT6X45--		2	X,X+14	12	RUL2
REMOVE	ISDN Pre-proc CP	NTBX01AA		2	X+14,X	16	
ADD	ISDN Pre-proc CP	NTBX01AB		2	X+14,X	16	RUL3
ADD	Des Label NTBX01AB	P0735418		2	X+14,X	16	RUL3
ADD	Unified Processor	NTMX77AA		2	X,X+14	12	AP
ADD	NTMX77AA Label	P0735417		2	X,X+14	12	AP
ADD	Termination CP	NTMX71AA		2	X,X+14	19R	AP
ADD	Backplane Wiring	R0109836			Note 2		AP
ADD	Backplane Wiring	R0109647			Note 2		AP
ADD	Backplane Wiring	R0111402			Note 2		AP
ADD	Filler Faceplates	NT0X50AA		AR	X,X+14	8-11	RUL1

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
N/A		

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) "X" in SHF POS is equal to 18 or 51.

2) Refer to PCRX36DA for backplane wiring information.

RULES:

AP 1) When PEC NTRX36DA is ordered, these items are provided.

RUL1 1) Provide filler faceplates as required to fill all unequipped slots. Number will vary depending on exact shelf configuration at time of upgrade to XPM PLUS.

RUL2 1) The exact vintage of these packs depends on office configuration. All vintages are to be replaced as part of this upgrade.

RUL3 1) If the office is equipped with NTBX01AA cp in the modules being changed to XPM Plus then they must be replaced with NTBX01AB cp and labels. If the office already has NTBX01AB cp in the modules being upgraded to XPM Plus then no change is required.

3 PROCESSOR BKPNL XPM+ UPGRADE KIT

PEC CODE:	NT6X01XE
CPC CODE:	B0237591
RATING:	MD
REPLACES:	None
REPLACED BY:	NT6X02XH
ABBREVIATION NAME:	None
ENGINEERING DESCRIPTION:	The NT6X01XE provides materials and instructions to upgrade one existing three processor LGC, LTC or DTC to XPM PLUS capabilities. This kit is not to be applied to new equipment. Only field upgrades are supported by this kit. The PC6X01XE drawing describes installation and required backplane modifications. The module to be upgraded must include "new messaging".
REFERENCE DOCUMENTATION:	SL6X01XE 01 02
MARKETS:	Applicable markets: Europe Asia/Pacific CALA

ISSUE AUTHOR:	Ken Clisso	Dept. 3471	(PPK)
MAIN CONTACT:	Ken Clisso	Dept. 3471	(PPK)

NT6X01XE EMR2-99-XPM-11 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 06 25	ECM 644 05	Updates per ECDs 011-17983 & 011-17458
93 08 11	ECM 644 07	Correct NT0X50AA ADDs.
94 11 10	ECM 659 12	Update per ECD 011-18850.
95 07 07	ECM 646 11	Changes per ECD 024-93910.

The 3 Processor Bkpnl XPM+ Upgrade Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	XPM Processor CP	NT6X45--		2	X,X+14	12	RUL2
REMOVE	Signaling Processor	NT6X46--		2	X,X+14	13	RUL2
REMOVE	XPM Processor CP	NT6X45--		2	X,X+14	14	RUL2
REMOVE	MP Memory Plus CP	NT6X47--		2	X,X+14	15	RUL2
REMOVE	MP Memory Plus CP	NT6X47--		2	X,X+14	16	RUL2
REMOVE	Signaling Processor	NT6X46--		2	X,X+14	17	RUL2
REMOVE	XPM Processor CP	NT6X45--		2	X,X+14	18	RUL2
ADD	Unified Processor	NTMX77AA		2	X,X+14	12	AP
ADD	NTMX77AA Label	P0735417		2	X,X+14	12	AP
ADD	Bus Shorter CP	NT7X80AA		2	X,X+14	13	AP
ADD	NT7X80AA Label	P0742962		2	X,X+14	13	AP
ADD	Bus Shorter CP	NT7X80AA		2	X,X+14	17	AP
ADD	NT7X80AA Label	P0742962		2	X,X+14	17	AP
ADD	Termination CP	NTMX71AA		2	X,X+14	20R	AP
ADD	Paddlebd Insert Gd	P0749586		2	X,X+14	20R	AP
ADD	Designation Card	P0560887		2	X,X+14		AP
ADD	Wiring Modifications	Note 2		AR	X,X+14		AP
ADD	Filler Faceplate	NT0X50AA		6	X,X+14	14,15, 16	AP
ADD	NT0X50AA Label	P0578498		6	X,X+14	14,15, 16	AP
ADD	Filler Faceplate	NT0X50AA		AR	X,X+14		RUL1
ADD	NT0X50AA Label	P0578498		AR	X,X+14		RUL1

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) For frame mounting, X = 18 for one module and X = 51 for the other. For cabinet mounting, X = 5 for one module and X = 33 for the other.

2) Wire and instructions are included in the kit to make the required changes to the XPM backplane.

RULES:

AP 1) When PEC NT6X01XE is ordered, these items are provided.

RUL1 1) Provide filler faceplates as required to occupy all unequipped slots. The number of filler faceplates required may vary depending on the module configuration at the time of the upgrade.

RUL2 1) The exact part number of these packs may vary depending on the module configuration at the time of the upgrade.

XPM PLUS ISDN PACKFILL CHANGE KIT

PEC CODE: NT6X02XB

CPC CODE: B0236583

RATING: MD

REPLACES: Not Applicable

REPLACED BY: NT6X02XF

ABBREVIATION NAME: Not Aplicable

ENGINEERING DESCRIPTION: The XPM Plus ISDN Packfill Change Kit provides circuit packs, paddleboards and designation labels for changing an ISDN XPM peripheral module to an ISDN XPM Plus peripheral module.

REFERENCE DOCUMENTATION: SL6X02XB 01 01

MARKETS: Applicable markets:

Canada
CALA
Asia/Pacific
Europe

ISSUE AUTHOR: NTI: Lars Mage Dept. 3471 (PPK)

MAIN CONTACT: NTI: Lars Mage Dept. 3471 (PPK)

NT6X02XB EMR2-99-XPM-12 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
93 08 20	ECM 643 04	Add EMS NT6X02XB XPM Plus ISDN Packfill Change Kit.
94 03 10	ECM 643 07	Replace NT6X02XB XPM Plus ISDN Packfill Change Kit with NT6X02XF per ECD 011-20115.

The XPM Plus ISDN Packfill Change Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	XPM Processor CP	NT6X45BA		4	X+14,X	8,12	
REMOVE	MP Mem Plus CP	NT6X47AB		2	X+14,X	9	
REMOVE	MP Mem Plus CP	NT6X47AB		2	X+14,X	10	
or							
REMOVE	MP Mem Plus CP	NT6X47AC		2	X+14,X	10	
REMOVE	SP Mem Plus CP	NT6X46BA		2	X+14,X	11	
or							
REMOVE	SP Mem Plus CP	NT6X46BB		2	X+14,X	11	
REMOVE	ISDN Pre-proc CP	NTBX01AA		2	X+14,X	16	
ADD	ISDN Pre-proc CP	NTBX01AB		2	X+14,X	16	AP
ADD	Des Label NTBX01AB	P0735418		2	X+14,X	16	AP
ADD	Universal Proc. CP	NTMX77AA		2	X+14,X	12	AP
ADD	Des Label NTMX77AA	P0735417		2	X+14,X	12	AP
ADD	XPM Plus Term PB	NTMX71AA		2	X+14,X	19R	AP
ADD	Filler Face Plate	NT0X50AA		8	X+14,X	8-11	RUL1
or							
ADD	Filler Face Plate	NT0X50AA		6	X+14,X	8,10,	RUL1

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) A NT6X02XB Kit can be assigned in a dual shelf XPM (Extended Multiprocessor System Peripheral Module) as follows:

- In cabinets:

  - Upper module
    - in shelf positions 47 and 33 (X = 33) and,

  - Lower module
    - in shelf positions 19 and 05 (X = 05), or

- In Frames:

  - Upper module
    - in shelf positions 65 and 51 (X = 51) and,

  - Lower module
    - in shelf positions 32 and 18 (X = 18).

RULES:

AP 1) When PEC NT6X02XB is ordered, these items are provided.

RUL1 1) If the ISDN XPM module was equipped with four (4) NT6X47AB MP Mem Plus CPs, provide:

- eight (8) NT0X50AA Fillers Face Plates, or

If the ISDN XPM module was equipped with two (2) NT6X47AC MP Mem Plus CPs, provide:

- six (6) NT0X50AA Fillers Face Plates.

XPM PLUS PACKFILL KIT

PEC CODE:	NT6X02XF
CPC CODE:	B0240694
RATING:	MD
REPLACES:	NT6X02XA, NT6X02XB, NT6X02XC
REPLACED BY:	NT6X02XG
ABBREVIATION NAME:	Not Applicable
ENGINEERING DESCRIPTION:	The NT6X02XF provides materials and instructions to upgrade one existing LGC, LGCI, LTC, LTCI, DTC, DTCI, SMS, SMU or SMS-R module to XPM PLUS. The existing common circuit packs (packfill) of a module to be upgraded must be at the minimum level shown herein prior to application of this kit. NT0X50AA Filler Faceplates and NTBX01AB ISDN Signaling Pre-processor Circuit Packs are not included as part of the NT6X02XF kit and must be ordered separately when required.
REFERENCE DOCUMENTATION:	SL6X02XF 00 01
MARKETS:	Applicable markets: US Canada

ISSUE AUTHOR:	Barbara Berkley	Dept. 3471	(PPK)
MAIN CONTACT:	Barbara Berkley	Dept. 3471	(PPK)

NT6X02XF EMR2-99-XPM-13 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 03 01	ECM 678 10	Introduce NT6X02XF per EC 011-20115.
94 05 02	ECM 373 26	Update NT6X02XF stocklist.
94 06 30	ECM 678 11	Update NT6X02XF per EC 011-20670.
94 08 01	ECM 616 22	Show cabinet mounting locations.
94 09 01	ECM 373 30	Add requirement for NTBX01AB.
94 10 28	ECM 373 33	Add AP-01 items per customer request.
94 12 07	ECM 643 10	Retire this EMS.
95 07 18	ECM 643 14	Changes per ECD 024-93910. Change the of the NTMX71AA CP from 19R to 20R.
95 08 17	ECM 678 22	Update per EC#024-94576 introducing NT6X02WG Product Change Kit
97 05 30	ECM 714 05	MD NT6X02XF per ECD 024 97867.

The XPM PLUS Packfill Kit is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	XPM Processor CP	NT6X45--		2	X,X+14	8	RUL2
REMOVE	MP Memory Plus CP	NT6X47--		2	X,X+14	9	RUL2
REMOVE	MP Memory Plus CP	NT6X47--		2	X,X+14	10	RUL2
REMOVE	Signaling Processor	NT6X46--		2	X,X+14	11	RUL2
REMOVE	XPM Processor CP	NT6X45--		2	X,X+14	12	RUL2
REMOVE	ISDN Sig Pre-proc CP	NTBX01AA		2	X,X+14	16	RUL3
ADD	Unified Processor	NTMX77AA		2	X,X+14	12	AP
ADD	NTMX77AA Label	P0735417		2	X,X+14	12	AP
ADD	Termination CP	NTMX71AA		2	X,X+14	20R	AP
ADD	XPM+ Paddlecard Kit	NTMX70AA		1	X,X+14		AP
ADD	XPM+ Upgrade CP	NTMX7011		2	X,X+14		AP-01
ADD	XPM+ Upgrade CP	NTMX7012		2	X,X+14		AP-01
ADD	Cable Assy, XPM+	NTMX7013		1	X,X+14		AP-01
ADD	XPM+ Ribbon Cable	NTMX7014		2	X,X+14		AP-01
ADD	Insertion Guide	P0749586		4	X,X+14		AP-01
ADD	Insertion Guide	P0749586		2	X,X+14		AP
ADD	ISDN Sig Pre-proc CP	NTBX01AB		2	X,X+14	16	RUL3
ADD	Designation Label	P0735418		2	X,X+14	16	RUL3
ADD	Filler Faceplates	NT0X50AA		AR	X,X+14	8-11	RUL1

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) For frame mounting, X = 18 for one module and X = 51 for the other. For cabinet mounting, X = 5 for one module and X= 33 for the other.

2) NTMX70AA includes the paddlecards and ribbon cable needed to modify the XPM backplane for Unified Processor applications.

3) Application of this kit to DTC modules equipped with NT6X02AS or NT6X02IA packfills, upgrades the module to NT6X02IC, making the slots for processors and memory provisionable.

4) Application of this kit to LGC modules equipped with NT6X02AT or NT6X02LA packfills, upgrades the module to NT6X02LC, making the slots for processors and memory provisionable.

5) Application of this kit to LTC modules equipped with NT6X02AU or NT6X02MA packfills, upgrades the module to NT6X02MC, making the slots for processors and memory provisionable.

6) This kit can be applied to NT6X02IC/LC/MC modules in existing offices that require XPM PLUS.

7) This kit can be applied to NT6X02DH/EG/PD modules in existing offices to upgrade SMS/SMU/SMS-R modules to XPM PLUS. Existing SCMs must be brought to this level before applying this kit. Application of this kit to such modules brings them to the NT6X02DR (SMS), NT6X02EM (SMU) or NT6X02PG (SMS-R) levels.

   SMS and SMS-R modules require additional modification to reach the minimum level required for XPM+. This was accomplished by applying the NT6X02WC kit to the module. The NT6X02WC took the NT6X02DR to NT6X02DS and the NT6X02PG to NT6X02PH. NT6X02DS and NT6X02PH are the minimum XPM+ packfill levels for SMS and SMS-R, respectively.

   Where the NT6X02WC Kit has been deployed the NT6X80s must be replaced with NT6X80BB CPs. Order two NT6X80BBs and two labels per module. The NT6X02WC Kit should not be used for future upgrades. Instead use the NT6X02WG Kit. See EMSs for frame/cabinet and the kit for more information.

RULES:

AP 1) When PEC NT6X02XF is ordered, these items are provided.

AP-01 1) This PEC is always provided on the NTMX70AA XPM Plus Paddlecard Upgrade Kit, and is shown here for completeness.

RUL1 1) Provide filler faceplates as required to fill all unequipped slots. Number will vary depending on exact shelf configuration at time of upgrade to XPM PLUS.

RUL2 1) The exact vintage of these packs depends on office configuration. All vintages are to be replaced as part of this upgrade.

RUL3 1) When this kit is applied to an ISDN module equipped with NTBX01AA ISDN Signaling Pre-processor CPs, provide two NTBX01AB Enhanced ISDN Signaling Pre-processor CPs, with two P0735418 Designation Labels, to replace the NTBX01AA CPs.

XPM PLUS 3 PROC. UPGRADE KIT

PEC CODE: NTMX70AC

CPC CODE: B0242177

RATING: MD

REPLACES: Not Applicable

REPLACED BY: No Replacement

ABBREVIATION NAME: None

ENGINEERING DESCRIPTION: The NTMX70AC provides materials and instructions to upgrade one existing DTC/LGC XPM module instead of the NT6X02XH when a module needs to be upgraded to XPM PLUS and the office already has the NTMX77, NTMX71, and NT7X80 stocked on site. The NTMX70AC does not contain the CPs NTMX77, NTMX71, and NT7X80 nor the designation labels. This kit is for FIELD UPGRADES ONLY. The PCMX70AC drawing describes installation and required backplane modifications.

REFERENCE DOCUMENTATION: SLMX70AC 00 01

MARKETS: Applicable markets:

US
Canada
CALA
Asia/Pacific
Europe

ISSUE AUTHOR: Ken Clisso Dept. 3471 (PPK)

MAIN CONTACT: Ken Clisso Dept. 3471 (PPK)

NTMX70AC EMR2-99-XPM-18 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 04 24 96 02 15	ECM 644 18 ECM 644 24	Introduce NTMX70AC upgrade kit. MD’d NTMX70AC upgrade kit.

The XPM PLUS 3 PROC. UPGRADE KIT is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	XPM Processor CP	NT6X45--		2	X,X+14	12	RUL2
REMOVE	Signaling Processor	NT6X46--		2	X,X+14	13	RUL2
REMOVE	XPM Processor CP	NT6X45--		2	X,X+14	14	RUL2
REMOVE	MP Memory Plus CP	NT6X47--		2	X,X+14	15	RUL2
REMOVE	MP Memory Plus CP	NT6X47--		2	X,X+14	16	RUL2
REMOVE	Signaling Processor	NT6X46--		2	X,X+14	17	RUL2
REMOVE	XPM Processor CP	NT6X45--		2	X,X+14	18	RUL2
ADD	Unified Processor	NTMX77AA		2	X,X+14	12	RUL3
ADD	(NTMX77AA) Label	P0735417		2	X,X+14	12	RUL3
ADD	Bus Shorter Card	NT7X80AA		2	X,X+14	13	RUL3
ADD	(NT7X80AA) Label	P0742962		2	X,X+14	13	RUL3
ADD	Bus Shorter Card	NT7X80AA		2	X,X+14	17	RUL3
ADD	(NT7X80AA) Label	P0742962		2	X,X+14	17	RUL3
ADD	Insertion Guide	P0749586		2	X,X+14	20R	AP
ADD	Terminator Card	NTMX71AA		2	X,X+14	20R	RUL3
ADD	XPM+ 3 PROC. PB	NTMX7019		2	X,X+14	12R	AP
ADD	Insertion Guide	P0749586		2	X,X+14	12R	AP
ADD	XPM+ 3 PROC. PB	NTMX7020		2	X,X+14	13R	AP
ADD	Insertion Guide	P0749586		2	X,X+14	13R	AP
ADD	XPM+ CaAssy Jmpr B/P	NTMX7024		1	X	10R	AP
ADD	XPM+ CaAssy Jmpr B/P	NTMX7024		1	X+14	10R	AP
ADD	XPM+ CaAssy Paddlecd	NTMX7023		2	X,X+14	12R	AP
ADD	XPM+ CaAssy Ribbon	NTMX7014		1	X	12R	AP
ADD	XPM+ CaAssy Ribbon	NTMX7014		1	X+14	12R	AP
ADD	XPM+ Wiring Template for slot 18 PIN 19A	P0806273		1	X,X+14	18R	AP
ADD	XPM+ Wiring Template for slot 11 PIN 8A	P0806274		1	X,X+14	11R	AP
ADD	Filler Faceplate	NT0X50AA		AR	X,X+14		RUL1
ADD	NT0X50AA Label	P0578498		AR	X,X+14		RUL1

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) ON CABINETIZED COMMON PERIPHERAL EQUIPMENT

   For CCPE (cabinet) mounting, X = 5 for one module and X = 33 for the other. For CCPE (cabinet) mounting, Y = 9, and YY = 19R.

2) ON COMMON PERIPHERAL EQUIPMENT FRAME

   For CPE frame mounting, X = 18 for one module and X = 51 for the other. For CPE frame mounting, Y = 9, and YY = 19R.

RULES:

AP 1) When PEC NTMX70AC is ordered, these items are provided.

RUL1 1) Provide filler faceplates as required to occupy all unequipped slots. The number of filler faceplates required may vary depending on the module configuration at the time of the upgrade.

RUL2 1) The exact part number of these packs may vary depending on the module configuration at the time of the upgrade.

RUL3 1) This kit contains paddlecards and cables necessary for the upgrade to XPM+ provided that the customer has already purchased the following: NTMX77AA and P0735417, NT7X80AA and P0742962, NTMX71AA. If these items have not been purchased, the the NT6X02XH XPM+ upgrade kit must be used instead.

3 PROC. B/P HOST AND RCC XPM+ UPGRADE KIT

PEC CODE: NT6X02XH

CPC CODE: B0242219

RATING: MD

REPLACES: Not Applicable

REPLACED BY: NT6X03DE

ABBREVIATION NAME: None

ENGINEERING DESCRIPTION: The NT6X02XH provides materials and instructions to upgrade one existing DTC/LGC XPM to XPM PLUS. This kit is not to be applied to new equipment. Only field upgrades are supported by this kit. The PC6X02XH drawing describes installation and required backplane modifications.

REFERENCE DOCUMENTATION: SL6X02XH 00 01

MARKETS: Applicable markets:

US
Canada
CALA
Asia/Pacific
Europe

ISSUE AUTHOR: Ken Clisso Dept. 3471 (PPK)

MAIN CONTACT: Ken Clisso Dept. 3471 (PPK)

NT6X02XH EMR2-99-XPM-19 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 04 24 96 02 15	ECM 644 18 ECM 644 24	Introduce NT6X02XH upgrade kit. MD'd NT6X02XH Upgrade Kit and replaced with NT6X03DE Upgrade Kit.

The 3 PROC. B/P HOST AND RCC XPM+ UPGRADE KIT is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	XPM Processor CP	NT6X45--		2	X,X+14	12	RUL2
REMOVE	Signaling Processor	NT6X46--		2	X,X+14	13	RUL2
REMOVE	XPM Processor CP	NT6X45--		2	X,X+14	14	RUL2
REMOVE	MP Memory Plus CP	NT6X47--		2	X,X+14	15	RUL2
REMOVE	MP Memory Plus CP	NT6X47--		2	X,X+14	16	RUL2
REMOVE	Signaling Processor	NT6X46--		2	X,X+14	17	RUL2
REMOVE	XPM Processor CP	NT6X45--		2	X,X+14	18	RUL2
ADD	Unified Processor	NTMX77AA		2	X,X+14	12	AP
ADD	(NTMX77AA) Label	P0735417		2	X,X+14	12	AP
ADD	Bus Shorter Card	NT7X80AA		2	X,X+14	13	AP
ADD	(NT7X80AA) Label	P0742962		2	X,X+14	13	AP
ADD	Bus Shorter Card	NT7X80AA		2	X,X+14	17	AP
ADD	(NT7X80AA) Label	P0742962		2	X,X+14	17	AP
ADD	Insertion Guide	P0749586		2	X,X+14	20R	AP
ADD	Terminator Card	NTMX71AA		2	X,X+14	20R	AP
ADD	XPM+ 3 PROC. PB	NTMX7019		2	X,X+14	12R	AP
ADD	Insertion Guide	P0749586		2	X,X+14	12R	AP
ADD	XPM+ 3 PROC. PB	NTMX7020		2	X,X+14	13R	AP
ADD	Insertion Guide	P0749586		2	X,X+14	13R	AP
ADD	XPM+ CaAssy Jmpr B/P	NTMX7024		1	X	10R	AP
ADD	XPM+ CaAssy Jmpr B/P	NTMX7024		1	X+14	10R	AP
ADD	XPM+ CaAssy Paddlecd	NTMX7023		2	X,X+14	12R	AP
ADD	XPM+ CaAssy Ribbon	NTMX7014		1	X	12R	AP
ADD	XPM+ CaAssy Ribbon	NTMX7014		1	X+14	12R	AP
ADD	XPM+ Wiring Template for slot 18 PIN 19A	P0806273		1	X,X+14	18R	AP
ADD	XPM+ Wiring Template for slot 11 PIN 8A	P0806274		1	X,X+14	11R	AP
ADD	Filler Faceplate	NT0X50AA		AR	X,X+14		RUL1
ADD	NT0X50AA Label	P0578498		AR	X,X+14		RUL1

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) ON CABINETIZED COMMON PERIPHERAL EQUIPMENT

   For CCPE (cabinet) mounting, X = 5 for one module and X = 33 for the other. For CCPE (cabinet) mounting, Y = 9, and YY = 19R.

2) ON COMMON PERIPHERAL EQUIPMENT FRAME

   For CPE frame mounting, X = 18 for one module and X = 51 for the other. For CPE frame mounting, Y = 9, and YY = 19R.

RULES:

AP 1) When PEC NT6X02XH is ordered, these items are provided.

RUL1 1) Provide filler faceplates as required to occupy all unequipped slots. The number of filler faceplates required may vary depending on the module configuration at the time of the upgrade.

RUL2 1) The exact part number of these packs may vary depending on the module configuration at the time of the upgrade.

PRODUCT CHANGE KIT (AA/AC TO IA/LA/MA)

PEC CODE: NT6X02ZE

CPC CODE: B0229614

RATING: MD

REPLACES: None

REPLACED BY: NO REPLACEMENT

ABBREVIATION NAME:

ENGINEERING DESCRIPTION: This change kit provides hardware modification to the DTC/LGC/LTC module when converting a NT6X02AA/AC module to a NT6X02IA/LA/MA module. This retrofit provides new messaging and increased processor memory.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Canada
US
CALA
Asia/Pacific
Europe

ISSUE AUTHOR: Darrell Deeds Dept. 3471 (PPK)

MAIN CONTACT: Steve Martin Dept. 3471 (PPK)

NT6X02ZE EMR2-99-XPM-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
92 11 12	ECM 373 15	Correct rating to "Rating Change Pending. Replaced by NTZZ04EA/GA."
93 08 30	ECM 373 21	EC 011-17790 MD this change kit
95 02 19	ECM 373 36	Retire this Engineering Manual.

The Product Change Kit (AA/AC to IA/LA/MA) is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	CPP MSG Protocall	NT6X43AA		2	XX	18	AP
REMOVE	Signal Processor	NT6X46AA		2	XX	11	AP
REMOVE	Master Processor	NT6X47AA		4	XX	09,10	AP
REMOVE	XPM Processor	NT6X45AA		4	XX	08,12	AP
REMOVE	Power Converter (NT6X02AA only)	NT2X70AB		2	XX	25	AP
REMOVE	Des Strip (NT6X02AC)	P0660560		2	XX		AP
REMOVE	Des Strip (NT6X02AA)	P0626885		2	XX		AP
ADD	CPP MSG Proto & Tone	NT6X69AB		2	XX	18	AP
ADD	Signal Processor	NT6X46BA		2	XX	11	AP
ADD	Master Processor	NT6X47AB		2	XX	10	AP
ADD	Des Strip	P0695398		2	XX		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) Provide minimum one (1) maximum two (2) NT6X02ZE Product Change Kit per frame when converting NT6X02 XPM Modules as follows:

DESCRIPTION	FROM	TO
DTC Common CP	NT6X02AA/AC	NT6X02IA
LGC Common CP	NT6X02AA/AC	NT6X02LA
LTC Common CP	NT6X02AA/AC	NT6X02MA

2) When modifying DTC/LGC/LTC modules, XX in SHF POS is equal to 18,32 or 51,65.

3) This kit makes certain slots provisionable and new cards may have to be provided accordingly. Please refer to the engineering provisioning rules pertaining to the NT6X02IA/LA/MA modules.

RULES:

AP 1) When PEC NT6X02ZE is ordered, these items are provided.

XPM PLUS PACKFILL CHANGE KIT

PEC CODE: NT6X02XA

CPC CODE: B0235462

RATING: MD

REPLACES: Not Applicable

REPLACED BY: NT6X02XF

ABBREVIATION NAME: Not Applicable

ENGINEERING DESCRIPTION: The XPM Plus Packfill Change Kit provides circuit packs, paddleboards and designation labels for changing an ISDN XPM peripheral module to an ISDN XPM Plus peripheral module on the NT6X01AB frame.

REFERENCE DOCUMENTATION: SL6X02XA 00 02

MARKETS: Applicable markets:

US
Canada
CALA
Asia/Pacific
Europe

ISSUE AUTHOR: NTC: David Terwey Dept. 3471 (PPK)

MAIN CONTACT: NTC: David Terwey Dept. 3471 (PPK)

NT6X02XA EMR2-99-XPM-6 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
92 10 15	ECM 616 08	Add NTBX01AB and label.
93 08 20	ECM 643 04	Add shelf positions for cabinets and frames.
93 12 06	ECM 616 17	Add US to market tag
94 03 08	ECM 616 19	EC 011-20115 Add NT6X02XF XPM PLUS upgrade kit to the NT6X01AB frame. MD NT6X02XA kit and replace it with NT6X02XF kit

The XPM Plus Packfill Change Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	XPM Processor CP	NT6X45BA		4	X+14,X	8,12	
REMOVE	MP Mem Plus CP	NT6X47AB		2	X+14,X	9	
REMOVE	MP Mem Plus CP	NT6X47AB		2	X+14,X	10	
or							
REMOVE	MP Mem Plus CP	NT6X47AC		2	X+14,X	10	
REMOVE	SP Mem Plus CP	NT6X46BA		2	X+14,X	11	
or							
REMOVE	SP Mem Plus CP	NT6X46BB		2	X+14,X	11	
REMOVE	ISDN Pre-proc CP	NTBX01AA		2	X+14,X	16	
ADD	ISDN Pre-proc CP	NTBX01AB		2	X+14,X	16	RUL2
ADD	Des Label NTBX01AB	P0735418		2	X+14,X	16	RUL2
ADD	Universal Proc. CP	NTMX77AA		2	X+14,X	12	AP
ADD	Des Label NTMX77AA	P0735417		2	X+14,X	12	AP
ADD	XPM Plus Term PB	NTMX71AA		2	X+14,X	19R	AP
ADD	Filler Face Plate	NT0X50AA		8	X+14,X	8-11	RUL1
or							
ADD	Filler Face Plate	NT0X50AA		6	X+14,X	8,10, 11	RUL1

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) A NT6X02XA Kit can be assigned in a dual shelf XPM (Extended Multiprocessor System Peripheral Module) as follows:

- In cabinets:

  - Upper module
    - in shelf positions 47 and 33 (X = 33) and,

  - Lower module
    - in shelf positions 19 and 05 (X = 05), or

- In Frames:

  - Upper module
    - in shelf positions 65 and 51 (X = 51) and,

  - Lower module
    - in shelf positions 32 and 18 (X = 18).

2) Provide a minimum of one and a maximum of two NT6X02XA XPM Plus Packfill Change Kits per NT6X01AB CPEI Frame equipped with LTCI or LGCI ISDN XPM peripheral modules to convert those ISDN XPM peripheral modules to ISDN XPM Plus peripheral modules in DMS 100 offices only.

4) Provide a minimum of one and a maximum of two NT6X02XA XPM Plus Packfill Change Kits per NT6X01AB CPEI Frame equipped with DTCI ISDN XPM peripheral modules to convert those ISDN XPM peripheral modules to ISDN XPM Plus modules in DMS 250 offices only.

RULES:

AP 1) When PEC NT6X02XA is ordered, these items are provided.

RUL1 1) Provide eight filler face plates if the ISDN XPM module was equipped with four NT6X47AB MP Mem Plus CP or provide six filler face plates if the ISDN XPM Plus module was equipped with two NT6X47AC MP Mem Plus CP.

RUL2 1) If the office is equipped with NTBX01AA cp in the modules being changed to XPM Plus then they must be replaced with NTBX01AB cp and labels. If the office already has NTBX01AB cp in the modules being upgraded to XPM Plus then no change is required.

RCC TO XPM PLUS PRODUCT CHANGE KIT

PEC CODE: NT6X12ZF

CPC CODE: B0236655

RATING: A&M

REPLACES: None

REPLACED BY: NT6X02XG

ABBREVIATION NAME:

ENGINEERING DESCRIPTION: The NT6X12ZF provides materials and instructions to upgrade one existing non-ISDN RCC to XPM PLUS capabilities. This kit is not to be applied to new equipment. Only field upgrades are supported by this kit. The PC6X12ZF drawing describes installation and required backplane modifications. The module to be upgraded must contain "new messaging".

REFERENCE DOCUMENTATION: SL6X12ZF 00 01

MARKETS: Applicable markets:

US
Canada

ISSUE AUTHOR: Darrell Deeds Dept. 3471 (PPK)

MAIN CONTACT: Darrell Deeds Dept. 3471 (PPK)

NT6X12ZF EMR2-99-XPM-8 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 02 22	ECM 678 01	Introduce NT6X12ZF Product Change Kit
93 11 16	ECM 678 07	Add rule for upgrading NT6X72AA to NT6X72AB with some RCC packfills.
94 01 07	ECM 678 09	Remove above NT6X72 rule due to change in SL6X12AK and Installation request.
94 03 21	ECM 618 12	Changed CP position of NTMX71AA from 19R to 18R to agree with IS6X12.
94 05 20	ECM 618 13	Removed remarks about NT6X7-- packs being provisionable. They are in the NT6X12AK and AL stocklists. Clarified that this kit is used to change only the NT6X12AG packfill to NT6X12AL. Other packfills have the NT6X72AA in them.
94 12 07	ECM 643 10	Retire this EMS.

The RCC to XPM PLUS Product Change Kit is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	XPM Processor CP	NT6X45--		2	X,X+14	8	RUL2
REMOVE	MP Memory Plus CP	NT6X47--		2	X,X+14	10	RUL2
REMOVE	MP Memory Plus CP	NT6X47--		2	X,X+14	11	RUL2
REMOVE	Signaling Processor	NT6X46--		2	X,X+14	12	RUL2
REMOVE	XPM Processor CP	NT6X45--		2	X,X+14	13	RUL2
ADD	Unified Processor	NTMX77AA		2	X,X+14	13	AP
ADD	NTMX77AA Label	P0735417		2	X,X+14	13	AP
ADD	Termination CP	NTMX71AA		2	X,X+14	18R	AP
ADD	Wiring Modifications	Note 2		AR	X,X+14		AP
ADD	Filler Faceplates	NT0X50AA		AR	X,X+14	8-12	RUL1

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) "XX" in SHF POS is equal to 18 in RCE.

2) Wire and instructions are included in the kit to make the required changes to the RCC backplane.

3) Packfills for existing RCCs include the processor and memory packs as Always Provided equipment. Application of the NT6X12ZF kit will convert the NT6X12AG RCC module to NT6X12AL level. The processors and memory are provisionable in NT6X12AL.

RULES:

AP 1) When PEC NT6X12ZF is ordered, these items are provided.

RUL1 1) Provide filler faceplates as required to fill all unequipped slots. Number will vary depending on exact shelf configuration at time of upgrade to XPM PLUS.

RUL2 1) The exact vintage of these packs depends on office configuration. All vintages are to be replaced as part of this upgrade.

XPM PLUS PACKFILL CHANGE KIT
CCPE MODEL A

PEC CODE: NTRX36CA

CPC CODE: B0238630

RATING: A&M

REPLACES: None

REPLACED BY: NT6X02XG

ABBREVIATION NAME:

ENGINEERING DESCRIPTION: The NTRX36CA provides materials to upgrade one existing LGC, LTC or DTC to XPM PLUS capabilities. This kit is not to be applied to new equipment. Only field upgrades on existing Model A CCPE cabinets are supported by this kit.

REFERENCE DOCUMENTATION: MSRX36AB 00 07
SLRX36CA 00 01

MARKETS: Applicable markets:

US
Canada
CALA

ISSUE AUTHOR: Darrell Deeds Dept. 3471 (PPK)

MAIN CONTACT: Darrell Deeds Dept. 3471 (PPK)

NTRX36CA EMR2-99-XPM-9 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 06 02	ECM 678 03	Introduce NTRX36CA per EC 011-18238.
94 12 07	ECM 643 10	Retire this EMS.

The XPM PLUS Packfill Change Kit CCPE Model A is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	XPM Processor CP	NT6X45--		2	X,X+14	8	RUL2
REMOVE	MP Memory Plus CP	NT6X47--		2	X,X+14	9	RUL2
REMOVE	MP Memory Plus CP	NT6X47--		2	X,X+14	10	RUL2
REMOVE	Signaling Processor	NT6X46--		2	X,X+14	11	RUL2
REMOVE	XPM Processor CP	NT6X45--		2	X,X+14	12	RUL2
ADD	Unified Processor	NTMX77AA		2	X,X+14	12	AP
ADD	NTMX77AA Label	P0735417		2	X,X+14	12	AP
ADD	Termination CP	NTMX71AA		2	X,X+14	19R	AP
ADD	Backplane Wiring	R0109836			Note 2		AP
ADD	Backplane Wiring	R0109647			Note 2		AP
ADD	Backplane Wiring	R0111402			Note 2		AP
ADD	Filler Faceplates	NT0X50AA		AR	X,X+14	8-11	RUL1

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
N/A		

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) "X" in SHF POS is equal to 18 or 51.

2) Refer to PCRX36CA for backplane wiring information.

RULES:

AP 1) When PEC NTRX36CA is ordered, these items are provided.

RUL1 1) Provide filler faceplates as required to fill all unequipped slots. Number will vary depending on exact shelf configuration at time of upgrade to XPM PLUS.

RUL2 1) The exact vintage of these packs depends on office configuration. All vintages are to be replaced as part of this upgrade.

97/12/09

EMR3

DIGITAL NETWORK SUBSYSTEMS CHAPTER ALL

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DIGITAL NETWORK SUBSYSTEMS CHAPTER ALL

EMR3-01-NC-1	NETWORK CROSSPOINT SHELF	NT0X4820
EMR3-01-NIA-1	NETWORK INTERFACE SHELF A	NT0X4800
EMR3-01-NIB-1	NETWORK INTERFACE SHELF B	NT0X4810
EMR3-01-000	NETWORK FRAME - FULL	NT0X48AA
EMR3-01-001	NETWORK FRAME - HALF	NT0X48AB
EMR3-01-002	NETWORK FRAME - QUARTER	NT0X48AC
EMR3-01-003	NETWORK FRAME - FULL	NT0X48AG
EMR3-01-004	NETWORK FRAME - HALF	NT0X48AH
EMR3-01-005	NETWORK FRAME - QUARTER	NT0X48AJ
EMR3-02-000	DIGITAL NETWORK INTERCONNECTING FRAME	NT0X18AA
EMR3-03-INC-1	NETWORK COMMON CP FILL (INTERNATIONAL)	NT5X13BB
EMR3-03-NC-1	NETWORK COMMON CP FILL	NT5X13AC
EMR3-03-NC0-1	NETWORK CROSSPOINT SHELF PLANE 0	NT5X15AA
EMR3-03-NC1-1	NETWORK CROSSPOINT SHELF PLANE 1	NT5X15AB
EMR3-03-NI-1	NETWORK SERIAL INTERFACE SHELF	NT5X16AA
EMR3-03-000	NETWORK FRAME PLANES COMBINED	NT5X13AA
EMR3-03-001	NETWORK FRAME PLANES COMBINED	NT5X13BA
EMR3-04-NET-1	NETWORK COMMON CIRCUIT PACK FILL	NT8X11AA
EMR3-04-NET-2	NETWORK COMMON CIRCUIT PACK FILL	NT8X11AC
EMR3-04-NET-3	NETWORK COMMON CP FILL (INTERNATIONAL)	NT8X11BA
EMR3-05-CCT-1	ISN CABLING STRUCTURE CABINET	NT0X35BB
EMR3-05-000	ENHANCED NETWORK CABINET	NT9X05AB
EMR3-99-ZW	ISDN KIT	NT5X13ZW
EMR3-99-ZY	POWER CONVERTER CHANGE KIT	NT5X13ZY
EMR3-99-ZZ	GAIN FEATURE CHANGE KIT	NT5X13ZZ

NETWORK CROSSPOINT SHELF NT0X4820

RATING: MD.

ABBREVIATION NAME: NCA if associated with NIA
NCB if associated with NIB

ENGINEERING DESCRIPTION: The network crosspoints provide the switching capability in a NET frame.

REFERENCE DOCUMENTATION: N/A

NT0X4820 STOCKLIST: The Network Crosspoint Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Network X-Point Shelf Assy	NT0X4821		1			AP
Network Test Access	NT3X20AA		1		02	AP
Network Bus I/F	NT3X21AA		1		19	AP
Power Converter (5V/40A)	NT2X06AB		1		25	AP

RULE:

AP 1) When PEC NT0X4820 is ordered, these items are provided.

NETWORK INTERFACE SHELF A NT0X4800

RATING:

ABBREVIATION NAME: NIA

ENGINEERING DESCRIPTION: The NIA module along with the NIB module interface a NET frame to the peripheral module ports.

REFERENCE DOCUMENTATION: N/A

The Network Interface Shelf A is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Network I/F Shelf A	NT0X4801		1			AP
Network Bus I/F	NT3X21AA		1		02	AP
Network Bus I/F	NT3X21AA		1		19	AP
Power Converter (5V/12V)	NT2X07AB		1		22	AP
Power Converter (5V/40A)	NT2X06AB		1		25	AP

RULE:

AP 1) When PEC NT0X4800 is ordered, these items are provided.

NETWORK INTERFACE SHELF B NT0X4810

RATING: MD.

ABBREVIATION NAME: NIB

ENGINEERING DESCRIPTION: The NIB module along with the NIA module interface a NET frame to the peripheral module ports.

REFERENCE DOCUMENTATION: N/A

The Network Interface Shelf B is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Network I/F Shelf B	NT0X4811		1			AP
Network Bus I/F	NT3X21AA		1		02	AP
Network Clock	NT3X24AA		1		19	AP
Network Cross-Point Cont	NT3X23AB		1		20	AP
Network Signalling Cont	NT3X23AA		1		21	AP
Network I/O I/F	NT3X22AA		1		22	AP
Power Converter (5V/40A)	NT2X06AB		1		25	AP

RULE:

AP 1) When PEC NT0X4810 is ordered, these items are provided.

NETWORK FRAME - FULL NT0X48AA

RATING: MD. Replaced by NT0X48AG

ABBREVIATION NAME: NET

ENGINEERING DESCRIPTION:

REFERENCE DOCUMENTATION: MS0X48AA 01 03

The Network Frame - Full is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Network Crosspoint	NT0X4820	NCB	1	65		AP
Network Outgoing X-Point	NT3X18AA		8		03-10	AP
Network Incoming X-Point	NT3X17AA		8		11-18	AP
Network Interface B	NT0X4810	NIB	1	51		AP
Network Speech I/F	NT3X19AA		16		03-18	AP
Frame Supervisory Panel	NT0X28AC	FSP	1	45		AP
Network Crosspoint	NT0X4820	NCA	1	32		AP
Network Outgoing X-Point	NT3X18AA		8		03-10	AP
Network Incoming X-Point	NT3X17AA		8		11-18	AP
Network Interface A	NT0X4800	NIA	1	18		AP
Network Speech I/F	NT3X19AA		16		03-18	AP
Cooling Unit	NT0X30AD	CU	1	09		AP
Inverter Unit	NT0X87AA	INV		04		RUL1
Ntwk PC Kit - DMS SuperNode	NT0X48AK					RUL2
Ntwk PC Kit - DMS SuperNode	NT0X48AL					RUL2

RULE:

AP 1) When PEC NT0X48AA is ordered, these items are provided.

2) NT0X48AA provides the capacity for terminating up to sixty four (64) di-groups (speech links) of thirty two channels each from peripheral equipment for purposes of switching.

RUL1 1) Provide two (2) Inverter Units (INV) per four (4) Network Frames.

RUL2 1) NT0X48AK - Network Product Change Kit for DMS SuperNode
NT0X48AL - Network Product Change Kit for DMS SuperNode

Both product change kits are required to provide the necessary modifications to the NET frame to enable it to operate with DMS SuperNode in a DMS Central Office.

Provide one of each NT0X48AK and NT0X48AL Network Product Change Kits for DMS SuperNode to equip NET frame for DMS SuperNode application.

NOTE: (For Canadian Applications Only)

The Change Application department will field upgrade all offices, which have existing NET frames, with product change kit NT0X48AK (i.e. Systems Application Engineering will NOT order this kit). However, after Change Application field upgrades an office, Systems Application Engineering will update the office records accordingly.

Hence, for future office extensions, when a DMS office with existing NET frames is retrofitted with SuperNode, System Application Engineering must apply product change kit NT0X48AL.

If Systems Application Engineering discovers that product change kit NT0X48AK has not been previously applied, they should inform Change Application of the deficiency, and request Change Application to issue an 88K order which will have material delivered to meet the SuperNode schedule.

NETWORK FRAME - HALF NT0X48AB

RATING: MD. Replaced by NT0X48AH.

ABBREVIATION NAME: NET

ENGINEERING DESCRIPTION:

REFERENCE DOCUMENTATION: MS0X48AB 01 03

The Network Frame - Half is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Network Crosspoint	NT0X4820	NCB	1	65		AP
Network Outgoing X-Point	NT3X18AA		4		03-06	AP
Network Incoming X-Point	NT3X17AA		4		11-14	AP
Network Interface B	NT0X4810	NIB	1	51		AP
Network Speech I/F	NT3X19AA		8		03-10	AP
Frame Supervisory Panel	NT0X28AC	FSP	1	45		AP
Network Crosspoint	NT0X4820	NCA	1	32		AP
Network Outgoing X-Point	NT3X18AA		4		03-06	AP
Network Incoming X-Point	NT3X17AA		4		11-14	AP
Network Interface A	NT0X4800	NIA	1	18		AP
Network Speech I/F	NT3X19AA		8		03-10	AP
Cooling Unit	NT0X30AD	CU	1	09		AP
Inverter Unit	NT0X87AA	INV		04		RUL1
Ntwk PC Kit - DMS SuperNode	NT0X48AK					RUL2
Ntwk PC Kit - DMS SuperNode	NT0X48AL					RUL2

RULE:

AP 1) When PEC NT0X48AB is ordered, these items are provided.

2) NT0X48AB provides the capacity for terminating up to thirty two (32) di-groups (speech links) of thirty two channels each from peripheral equipment for purposes of switching.

RUL1 1) Provide two (2) Inverter Units (INV) per four (4) Network Frames.

RUL2 1) NT0X48AK - Network Product Change Kit (DMS SuperNode)
NT0X48AL - Network Product Change Kit (DMS SuperNode)

Both product change kits are required to provide the necessary modifications to the NET frame to enable it to operate withDMS SuperNode in a DMS Central Office.

Provide one each of NT0X48AK and NT0X48AL per NET frame per plane when DMS SuperNode is introduced into a DMS central office.

NOTE: (For Canadian Applications Only)

The Change Application department will field upgrade all offices, which have existing NET frames, with product change kit NT0X48AK (i.e. Systems Application Engineering will NOT order this kit). However, after Change Application field upgrades an office, Systems Application Engineering will update the office records accordingly.

Hence, for future office extensions, when a DMS officewith existing NET frames is retrofitted with SuperNode, Systems Application Engineering must apply product change kit NT0X48AL.

If Systems Application Engineering discovers that product change kit NT0X48AK had not been previously applied, they should inform Change Application of the deficiency, and request Change Application to issue an 88K order which will have material delivered to meet theSuperNode schedule.

NETWORK FRAME - QUARTER NT0X48AC

RATING: MD. Replaced by NT0X48AJ.

ABBREVIATION NAME: NET

ENGINEERING DESCRIPTION:

REFERENCE DOCUMENTATION: MS0X48AC 01 04

The Network Frame - Quarter is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Network Crosspoint	NT0X4820	NCB	1	65		AP
Network Outgoing X-Point	NT3X18AA		2		03-04	AP
Network Incoming X-Point	NT3X17AA		2		11-12	AP
Network Interface B	NT0X4810	NIB	1	51		AP
Network Speech I/F	NT3X19AA		4		03-06	AP
Frame Supervisory Panel	NT0X28AC	FSP	1	45		AP
Network Crosspoint	NT0X4820	NCA	1	32		AP
Network Outgoing X-Point	NT3X18AA		2		03-04	AP
Network Incoming X-Point	NT3X17AA		2		11-12	AP
Network Interface A	NT0X4800	NIA	1	18		AP
Network Speech I/F	NT3X19AA		4		03-06	AP
Cooling Unit	NT0X30AD	CU	1	09		AP
Inverter Unit	NT0X87AA	INV		04		RUL1
Framework	NT0X25AA	FW	1			
Basic Assembly Wiring						
Ntwk PC Kit - DMS SuperNode	NT0X48AK					RUL3
Ntwk PC Kit - DMS SuperNode	NT0X48AL					RUL3

RULE:

AP 1) When PEC NT0X48AC is ordered, these items are provided.

2) NT0X48AC provides the capacity for terminating up to sixteen (16) di-groups (speech links) of thirty two channels each from peripheral equipment for purposes of switching.

RUL1 1) Provide two (2) Inverter Units (INV) per four (4) Network Frames.

RUL2 1) When customer requirements specify that Grilles, Frame Doors and (or) Frame Trim Panels are to be ordered for these frames, provide one NT0X08AH, one NT0X71AB and (or) two NT0X72AA per NET as required.

RUL3 1) NT0X48AK - Network Change Kit (DMS SuperNode)
NT0X48AL - Network Change Kit (DMS SuperNode)

Both product change kits are required to provide the necessary modifications to the NET frame to enable it to operate with DMS SuperNode in a DMS Central Office.

Provide one each of NT0X48AK and NT0X48AL per NET frame per plane when DMS SuperNode is introduced into a DMS central office.

NOTE: (For Canadian Applications Only)

The Change Application department will field upgrade all offices, which have existing NET frames, with product change kit NT0X48AK (i.e. Systems Application Engineering will NOT order this kit). However, after Change Application field upgrades an office, Systems Application Engineering will update the office records accordingly.

Hence, for future office extensions, when a DMs office with existing NET frames is retrofitted with SuperNode, Systems Application Engineering must apply product change kit NT0X48AL.

If Systems Application Engineering discovers that product change kit NT0X48AK had not been previously applied, they should inform Change Application of the deficiency, and request Change Application to issue an 88K order which will have material delivered to meet the SuperNode schedule.

NETWORK FRAME - FULL NT0X48AG

RATING: MD. On new jobs replace by NT5X13AA.

ABBREVIATION NAME: NET

ENGINEERING DESCRIPTION:

REFERENCE DOCUMENTATION: MS0X48AG 02 02

The Network Frame - Full is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Network Crosspoint	NT0X4820	NCB	1	65		AP
Network Outgoing X-Point	NT3X18AA		8		03-10	AP
Network Incoming X-Point	NT3X17AA		8		11-18	AP
Network Interface B	NT0X4810	NIB	1	51		AP
Network Speech I/F	NT3X19AA		16		03-18	AP
Frame Supervisory Panel	NT0X28AG	FSP	1	45		AP
Network Crosspoint	NT0X4820	NCA	1	32		AP
Network Outgoing X-Point	NT3X18AA		8		03-10	AP
Network Incoming X-Point	NT3X17AA		8		11-18	AP
Network Interface A	NT0X4800	NIA	1	18		AP
Network Speech I/F	NT3X19AA		16		03-18	AP
Cooling Inverter Unit	NT3X90AA	CU	1	04		AP
Ntwk PC Kit - DMS SuperNode	NT0X48AK					RUL2
Ntwk PC Kit - DMS SuperNode	NT0X48AL					RUL2

RULE:

AP 1) When PEC NT0X48AG is ordered, these items are provided.

2) NT0X48AG provides the capacity for terminating up to sixty four (64) di-groups (speech links) of thirty two channels each from peripheral equipment for purposes of switching.

RUL1 1) When customer requirements specify that Grilles, Frame Doors and (or) Frame Trim Panels are to be ordered for these frames, provide one NT0X08AH, one NT0X71AB and (or) two NT0X72AA per NET as required.

RUL2 1) NT0X48AK - Network Change Kit (DMS SuperNode)
NT0X48AL - Network Change Kit (DMS SuperNode)

Both product change kits are required to provide the necessary modifications to the NET frame to enable it to operate with DMS SuperNode in a DMS Central Office.

Provide one each of NT0X48AK and NT0X48AL per NET frame per plane when DMS SuperNode is introduced into a DMS central office.

NOTE: (For Canadian Applications Only)

The Change Application department will field upgrade all offices, which have existing NET frames, with product change kit NT0X48AK (i.e. Systems Application Engineering will NOT order this kit). However, after Change Application field upgrades an office, Systems Application Engineering will update the office records accordingly.

Hence, for future office extensions, when a DMS office with existing NET frames is retrofitted with SuperNode, Systems Application engineering must apply product change kit NT0X48AL.

If Systems Application Engineering discovers that product change kit NT0X48AK had not been previously applied, they should inform Change Application of the deficiency, and request Change Application to issue an 88K order which will have material delivered to meet the SuperNode schedule.

NETWORK FRAME - HALF NT0X48AH

RATING: MD. On new jobs replace by NT5X13AA.

ABBREVIATION NAME: NET

ENGINEERING DESCRIPTION:

REFERENCE DOCUMENTATION: MS0X48AH 02 02

The Network Frame - Half is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Network Crosspoint	NT0X4820	NCB	1	65		AP
Network Outgoing X-Point	NT3X18AA		4		03-06	AP
Network Incoming X-Point	NT3X17AA		4		11-14	AP
Network Interface B	NT0X4810	NIB	1	51		AP
Network Speech I/F	NT3X19AA		8		03-10	AP
Frame Supervisory Panel	NT0X28AG	FSP	1	45		AP
Network Crosspoint	NT0X4820	NCA	1	32		AP
Network Outgoing X-Point	NT3X18AA		4		03-06	AP
Network Incoming X-Point	NT3X17AA		4		11-14	AP
Network Interface A	NT0X4800	NIA	1	18		AP
Network Speech I/F	NT3X19AA		8		03-10	AP
Cooling Inverter Unit	NT3X90AA	CU	1	04		AP
Ntwk PC Kit - DMS SuperNode	NT0X48AK					RUL2
Ntwk PC Kit - DMS SuperNode	NT0X48AL					RUL2

RULE:

AP 1) When PEC NT0X48AH is ordered, these items are provided.

2) NT0X48AH provides the capacity for terminating up to thirty two (32) di-groups (speech links) of thirty two channels each from peripheral equipment for purposes of switching.

RUL1 1) When customer requirements specify that Grilles, Frame Doors and (or) Frame Trim Panels are to be ordered for these frames, provide one NT0X08AH, one NT0X71AB and (or) two NT0X72AA per NET as required.

RUL2 1) NT0X48AK - Network Change Kit (DMS SuperNode)
NT0X48AL - Network Change Kit (DMS SuperNode)

Both product change kits are required to provide the necessary modifications to the NET frame to enable it to operate with DMS SuperNode in a DMS Central Office.

Provide one each of NT0X48AK and NT0X48AL per NET frame per plane when DMS SuperNode is introduced into a DMS central office.

NOTE: (For Canadian Applications Only)

The Change Application department will field upgrade all offices, which have existing NET frames, with product change kit NT0X48AK (i.e. Systems Application Engineering will NOT order this kit). However, after Change Application field upgrades an office, Systems Application Engineering will update the office records accordingly.

Hence, for future office extensions, when a DMS office with existing NET frames is retrofitted with SuperNode, Systems Application engineering must apply product change kit NT0X48AL.

If Systems Application Engineering discovers that product change kit NT0X48AK had not been previously applied, they should inform Change Application of the deficiency, and request Change Application to issue an 88K order which will have material delivered to meet the SuperNode schedule.

NETWORK FRAME - QUARTER NT0X48AJ

RATING: MD. On new jobs replace by NT5X13AA.

ABBREVIATION NAME: NET

ENGINEERING DESCRIPTION:

REFERENCE DOCUMENTATION: MS0X48AJ 02 02

The Network Frame - Quarter is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Network Crosspoint	NT0X4820	NCB	1	65		AP
Network Outgoing X-Point	NT3X18AA		2		03-04	AP
Network Incoming X-Point	NT3X17AA		2		11-12	AP
Network Interface B	NT0X4810	NIB	1	51		AP
Network Speech I/F	NT3X19AA		4		03-06	AP
Frame Supervisory Panel	NT0X28AG	FSP	1	45		AP
Network Crosspoint	NT0X4820	NCA	1	32		AP
Network Outgoing X-Point	NT3X18AA		2		03-04	AP
Network Incoming X-Point	NT3X17AA		2		11-12	AP
Network Interface A	NT0X4800	NIA	1	18		AP
Network Speech I/F	NT3X19AA		4		03-06	AP
Cooling Inverter Unit	NT3X90AA	CU	1	04		AP
Ntwk PC Kit - DMS SuperNode	NT0X48AK					RUL1
Ntwk PC Kit - DMS SuperNode	NT0X48AL					RUL1

RULE:

AP 1) When PEC NT0X48AJ is ordered, these items are provided.

2) NT0X48AJ provides the capacity for terminating up to sixteen (16) di-groups (speech links) of thirty two channels each from peripheral equipment for purposes of switching.

RUL1 1) NT0X48AK - Network Change Kit (DMS SuperNode)
NT0X48AL - Network Change Kit (DMS SuperNode)

Both product change kits are required to provide the necessary modifications to the NET frame to enable it to operate with DMS SuperNode in a DMS Central Office.

Provide one each of NT0X48AK and NT0X48AL per NET frame per plane when DMS SuperNode is introduced into a DMS central office.

NOTE: (For Canadian Applications Only)

The Change Application department will field upgrade all offices, which have existing NET frames, with product change kit NT0X48AK (i.e. Systems Application Engineering will NOT order this kit). However, after Change Application field upgrades an office, Systems Application Engineering will update the office records accordingly.

Hence, for future office extensions, when a DMS office with existing NET frames is retrofitted with SuperNode, Systems Application engineering must apply product change kit NT0X48AL.

If Systems Application Engineering discovers that product change kit NT0X48AK had not been previously applied, they should inform Change Application of the deficiency, and request Change Application to issue an 88K order which will have material delivered to meet the SuperNode schedule.

DIGITAL NETWORK INTERCONNECTING FRAME NT0X18AA

RATING: Rated MD. For new offices and extensions to existing ones, replace by NT0X18CB (see Description item 5 below)

ABBREVIATION NAME: DNI

ENGINEERING DESCRIPTION: A DNI frame provides a junctor cross-connecting facility for interconnecting junctor face ports of Network Modules in a plane.

REFERENCE DOCUMENTATION: MS0X18AA 01 01

The Digital Network Interconnecting Frame is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
DNI Panel	AR		1			

Description of DNI:

1) The DNI provides space to mount one (1) DNI panel of the appropriate type.

2) One DNI Panel is required for each Network Plane with the exception that:

3) The DNI is only required if the number of Network Modules per plane exceeds two (2).

4) The type of DNI Panel to be provided depends on the actual number of Network Modules (NET) being equipped per plane. The following table lists the types and their mounting locations:

	NETWORK MODULES / PLANE	DNI PANEL PEC	DNI PANEL MTG POS
#	03	NT0X18AB	58
#	04	NT0X18AC	58
#	05	NT0X18AD	51
#	06	NT0X18AE	51
#	07	NT0X18AF	51
#	08	NT0X18AG	51

DNI PANEL SELECTION TABLE

Rated MD. See MS0X18AA Rating info above.

5) NOTE: This DNI version does not support network extension by the accepted incremental junctor pattern change method. Therefore in extending the network of offices equipped with this version it is first necessary to replace the DNI with new ones equipped per MS0X18CB and patched according to the existing pattern. Network extension could then be accommodated.

NETWORK COMMON CP (INTERNATIONAL) NT5X13BB

RATING: Standard

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: Network Common CP (International) fill for NT5X13BA (INETC).

REFERENCE DOCUMENTATION: N/A

The Network Common CP (International) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Ntwk Par. to Serial Format	NT3X86AA		1	65	13	AP
Ntwk P-Side Msg Protocol	NT3X75AA		1	65	14	AP
Network Serial to Parallel	NT3X73AA		1	65	15	AP
Network Serial Port I/F	NT3X72AA		8	65	16-23	AP
Power Conv +/-5V & 12V	NT2X70AB		1	65	25	AP
Filler Face Plate .875	NT0X50AA		3	65	10,12,24	AP
Network Test Code CP	NT3X71AA		1	51	01	AP
Network X-Point A-Law CP	NT3X70BA		8	51	02-09	AP
Network Control Proc CP	NT3X74AA		1	51	10	AP
Network Clock CP	NT3X76AA		1	51	11	AP
Filler Face Plate .875	NT0X50AA		10	51	12-21	AP
Power Conv +/-5V & 12V	NT2X70AB		1	51	22	AP
Filler Face Plate 2.62	NT0X50AE		1	51	25	AP
Filler Face Plate .875	NT0X50AA		10	32	01-10	AP
Network Clock CP	NT3X76AA		1	32	11	AP
Network Control Proc CP	NT3X74AA		1	32	12	AP
Network X-Point A-Law CP	NT3X70BA		8	32	13-20	AP
Network Test Code CP	NT3X71AA		1	32	21	AP
Power Conv +/-5V & 12V	NT2X70AB		1	32	22	AP
Filler Face Plate 2.62	NT0X50AE		1	32	25	AP
Ntwk Par. to Serial Format	NT3X86AA		1	18	13	AP
Network P-Side Msg Protocol	NT3X75AA		1	18	14	AP
Network Serial to Parallel	NT3X73AA		1	18	15	AP
Network Serial Port I/F	NT3X72AA		8	18	16-23	AP
Power Conv +/-5V & 12V	NT2X70AB		1	18	25	AP
Filler Face Plate .875	NT0X50AA		3	18	10,12,24	AP
Desig. Strip for NT5X1506	P0616614		2	18,65		AP
Desig. Strip for NT5X1507	P0647817		1	51		AP
Desig. Strip for NT5X1508	P0647818		1	32		AP

RULE:

AP 1) When PEC NT5X13BB is ordered, these items are provided.

NETWORK COMMON CP

PEC CODE: NT5X13AC

CPC CODE: B0225003

RATING: MD

REPLACES: N/A

REPLACED BY: N/A

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: Network Common CP

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Canada

ISSUE AUTHOR: NTI: Bob Belvin Dept. 3471 (PPK)

MAIN CONTACT: NTC: Jerry Palmer Dept. 3471 (PPK)

NT5X13AC EMR3-03-NC-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 08 24	ECM 261 09	Change status rating to MD.

The Network Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Ntwk Par. to Serial Format	NT3X86AA		1	65	13	AP
Network Serial to Parallel	NT3X73AA		1	65	15	AP
Network Serial Port I/F	NT3X72AA		8	65	16-23	AP
Power Conv +/-5V & 12V	NT2X70AD		1	65	25	AP
Filler Face Plate .875	NT0X50AA		3	65	10,12,24	AP
Network Test Code CP	NT3X71AA		1	51	01	AP
Network X-Point A-Law CP	NT3X70AA		4	51	06-09	AP
Filler Face Plate .875	NT0X50AA		10	51	12-21	AP
Power Conv +/-5V & 12V	NT2X70AD		1	51	22	AP
Filler Face Plate 2.62	NT0X50AE		1	51	25	AP
Filler Face Plate .875	NT0X50AA		10	32	01-10	AP
Network X-Point CP	NT3X70AA		4	32	13-16	AP
Network Test Code CP	NT3X71AA		1	32	21	AP
Power Conv +/-5V & 12V	NT2X70AD		1	32	22	AP
Filler Face Plate 2.62	NT0X50AE		1	32	25	AP
Ntwk Par. to Serial Format	NT3X86AA		1	18	13	AP
Network Serial to Parallel	NT3X73AA		1	18	15	AP
Network Serial Port I/F	NT3X72AA		8	18	16-23	AP
Power Conv +/-5V & 12V	NT2X70AD		1	18	25	AP
Filler Face Plate .875	NT0X50AA		3	18	10,12,24	AP
Desig. Strip for NT5X1506	P0677805		2	18,65		AP
Desig. Strip for NT5X1507	P0677806		1	51		AP
Desig. Strip for NT5X1508	P0677807		1	32		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NT5X13AC is ordered, these items are provided.

NETWORK CROSSPOINT SHELF PLANE 0

PEC CODE: NT5X15AA

CPC CODE: B0211436

RATING: MD

REPLACES: N/A

REPLACED BY: N/A

ABBREVIATION NAME: NC0

ENGINEERING DESCRIPTION: Network Crosspoint Shelf Plane 0 houses circuitry which is primarily responsible for the time switching.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Canada

ISSUE AUTHOR: NTI: Bob Belvin Dept. 3471 (PPK)

MAIN CONTACT: NTC: Jerry Palmer Dept. 3471 (PPK)

NT5X15AA EMR3-03-NC0-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 08 24	ECM 261 09	Change status rating to MD.

The Network Crosspoint Shelf Plane 0 is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
NW X-Point Plane 0 Shf Assy	NT5X1501		1	51		AP
Network Test Code	NT3X71AA		1	51	01	AP
Network Cross Point	NT3X70AA		8	51	02-09	AP
Network Control Processor	NT3X74AA		1	51	10	AP
Network Clock	NT3X76AA		1	51	11	AP
Filler Face Plate .875	NT0X50AA		10	51	12-21	AP
Power Conv +/-5V,+/-12V	NT2X70AB		1	51	22	AP
Filler Face Plate 2.62	NT0X50AE		1	51	25	AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NT5X15AA is ordered, these items are provided.

NETWORK CROSSPOINT SHELF PLANE 1

PEC CODE: NT5X15AB

CPC CODE: B0213603

RATING: MD

REPLACES: N/A

REPLACED BY: N/A

ABBREVIATION NAME: NC1

ENGINEERING DESCRIPTION: Network Crosspoint Shelf Plane 1 houses circuitry which is primarily responsible for the time switching.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Canada

ISSUE AUTHOR: NTI: Bob Belvin Dept. 3471 (PPK)

MAIN CONTACT: NTC: Jerry Palmer Dept. 3471 (PPK)

NT5X15AB EMR3-03-NC1-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 08 24	ECM 261 09	Change status rating to MD.

The Network Crosspoint Shelf Plane 1 is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
NW X-Point Plane 1 Shf Assy	NT5X1504		1	32		AP
Filler Face Plate .875	NT0X50AA		10	32	01-10	AP
Network Clock	NT3X76AA		1	32	11	AP
Network Control Processor	NT3X74AA		1	32	12	AP
Network Cross Point	NT3X70AA		8	32	13-20	AP
Network Test Code	NT3X71AA		1	32	21	AP
Power Conv +/- 5V, 12V	NT2X70AB		1	32	22	AP
Filler Face Plate 2.62	NT0X50AE		1	32	25	AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NT5X15AB is ordered, these items are provided.

NETWORK SERIAL INTERFACE SHELF

PEC CODE: NT5X16AA

CPC CODE: B0211439

RATING: MD

REPLACES: N/A

REPLACED BY: N/A

ABBREVIATION NAME: NI

ENGINEERING DESCRIPTION: Network Serial Interface Shelf houses circuitry which is used to physically terminate DS30 links and external junctors.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Canada

ISSUE AUTHOR: NTI: Bob Belvin Dept. 3471 (PPK)

MAIN CONTACT: NTC: Jerry Palmer Dept. 3471 (PPK)

NT5X16AA EMR3-03-NI-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 08 24	ECM 261 09	Change status rating to MD.

The Network Serial Interface Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Network I/F Shelf Assy	NT5X1601		1	XX		AP
Ntwk PAR. to Ser. Formatter	NT3X86AA		1	XX	13	AP
Network P-Side Message Proc	NT3X75AA		1	XX	14	AP
Ntwk Ser. to PAR. Formatter	NT3X73AA		1	XX	15	AP
Network Serial Port I/F	NT3X72AA		8	XX	16-23	AP
Filler Face Plate .875	NT0X50AA		3	XX	10,12,24	AP
Power Conv +/-5V,+/-12V	NT2X70AB		1	XX	25	AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

NOTE: 1) "XX" can be one of 18 and 65.

RULES:

AP 1) When PEC NT5X16AA is ordered, these items are provided.

NETWORK FRAME PLANES COMBINED

PEC CODE: NT5X13AA

CPC CODE: B0211434

RATING: MD.

REPLACES: N/A

REPLACED BY: N/A

ABBREVIATION NAME: NETC

ENGINEERING DESCRIPTION: The Combined Network Frame is a single frame housing both plane 0 and 1 Network Interface and Crosspoint shelves. The network planes are fully duplicated to achieve the necessary reliability.

REFERENCE DOCUMENTATION: MS5X13AA 01 12

MARKETS: Applicable markets:

Canada
Europe
Asia/Pacific
CALA

ISSUE AUTHOR: NTI: Jerry Palmer Dept. 3471 (PPK)

MAIN CONTACT: NTC: Jerry Palmer Dept. 3471 (PPK)

NT5X13AA EMR3-03-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
92 09 24	ECM 261 08	Change Status of NT5X13ZY.
95 08 24	ECM 261 09	Change Status of NT5X13ZY to MD.
97 01 21	ECM 261 13	Show several circuit packs as MD per EC 018-43414 and per query from SR RR70290. Note section is already at MD status.
97 04 03	ECM 261 14	Un MD the NT3X72AB pack and show as A&M per GPRD and POPS actions. The Network Serial I/F is required to interface the NETC to the DSNE networks.

The Network Frame Planes Combined is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Network I/F Shelf (Plane 0)	NT5X16AA	NI0	1	65		AP
	Network Serial Port I/F	NT3X72AB			65	01-08	RUL1
#	NW Serial to PAR. Formatter	NT3X73AA			65	09	RUL2
#	NW PAR. to Serial Formatter	NT3X86AA			65	11	RUL2
	Filler Face Plate .875	NT0X50AA			65	01-09, 11	RUL3
	Ntwk Crosspoint Shf Plane 0	NT5X15AA	NC0	1	51		AP
	Frame Supervisory Panel	NT0X28AK	FSP	1	45		AP
	Ntwk Crosspoint Shf Plane 1	NT5X15AB	NC1	1	32		AP
	Network I/F Shelf (Plane 1)	NT5X16AA	NI1	1	18		AP
	Network Serial Port I/F	NT3X72AB			18	01-08	RUL1
#	NW Serial to PAR. Formatter	NT3X73AA			18	09	RUL2
#	NW PAR. to Serial Formatter	NT3X86AA			18	11	RUL2
	Filler Face Plate .875	NT0X50AA			18	01-09,	RUL3
*	Cooling Inverter Unit	NT3X90AB	CU		04		RUL4
*	Cooling Inverter Unit	NT3X90AA	CU		04		RUL4
	DC Cooling Unit	NT3X90AC	CU		04		RUL4
	Desig. Label for NT3X72AB	P0616615					RUL5
	Desig. Label for NT3X73AA	P0616616					RUL5
	Desig. Label for NT3X86AA	P0616617					RUL5
	Logic Return Cable Assembly	NT0X0008					RUL7
	ISDN Remotes Prod Chg Kit	NT5X13ZW					RUL8
	DMS-Core Product Change Kit	NT5X13ZX					RUL9
#	Improved Power Supply Kit	NT5X13ZY					RUL10
	Gain Conversion Kit	NT5X13ZZ					RUL11
#	Power Converter PC Kit	NT2X70AZ					RUL6
	Power Converter PC Kit	NT2X70AY					RUL6

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT3X73AA	MD	No Replacement
NT3X86AA	MD	No Replacement
NT2X70AZ	MD	NT2X70AY

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

* Rating change pending. On new jobs replace with NT3X90AC.

NOTES:

1) NT5X13AA is a single bay dual plane frame comprising two separate Network Modules (NM). Each module includes two shelves, one Network Interface Shelf (NI), NT5X16AA, and one Network Crosspoint Shelf (NC), NT5X15__. The upper network module (shelf Pos 65 & 51) is designated as plane 0 and the lower network module (shelf Pos 32 & 18), designated as plane 1. The FSP and CU are common to both planes.

2) Each NM can terminate sixty four (64) speech links originating on peripheral modules on four 16-port Network Sub Groups (NSG) (time switches). Refer to NTP 297-1001-450, for NT5X13AA traffic capacities and provisioning rules.

3) In order to simplify provisioning rules and take advantage of the dual-plane frame modularity, orderable cards are called up at the frame level here. Refer to the individual shelves for the always-provided cards.

RULES:

AP 1) When PEC NT5X13AA is ordered, these items are provided.

RUL1 1) Network Serial Port Interface cards, NT3X72AB, are provisioned based on the office network configuration as follows:

TOTAL NM PER PLANE: (inc. all NM types)	1	2	3	4	5	6 OR GREATER
QUANTITY OF NT3X72AB REQUIRED PER NT5X13AA:	0	8	10	12	14	16
ASSIGN TO CP SLOTS IN SHELF POS 65 & 18	-	05-08	04-08	03-08	02-08	01-08

RUL2 1) Provide two (2) Network Serial to Parallel Formatter cards, NT3X73AA, and two (2) Network Parallel to Serial Formatter cards, NT3X86AA, for each network frame, NT5X13AA, provisioned (existing and new) if the total number of network modules (all types) in the office is two (2) or greater.

RUL3 1) Provide one Filler Face Plate in each location, 01-09 and 11, on shelves NI0, POS 65, and NI1, POS 18, which is not to be equipped with a card to satisfy the forced air cooling requirements of this frame.

RUL4 1) Provide one (1) Cooling Inverter Unit, NT3X90AB, for the first or only NT5X13AA frame equipped in the office and each group of frames served by a different PDC. Thereafter, provide one (1) Cooling Inverter Unit, NT3X90AA, for each subsequent frame.

On new jobs, provide one (1) DC Cooling Unit, NT3X90AC.

RUL5 1) Provide one (1) Designation Label corresponding to each card provisioned per RUL1, RUL2 and RUL3.

RUL6 1) Provide one (1) NT2X70AZ Power Converter PC Kit to modify the existing NT2X70__ to the NT2X70AE. This PC kit contains one (1) NT2X70AE and one (1) designation label. This kit is now MD.

2) Provide one (1) NT2X70AY Power Converter PC Kit to change the existing NT2X70AE to the NT2X70AF. This PC kit contains one (1) NT2X70AF and one (1) designation label.

RUL7 1) Provide one (1) NT0X0008 Logic Return Cable Assembly per frame when extending existing offices not equipped with Enhanced Grounding.

RUL8 1) Provide one (1) NT5X13ZW ISDN Remotes Kit to equip NETC frame for ISDN applications with Remote Fiber Link Equipment frame (NTBX66AA).

RUL9 1) Provide one (1) DMS-Core kit, NT5X13ZX to equip NETC frame for DMS-Core application.

RUL10 1) Provide one (1) improved power supply kit, NT5X13ZY if requested by customer or recommended by DMS-100 technical support group. Currently Md'd. Replaced by NT2X70AZ.

RUL11 1) Provide one (1) gain conversion kit, NT5X13ZZ to equip NETC frame for gain option. This is to be used for field application only. This feature is for IOS application only.

NETWORK FRAME PLANES COMBINED

PEC CODE: NT5X13BA

CPC CODE: B0220111

RATING: MD On new jobs order NT8X10AA DSNE Frame.

REPLACES: N/A

REPLACED BY: N/A

ABBREVIATION NAME: NETC

ENGINEERING DESCRIPTION: The Combined Network Frame is a single frame housing both plane 0 and 1 Network Interface and Crosspoint shelves. The network planes are fully duplicated to achieve the necessary reliability.

REFERENCE DOCUMENTATION: MS5X13BA 01 06

MARKETS: Applicable markets:

Canada

ISSUE AUTHOR: NTI: Jerry Palmer Dept. 3471 (PPK)

MAIN CONTACT: NTC: Jerry Palmer Dept. 3471 (PPK)

NT5X13BA EMR3-03-001 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 08 24	ECM 261 09	Change status rating to MD.
97 01 21	ECM 261 13	Show several circuit packs as MD per EC 018-43414 and per query from SR RR70290. Note section is already at MD status.
97 04 03	ECM 261 14	Un MD the NT3X72AB pack and show as A&M per GPRD and POPS actions. The Network Serial I/F is required to interface the NETC to the DSNE networks. MD the NT3X76AA and NT3X76AB cards per EC 018-43414.

The Network Frame Planes Combined is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Network Common Circuit Pack	NT5X13BB					RUL7
	Network Common Circuit Pack	NT5X13AC					RUL7
	Network I/F Shelf (Plane 0)	NT5X1606	NI0	1	65		AP
	Network Serial Port I/F	NT3X72AB			65	01-08	RUL1
#	NW Serial to PAR. Formatter	NT3X73AA			65	09	RUL2
#	NW PAR. to Serial Formatter	NT3X86AA			65	11	RUL2
#	NW P-Side Msg Processor	NT3X75AA			65	14	RUL9
#	NW P-Side Msg Proc (ISDN)	NT3X75AB			65	14	RUL9
	Filler Face Plate .875	NT0X50AA			65	01-09, 11	RUL3
	Ntwk Crosspoint Shf Plane 0	NT5X1507	NC0	1	51		AP
#	Network Clock	NT3X76AA			51	11	RUL10
#	Network Control Processor	NT3X74AA			51	10	RUL10
	Network Clock (DMS-Core)	NT3X76AC			51	11	RUL10
	Network Ctrl Proc (DMS-Core)	NT3X74AB			51	10	RUL10
#	Network Crosspoint	NT3X70AA			51	02-05	RUL11
#	Ntwk Crosspoint plus gain	NT3X70AB			51	02-05	RUL11
	Frame Supervisory Panel	NT0X28AK	FSP	1	45		AP
	Ntwk Crosspoint Shf Plane 1	NT5X1508	NC1	1	32		AP
#	Network Clock	NT3X76AA			32	11	RUL10
#	Network Control Processor	NT3X74AA			32	12	RUL10
	Network Clock (DMS-Core)	NT3X76AC			32	11	RUL10
	Network Ctrl Proc (DMS-Core)	NT3X74AB			32	12	RUL10
#	Network Crosspoint	NT3X70AA			32	17-20	RUL11
#	Ntwk Crosspoint plus gain	NT3X70AB			32	17-20	RUL11

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Network I/F Shelf (Plane 1)	NT5X1606	NI1	1	18		AP
	Network Serial Port I/F	NT3X72AB			18	01-08	RUL1
#	NW Serial to PAR. Formatter	NT3X73AA			18	09	RUL2
#	NW PAR. to Serial Formatter	NT3X86AA			18	11	RUL2
#	NW P-Side Msg Processor	NT3X75AA			18	14	RUL9
#	NW P-Side Msg Proc (ISDN)	NT3X75AB			18	14	RUL9
	Filler Face Plate .875	NT0X50AA			18	01-09, 11	RUL3
*	Cooling Inverter Unit	NT3X90AB	CU		04		RUL4
*	Cooling Inverter Unit	NT3X90AA	CU		04		RUL4
	DC Cooling Unit	NT3X90AC	CU		04		RUL4
	Desig. Label for NT3X72AB	P0616615					RUL5
	Desig. Label for NT3X73AA	P0616616					RUL5
	Desig. Label for NT3X86AA	P0616617					RUL5
	Desig. Label for NT0X50AA	P0578498					RUL5
	Desig. Label for NT3X70AB	P0677228					RUL5
	Desig. Label for NT3X75AB	P0677804					RUL5
	Desig. Label for NT3X76AC	P0677803					RUL5
	Desig. Label for NT3X74AB	P0677834					RUL5
	Logic Return Cable Assembly	NT0X0008					RUL8
#	Power Converter PC Kit	NT2X70AZ					RUL6
	Power Converter PC Kit	NT2X70AY					RUL6

* Rating change pending. On new jobs replace with NT3X90AC.

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT3X70AA	MD	No Replacement
NT3X70AB	MD	No Replacement
NT3X73AA	MD	No Replacement
NT3X74AA	MD	No Replacement
NT3X75AA	MD	No Replacement
NT3X75AB	MD	No Replacement
NT3X76AA	MD	No Replacement
NT3X76AB	MD	No Replacement
NT3X86AA	MD	No Replacement
NT2X70AZ	MD	NT2X70AY

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) NT5X13BA is a single bay dual plane frame comprising two separate Network Modules (NM). Each module includes two shelves, one Network Interface Shelf (NI), NT5X1606, and one Network Crosspoint Shelf (NC), NT5X1508. The upper Network Module (shelf Pos 65 & 51) is designated as plane 0 and the lower Network Module (shelf Pos 32 & 18), designated as plane 1. The FSP and CU are common to both planes.

2) Each NM can terminate sixty four (64) speech links originating on peripheral modules on four 16-port Network Sub Groups (NSG) (time switches). Refer to NTP 297-1001-450, for NT5X13AA traffic capacities and provisioning rules, or specific traffic tables for GOS objectives for current job.

3) In order to simplify provisioning rules and take advantage of the dual-plane frame modularity, orderable cards are called up at the frame level here. Refer to the individual shelves for the always-provided cards.

RULES:

AP 1) When PEC NT5X13BA is ordered, these items are provided.

RUL1 1) Network Serial Port Interface cards, NT3X72AB, are provisioned based on the office network configuration as follows:

TOTAL NM PER PLANE: (inc. all NM types)	1	2	3	4	5	6 OR GREATER
QUANTITY OF NT3X72AB REQUIRED PER NT5X13AA:	0	8	10	12	14	16
ASSIGN TO CP SLOTS IN SHELF POS 65 & 18	-	05-08	04-08	03-08	02-08	01-08

RUL2 1) Provide two (2) Network Serial to Parallel Formatter cards, NT3X73AA, and two (2) Network Parallel to Serial Formatter cards, NT3X86AA, for each network frame, NT5X13AA, provisioned (existing and new) if the total number of network modules (all types) in the office is two (2) or greater.

RUL3 1) Provide one Filler Face Plate in each location, 01-09 and 11, on shelves NI0, POS 65, and NI1, POS 18, which is not to be equipped with a card to satisfy the forced air cooling requirements of this frame.

RUL4 1) Provide one (1) Cooling Inverter Unit, NT3X90AB, for the first or only NT5X13BA frame equipped in the office and each group of frames served by a different PDC. Thereafter, provide one (1) Cooling Inverter Unit, NT3X90AA, for each subsequent frame.

On new jobs provide one (1) DC Cooling Unit, NT3X90AC.

RUL5 1) Provide one (1) Designation Label corresponding to each card provisioned. RUL6 1) Provide one (1) NT2X70AZ Power Converter PC Kit to modify the existing NT2X70__ to the NT2X70AE. This PC kit contains one (1) NT2X70AE and one (1) designation label. This kit is now MD.

2) Provide one (1) NT2X70AY Power Converter PC Kit to change the existing NT2X70AE to the NT2X70AF. This PC kit contains one (1) NT2X70AF and one (1) designation label.

RUL7 1) Provide one (1) NT5X13BB Network Common Circuit Pack per frame for international applications (A-Law network).

Provide one (1) NT5X13AC Network Common Circuit Pack per frame for domestic applications (u-Law network). RUL8 1) Provide one (1) NT0X0008 Logic Return Cable Assembly per frame when extending existing offices on equipment with Enhanced Grounding.

RUL9 1) Provide two (2) Network P-Side Message Processor Cards NT3X75AA for domestic applications not equipped for ISDN. Provide two (2) Network P-Side Message Processor Cards NT3X75AB for domestic offices equipped for ISDN (Remotes). RUL10 1) Provide two (2) Network Clock Cards NT3X76AA and two (2) Network Control Processor Cards NT3X74AA for domestic applications equipped with NT40 core. Provide two (2) Network Clock Cards NT3X76AC and two (2) Network Control Processor Cards NT3X74AB for domestic applications equipped with DMS-Core.

RUL11 1) Provide eight (8) Network Crosspoint Cards NT3X70AA for domestic applications where network gain option is not required. Provide eight (8) Network Crosspoint Cards NT3X70AB for domestic applications where gain option is required. This gain option feature is for IOS application only.

NETWORK COMMON CIRCUIT PACKS

PEC CODE: NT8X11AA

CPC CODE:

RATING: Manufacturer Discontinued

REPLACES: Not Applicable

REPLACED BY: NT8X11AD

ABBREVIATION NAME:

ENGINEERING DESCRIPTION:

REFERENCE DOCUMENTATION: MS8X10AA 00 09

MARKETS: Applicable markets:

Canada
US
CALA
Asia/Pacific
Europe

ISSUE AUTHOR: NTI: Jerry Palmer Dept. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT8X11AA EMR3-04-NET-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 11 16	ECM 191 12	Upgrade to new format.

The Network Common Circuit Packs is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Crosspoint CP	NT8X13AA		1	X+33	05	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	06	AP
Crosspoint CP	NT8X13AA		1	X+33	07	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	08	AP
Test Code CP	NT8X14AA		1	X+33	09	AP
Crosspoint CP	NT8X13AA		1	X+33	10	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	11	AP
Crosspoint CP	NT8X13AA		1	X+33	12	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	13	AP
Network Port CP	NT8X12AA		4	X+33	14-17	AP
Filler Face Plae 0.875	NT0X50AA		1	X+33	18	AP
Ntwk P-Side Msg Proc CP	NT3X75BA		1	X+33	19	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	20	AP
Ntwk Control Proc CP	NT3X74BA		1	X+33	21	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	22	AP
Network Clock CP	NT3X76AA		1	X+33	23	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	24	AP
Power Conv +/-5V & 12V CP	NT2X70AD		1	X+33	25	AP
Desig. Strip (NT8X10AA)	P0677800		1	X+33	01	AP
Crosspoint CP	NT8X13AA		1	X	05	AP
Filler Face Plate 0.875	NT0X50AA		1	X	06	AP
Crosspoint CP	NT8X13AA		1	X	07	AP
Filler Face Plate 0.875	NT0X50AA		1	X	08	AP
Test Code CP	NT8X14AA		1	X	09	AP
Crosspoint CP	NT8X13AA		1	X	10	AP
Filler Face Plate 0.875	NT0X50AA		1	X	11	AP
Crosspoint CP	NT8X13AA		1	X	12	AP
Filler Face Plate 0.875	NT0X50AA		1	X	13	AP
Network Port CP	NT8X12AA		4	X	14-17	AP
Filler Face Plae 0.875	NT0X50AA		1	X	18	AP
Ntwk P-Side Msg Proc CP	NT3X75BA		1	X	19	AP
Filler Face Plate 0.875	NT0X50AA		1	X	20	AP
Ntwk Control Proc CP	NT3X74BA		1	X	21	AP
Filler Face Plate 0.875	NT0X50AA		1	X	22	AP
Network Clock CP	NT3X76AA		1	X	23	AP
Filler Face Plate 0.875	NT0X50AA		1	X	24	AP
Power Conv +/-5V & 12V CP	NT2X70AD		1	X	25	AP
Desig. Strip (NT8X10AA)	P0677800		1	X	01	AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NT8X11AA is ordered, these items are provided.

2) One Network Common Circuit Packs can be assigned on the frame (NT8X10AA) to shelf mounting positions 51 and 18 and the other to shelf mounting positions 65 and 32. For one module X=18 and for the other module X=32.

3) For more information on the frame refer to the section on NT8X10AA (Section EMA3-01-000).

NETWORK COMMON CIRCUIT PACKS NT8X11AC

RATING: MD

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: Network Common Circuit Packs for Double Shelf Network Equipment Frame NT8X10AA.

REFERENCE DOCUMENTATION: N/A

The Network Common Circuit Packs is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Crosspoint CP	NT8X13AA		1	X+33	05	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	06	AP
Crosspoint CP	NT8X13AA		1	X+33	07	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	08	AP
Test Code CP	NT8X14AA		1	X+33	09	AP
Crosspoint CP	NT8X13AA		1	X+33	10	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	11	AP
Crosspoint CP	NT8X13AA		1	X+33	12	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	13	AP
Network Port CP	NT8X12AA		4	X+33	14-17	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	18	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	20	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	22	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	24	AP
Power Conv +/-5V & 12V CP	NT2X70AD		1	X+33	25	AP
Designation Strip (NT8X10AA)	P0677800		1	X+33	01	AP
Crosspoint CP	NT8X13AA		1	X	05	AP
Filler Face Plate 0.875	NT0X50AA		1	X	06	AP
Crosspoint CP	NT8X13AA		1	X	07	AP
Filler Face Plate 0.875	NT0X50AA		1	X	08	AP
Test Code CP	NT8X14AA		1	X	09	AP
Crosspoint CP	NT8X13AA		1	X	10	AP
Filler Face Plate 0.875	NT0X50AA		1	X	11	AP
Crosspoint CP	NT8X13AA		1	X	12	AP
Filler Face Plate 0.875	NT0X50AA		1	X	13	AP
Network Port CP	NT8X12AA		4	X	14-17	AP
Filler Face Plate 0.875	NT0X50AA		1	X	18	AP
Filler Face Plate 0.875	NT0X50AA		1	X	20	AP
Filler Face Plate 0.875	NT0X50AA		1	X	22	AP
Filler Face Plate 0.875	NT0X50AA		1	X	24	AP
Power Conv +/-5V & 12V CP	NT2X70AD		1	X	25	AP
Designation Strip (NT8X10AA)	P0677800		1	X	01	AP

RULE:

AP 1) When PEC NT8X11AC is ordered, these items are provided.

2) One Network Common Circuit Packs can be assigned on the frame (NT8X10AA) to shelf mounting positions 51 and 18 and

the other to shelf mounting positions 65 and 32. For one module X=18 and for the other module X=32.

3) For more information on the frame refer to the section on NT8X10AA (Section EMA3-01-000).

NETWORK COMMON CIRCUIT PACKS (INTERNATIONAL) NT8X11BA

RATING: MD

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: Network Common Circuit Packs for Double Shelf Network Equipment Frame NT8X10AA.

REFERENCE DOCUMENTATION: N/A

The Network Common Circuit Packs is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Crosspoint CP	NT8X13BA		1	X+33	05	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	06	AP
Crosspoint CP	NT8X13BA		1	X+33	07	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	08	AP
Test Code CP	NT8X14AA		1	X+33	09	AP
Crosspoint CP	NT8X13BA		1	X+33	10	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	11	AP
Crosspoint CP	NT8X13BA		1	X+33	12	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	13	AP
Network Port CP	NT8X12AA		4	X+33	14-17	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	18	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	20	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	22	AP
Filler Face Plate 0.875	NT0X50AA		1	X+33	24	AP
Power Conv +/-5V & 12V CP	NT2X70AD		1	X+33	25	AP
Designation Strip (NT8X10AA)	P0686158		1	X+33	01	AP
Crosspoint CP	NT8X13BA		1	X	05	AP
Filler Face Plate 0.875	NT0X50AA		1	X	06	AP
Crosspoint CP	NT8X13BA		1	X	07	AP
Filler Face Plate 0.875	NT0X50AA		1	X	08	AP
Test Code CP	NT8X14AA		1	X	09	AP
Crosspoint CP	NT8X13BA		1	X	10	AP
Filler Face Plate 0.875	NT0X50AA		1	X	11	AP
Crosspoint CP	NT8X13BA		1	X	12	AP
Filler Face Plate 0.875	NT0X50AA		1	X	13	AP
Network Port CP	NT8X12AA		4	X	14-17	AP
Filler Face Plate 0.875	NT0X50AA		1	X	18	AP
Filler Face Plate 0.875	NT0X50AA		1	X	20	AP
Filler Face Plate 0.875	NT0X50AA		1	X	22	AP
Filler Face Plate 0.875	NT0X50AA		1	X	24	AP
Power Conv +/-5V & 12V CP	NT2X70AD		1	X	25	AP
Designation Strip (NT8X10AA)	P0686158		1	X	01	AP

RULE:

AP 1) When PEC NT8X11BA is ordered, these items are provided.

2) One Network Common Circuit Packs can be assigned on the frame (NT8X10AA) to shelf mounting positions 51 and 18 and

the other to shelf mounting positions 65 and 32. For one module X=18 and for the other module X=32.

3) For more information on the frame refer to the section on NT8X10AA (Section EMA3-01-000).

ISN CABLING STRUCTURE CABINET

PEC CODE: NT0X35BB

CPC CODE:

RATING: Manufacturer Discontinued

REPLACES: Not Applicable

REPLACED BY: NT0X35CC

ABBREVIATION NAME: ICS

ENGINEERING DESCRIPTION: The ISN Cabling Structure Cabinet (ICS) provides a mechanical structure for housing inter-cabinet cabling. This cabling structure attaches to the side of a SuperNode or MSL cabinet.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Canada
US
CALA

ISSUE AUTHOR: NT: Jerry Palmer Dept. 3471 (PPK)

MAIN CONTACT: NT: Jerry Palmer Dept. 3471 (PPK)

NT0X35BB EMR3-05-CCT-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 10 12	ECM 635 13	MD section per ECD 018-41001

The ISN Cabling Structure Cabinet is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Welded Cabling Structure	NT0X3501		1			AP
Front Cosmetic Panel Assy	NT0X3504		2			AP
TY-Wrap Bracket	P0710614		5			AP
Mounting Bracket	P0707625		2			AP
Cabinet Junction Equipment	NT0X24BN					RUL1
M10 Anchor Assemblies	NT0X21AU					RUL2
M12 Anchor Assemblies	NT0X21AV					RUL2
Floor Shims						RUL3
Cable Trough						RUL4
End Guards						RUL5
Aisle Lamp Kit (Brown)	NT0X24BQ					RUL6

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) The NT0X35BB (ICS) mounts on the left and/or right side of a SuperNode or ENC cabinet. The ICS provides a larger cabling area for cables connected between cabinets and frames.

2) For ENET applications, with the following noted exceptions, the use of NT0X35BB ISN Cabling Structure (ICS) Cabinets is required where the number of ENET shelves per NT9X05AB ENC Cabinet will exceed two (2):

   a) U.S. RTP: ICSs are provided for all ENET applications.

   b) U.S. Richardson: ICSs are not to be provided. Fiber cables are to be butted in the ENET cable troughs.

3) When required, the number of NT0X35BB ICS Cabinets provided is equal to the number of NT9X05AB ENC Cabinets plus one (1).

4) If not initially installed with ENET, ICS Cabinets cannot be added at a later date.

RULES:

AP 1) When PEC NT0X35BB is ordered, these items are provided.

RUL1 1) Provide one (1) NT0X24BN (hardware kit) to join two (2) cabinets together in a lineup.

2) For each frame lineup, provide one (1) NT0X24BN for each junction where two (2) cabinets meet (i.e., two (2) ENC cabinets and three (3) ICS Cabinets require four (4) NT0X24BN).

RUL2 1) For Non-Earthquake Applications, provide two (2) NT0X21AU (M10 Anchor Assy) per NT0X35BB for Canadian applications; provide two (2) NT0X21AV (M12 Anchor Assy) per NT0X35BB for U.S. applications.

2) For Earthquake Applications, provide four (4) NT0X21AV (M12 Anchor Assy) per NT0X35BB.

RUL3 1) For Earthquake Applications Only, provide the following floor shims for each NT0X35BB:

DESCRIPTION	PEC	QTY
Cabinet Levelling Shim 0.032"	P0714176	6
Cabinet Levelling Shim 0.062"	P0714177	6
Cabinet Levelling Shim 0.125"	P0714178	12

2) The floor shims are L shaped (the floor anchors do not need to be removed to install the shims under the ICS Cabinet). There are six (6) possible locations for these shims (i.e. 4-Corners of the cabinet and two (2) positions under the central mounting bracket). The installer shall install them in these locations as required.

RUL4 1) Provide one (1) Cable Trough per ICS Cabinet - if there are cable troughs on top of the adjacent cabinets (i.e. ENC). One cable trough is equal to the complete equipment list per RULE #4 Item #2.

2) A new cable trough has been developed for the ICS Cabinet where the following components and quantities must be provisioned per ICS requiring a Cable Trough.

Description	PEC	QTY
Upper Grills	P0671327	2
Trough Brackets	P0714083	4

Screw	P0559409	4
Screw	P097F839	4

The above equipment shall be used as follows:

* Four (4) P0714083 (Trough Brackets) - use one (1) at each corner of the ICS Cabinet. Fasten bracket to ICS with one P0559404 Screw per bracket.

* Install P0671327 (Upper Grills) onto bracket using two (2) P097F839 (Screw) per Upper Grills.

* Repeat the above steps for each ICS requiring a Cable Trough.

RUL5 1) The End Panel Assembly for cabinetized equipment may consist of the following items:

* End Panel Assembly Right Hand (Brown) NT0X24BA,
* End Panel Assembly Left Hand (Brown) NT0X24BB, and
* Cable Trough End Hardware NT0X24BK

These items are used in exactly the same manner as those used on the DMS Core product.

2) Provide one (1) End Panel Assembly Right Hand (Brown) NT0X24BA per ICS cabinet at the right end of a cabinet lineup.

3) Provide one (1) End Panel Assembly Left Hand (Brown) NT0X24BB per ICS cabinet at the left end of a cabinet lineup.

4) Provide two (2) Cable Trough End Hardware NT0X24BK per cabinetized lineup. It provides one (1) panel plus mounting hardware required to close off the cable trough at one (1) end of a cabinet lineup.

RUL6 1) Provide one End Aisle Lamp Kit (Brown) NT0X24BQ per End Panel Assembly (NT0X24BA/BB) provisioned.

2) One (1) Aisle Lamp Kit (Brown) NT0X24BQ consists of one (1) complete lamp assembly to be used whenever a cabinet with an End Panel Assembly is located at the end of a lineup.

ENHANCED NETWORK CABINET

PEC CODE: NT9X05AB

CPC CODE: B0228298

RATING: MD

REPLACES: N/A

REPLACED BY: NT9X05AC

ABBREVIATION NAME: ENC

ENGINEERING DESCRIPTION: The Enhanced Network Cabinet houses up to 4 ENET shelves of one plane. Each shelf provides a nominal Switching capacity of 32K-channels.

REFERENCE DOCUMENTATION: MS9X05AB 01 04

MARKETS: Applicable markets:

Canada
US
CALA
Asia/Pacific
Europe

ISSUE AUTHOR: NTI: Bob Belvin Dept. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT9X05AB EMR3-05-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
92 12 22	ECM 627 04	NT9X05AB is A&M and repl. by NT9X05AC NT9X40BA is A&M and repl. by NT9X40BB
95 09 28	ECM 627 13	NT9X05AB is MD PER ECD 018-41001
97 05 19	ECM 627 23	MD the DS-30 Interface PB, NT9X41BA per EC 018-50987. Minor cleanup of section.

The Enhanced Network Cabinet is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
#	Common Cabinet Equipment	NT9X0101		1			AP
	FSP Shorting Plug	NT9X0314			52		RUL17
	Blank Shelf Assy	NT0X24BD			00,13, 26		RUL1
#	Enhanced Network Shelf Assy	NT9X0801	ENET	1	39		AP
#	Enhanced Network Shelf Assy	NT9X0801	ENET		00,13, 26		RUL1
#	-5V 20A Power Converter CP	NT9X31AA			X	1F,33F	RUL2
#	+5V 80A Power Converter CP	NT9X30AA			X	4F,36F	RUL2
#	CPU CP	NT9X13FA			X	7F	RUL2
	Network Clock & MSG CP	NT9X36BA			X	8F	RUL2
	16K X 16K Chan Term XPT CP	NT9X35CA			X	9F,10F, 31F,32F	RUL4
	16K X 16K Chan XPT CP	NT9X35BA			X	11F-16F, 25F-30F	RUL4
	Filler Face Plate	NT9X19AA			X	10F-16F, 25F-32F	RUL5
	Filler Face Plate	NT9X19AA			X	17F-24F	RUL3
#	Remote Terminal I/F PB	NT9X26AA			X	7R	RUL2
	Remote Terminal I/F PB	NT9X26AB			X	7R	RUL2
#	Quad DS-512 Fiber I/F PB	NT9X40BA			X	8R	RUL15
	Quad DS-512 Fiber I/F PB	NT9X40BB			X	8R	RUL15
	PB Filler Face Plate	NT9X19BA			X	9R, 17R-24R	RUL6
	V-Bus Cable Assembly	NT9X0530			00,13, 26	9R-16R, 25R-32R	RUL13
#	DS-30 Interface PB	NT9X41BA			X	10R-16R, 25R-32R	RUL8
#	Quad DS-512 Fiber I/F PB	NT9X40BA			X	10R-16R, 25R-32R	RUL7
	Quad DS-512 Fiber I/F PB	NT9X40BB			X	10R-16R, 25R-32R	RUL7
	16 DS-30/3 DS-512 I/F PB	NT9X45BA			X	10R-16R, 25R-32R	RUL19
	DS-512/DS-30 Cable Assembly	NT9X0524			X	10R-16R 25R-32R	RUL12
	PB Filler Face Plate	NT9X19BA			X	10R-16R, 25R-32R	RUL9
	DS-30 Cable Assembly	NT9X0520			X	10R-16R, 25R-32R	RUL12
	Right Fiber I/F Bulkhead PNL	NT9X6503			X		RUL11
	Left Fiber I/F Bulkhead PNL	NT9X6506			X		RUL11
	Left Filter Bulkhead PNL 48 DS-30	NT9X6520			X		RUL11

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Right Filter Bulkhead PNL 48 DS-30	NT9X6521			X		RUL11
	Left Filter Bulkhead PNL 112 DS-30	NT9X6530			X		RUL11
	Right Filter Bulkhead PNL 112 DS-30	NT9X6531			X		RUL11
	Design. Label (NT9X13FA)	P0697525			X	7F	RUL14
	Design. Label (NT9X26AA)	P0705116			X	7R	RUL14
	Design. Label (NT9X26AB)	P0705003			X	7R	RUL14
	Front Shelf Desig. Label	P0704529			X	4F,36F	RUL14
	Rear Shelf Desig. Label	P0704530			X	1F,33F	RUL14
	Design. Label (NT9X35BA)	P0704526			X	11F-16F, 25F-30F	RUL14
	Design. Label (NT9X35CA)	P0704533			X	9F,10F, 31F,32F	RUL14
	Design. Label (NT9X36BA)	P0704531			X	8F	RUL14
#	Design. Label (NT9X40BA)	P0704527			X	8R, 10R-16R, 25R-32R	RUL14
	Design. Label (NT9X40BB)	P0734155			X	8R, 10R-16R, 25R-32R	RUL14
	Design. Label (NT9X41BA)	P0704528			X	10R-16R, 25R-32R	RUL14
	Design. Label (NT9X45BA)	P0731527			X	10R-16R 25R-32R	RUL14
	Front Bottom Shelf (Plane 0) Label	P0704534			X		RUL14
	Front Bottom Shelf (Plane 1) Label	P0704535			X		RUL14
	Rear Bottom Shelf (Plane 0) Label	P0704536			X		RUL14
	Rear Bottom Shelf (Plane 1) Label	P0704537			X		RUL14
	Ext. ENC Door Label Brown	P0710504			X		RUL14
	Ext. ENC Door Label Grey	P0711199			X		RUL14
	ENET Shelf ID Label	P0710505			X		RUL14
	ENET PDC Labels	P0710506			X		RUL14
#	Overhead Power Block Kit	NTEX5001					RUL10
	Power Boot Kit	NT9X0322					RUL10
	Light Fixture	NT0X24CA					RUL16
	Kick Plate Assy (Brown)	NT0X2430					RUL18
#	Kick Plate Assy (Grey)	NT0X2516					RUL18
#	Rear KickPlate Assy (Gray)	NT0X24CU					RUL18
	Frame Fail Light (Brown)	NT0X24BT					RUL20

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Frame Fail Light (Gray)	NT0X24CN					RUL20
WARNING LABEL, ENGLISH ONLY "High Voltage"	P0675711		1			RUL21
WARNING LABEL,ENGLISH/FRENCH "High Voltage/Haute Tension"	P0689137		1			RUL21
WARNING LABEL, ENGLISH ONLY "High Voltage"	P0675712		4			RUL22
WARNING LABEL,ENGLISH/FRENCH "High Voltage/Haute Tension"	P0689138		4			RUL22
WARNING LABEL, ENGLISH ONLY "Disconnect Fan"	P0675710		1			RUL23
WARNING LABEL,ENGLISH/FRENCH "Disconnect Fan"	P0689136		1			RUL23

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT9X26AA	RCP	NT9X26AB
NT9X40BA	RCP	NT9X40BB
NT0X2430	MD	No Replacement
NT0X24AA	MD	NT9X9575
NT0X24CU	MD	No Replacement
NT0X2516	MD	No Replacement
NT9X0101	MD	No Replacement
NTEX5001	MD	No Replacement
NT9X41BA	MD	NT9X45BA
NT9X0801	MD	NT9X0818
NT9X30AA	MD	NT9X30AB
NT9X31AA	MD	NT9X31AB
NT9X13FA	MD	NT9X13KA

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) X can be one of 00, 13, 26, and 39.

RULES:

AP 1) When PEC NT9X05AB is ordered, these items are provided.

2) The NT9X0101 is comprised of the following:

1 NT0X24AA Cabinet Framework
1 NT9X03AA Frame Supervisory Panel
4 A0345301 Core Cooling Blowers
- Cabinet Common Cabling & FSP Cabling

The NT0X24AA framework provides earthquake and EMI protection. The framework is 72" high, 28" deep and 42" wide.

The NT9X03AA FSP is mounted at position 52.

The four A0345301 Cooling Blowers are located immediately below position 0.

RUL1 1) Provide one (1) additional NT9X0801 Enhanced Network Shelf Assy for each additional 32K channels required. A fully equipped cabinet (i.e. four (4) shelves) has the capacity of up to 128K channels.

2) The first shelf at position 39 is always provided on the cabinet. Assign the remaining shelves to positions 26, 13, and 00, respectively, as required.

3) Each shelf provides switching for speech links interfacing up to 15 DS-512 fiber and DS-30 copper I/F PB.

4) Provide one (1) NT0X24BD Blank Shelf Assy for each unequipped position 26, 13, and 00, to satisfy the forced air cooling requirements of the cabinet.

RUL2 1) For each Enhanced Network Shelf Assembly required, provide:

a) two (2) NT9X30AA +5V 80A Power Converter CP
b) two (2) NT9X31AA -5V 20A Power Converter CP
c) one (1) NT9X13FA CPU CP
d) one (1) NT9X36BA Network Clock & Msg CP
e) one (1) NT9X26AB Remote Terminal I/F PB for initial applications. NOTE: In an ENET retrofit situation where

ENET is replacing an existing network in an office which already has NT9X26AA existing, the SAE may provide NT9X26AA instead of NT9X26AB.

RUL3 1) Always provide one (1) NT9X19AA Filler Face Plate per slot to satisfy the forced air cooling requirements of the cabinet.

RUL4 1) Provision four (4) NT9X35CA CPs in slots 9F-10F and 31F-32F on the first shelf (i.e. SHF POS 39). Assign up to a maximum of twelve (12) NT9X35BA CPs on the first shelf in pairs to adjacent slot pairs in the following order : (30F-29F), (12F-11F), (28F-27F), (14F-13F), etc.

2) In subsequent shelves, the Cross point card is assigned in groups of eight (8) as follows: Assign two (2) NT9X35CA CPs to odd numbered slots 9F and 31F. Assign exactly six (6) NT9X35BA CPs to odd slots 11F, 13F, 15F, 25F, 27F, and 29F. The next group of eight (8) Cross point CPs are assigned as follows: Assign two (2) NT9X35CA CPs to even numbered slots 10F and 32F. Assign exactly six (6) NT9X35BA CPs to even slots 12F, 14F, 16F, 26F, 28F, and 30F.

3) Assign the CPs on each additional shelf as per item 2) above. Fill each shelf before starting the next.

4) For further information, refer to RUL7, RUL8, and RUL11.

RUL5 1) Provide one (1) NT9X19AA, Filler Face Plate in each slot not equipped with an NT9X35BA/CA Circuit Pack to satisfy the forced air cooling requirements of the cabinet.

RUL6 1) Provide one (1) NT9X19BA PB Filler Face Plate per slot to satisfy the forced air cooling requirements of the cabinet.

RUL7 1) Provide one (1) NT9X40BB Quad DS-512 Fiber Interface PB for every four (4) DS-512 fiber speech links to be terminated. Note that the NT9X40BA is A&M and it is replaced by NT9X40BB. The NT9X40BB is a must in slot 8R for every ENET shelf provisioned.

2) Fiber speech links originate from Series II peripherals (FXPMs)

3) Card slot assignment of the NT9X40BB follows the same assignment rules as the NT9X35 Crosspoint CP. There cannot be a paddleboard provisioned in the rear card slot without a corresponding Crosspoint CP provided in the front.

4) For further information, refer to RUL4, RUL8, and RUL11.

RUL8 1) Each NT9X41BA can terminate sixteen (16) DS-30 copper speech links; however, access to messaging is provided on only 15 of the 16. Therefore, provide one (1) NT9X41BA for every 16 DS-30 copper speech links (15 for single port PMs (i.e. TMs and MTMs)). The NT9X41BA is now at MD status, the replacement is the NT9X45BA labelled 16 DS-30/ 3 DS 512 I/F PB, see rul19 for provisioning.

2) Copper speech links originate from Series I peripherals (DCMs, MTMs, TMs, LMs, etc.) or from non-fiberized Series II peripherals.

3) NT9X41BA can be mounted in any rear slot that has a NT9X35 card in the front slot. Refer to Rule 4 for complete assignment rules.

4) For further information, refer to RUL4, RUL7, and RUL11.

5) Note that for ENET Upgrade jobs the following rules apply until BCS34 (These rules do not apply for initial or peripheral extensions). DTCs that do not have exactly 4,8,12 or 16 C-side links can not be fiberized. That is they will interface to ENET using copper speech links only. Also DO NOT fiberize peripherals appearing in table SPECCONN (including DTCs) which have fewer that 16 C-Side links.

RUL9 1) Provide one (1) NT9X19BA, PB Filler Face Plate in each slot not equipped with an NT9X40BA/40BB or NT9X41BA PB to satisfy the forced air cooling requirements of the cabinet.

RUL10 1) For non-raised floor applications, provide one (1) NTEX5001 Overhead Power Block Kit.

2) Provide one (1) NT9X0322 Power Boot Kit.

RUL11 1) Two interface bulkhead panels are required for each equipped ENET shelf position, one (1) on the left and one (1) on the right of each equipped ENET shelf (i.e. cabinet viewed from the rear).

2) Fiber interconnection to the cabinet is terminated directly to the associated paddleboard. The NT9X40BA/BB paddleboard accommodates four (4) DS-512 transmit ports and four (4) receive ports. These fiber lines exit the cabinet through holes in the bulkhead panel provided. 3) Provide one (1) NT9X6506 (left panel) if the corresponding left half of the shelf (slots 32R-25R) will never be equipped with a

NT9X41BA PB (i.e. will be equipped with only NT9X40BA/40BB PBs). This bulkhead panel will not provide any access to NT9X41BA PBs. Otherwise, provide NT9X6520 or NT9X6530.
4) Provide one (1) NT9X6503 (right panel) if the corresponding right half of the shelf (slots 10R-16R) will never be equipped with a NT9X41BA PB (i.e. will be equipped with only NT9X40BA/40BB PBs). Otherwise, provide NT9X6521 or NT9X6531.

5) Bulkhead panels NT9X6520 & NT9X6521 each provide a maximum of 48 individual DS-30 connections that can be directly linked to DS-30 peripherals (i.e. a Speech Link Connector (SLC) is not required). Each of these bulkhead panels contain six (6) connectors which connect internally to the cabinet and are designated AT,AR, BT,BR,CT,CR. Connectors AT & AR combine on the PCB to provide sixteen (16) external connectors designated A0,A1,A2,A3, etc. to A15. Similarly, internal connectors BT & BR, CT & CR, are combined to provide external connectors B0 to B15 and C0 to C15, respectively.

6) Provide one (1) NT9X6520 (i.e. left bulkhead panel provides access for 0 to 48 DS-30s) if there are up to three (3) NT9X41BA PBs per the corresponding left half of the shelf (i.e. card slots 32R-25R). The DS-30 speech links terminating on the left half of the shelf will be cabled directly to the Series I peripherals. The NT9X41BA PBs are restricted to a maximum of three (3) per half shelf, or six (6) per shelf assembly. The remaining card slots (32R-25R) can be provisioned with NT9X40BA/40BB PBs.

7) Provide one (1) NT9X6521 (i.e. right bulkhead panel provides access for 0 to 48 DS-30s) if there are up to three (3) NT9X41BA PBs per the corresponding right half of the shelf (i.e. between card slots 10R-16R). The DS-30 speech links terminating on the right half of the shelf will be cabled directly to the Series I peripherals. The NT9X41BA PBs are restricted to a maximum of three (3) per half shelf, or six (6) per shelf assembly. The remaining card slots (10R-16R) can be provisioned with NT9X40BA/40BB PBs.

8) If bulkhead panels NT9X6530 & NT9X6531 are provided, an SLC is required in order to break out the sixteen (16) DS-30s from the ENET cable into PM cable groups.

9) Provide one (1) NT9X6530 (i.e. left bulkhead panel provides access for 0 to 112 DS-30s) if there are up to seven (7) NT9X41BA PBs per the corresponding left half of the shelf (i.e. between card slots 32R-25R). The DS-30 speech links

terminating on the left half of the shelf will be cross connected at an SLC. The NT9X41BA PBs are restricted to a maximum of seven (7) per half shelf, or fourteen (14) per shelf assembly. The remaining card slots (32R-25R) can be provisioned with NT9X40BA/40BB PBs.

10) Provide one (1) NT9X6531 (i.e. right bulkhead panel provides access for 0 to 112 DS-30s) if there are up to seven (7) NT9X41BA PBs per the corresponding right half of the shelf (i.e. between card slots 10R-16R). The DS-30 speech links terminating on the right half of the shelf will be cross connected at an SLC. The NT9X41BA PBs are restricted to a maximum of seven (7) per half shelf, or fourteen (14) per shelf assembly. The remaining card slots (10R-16R) can be provisioned with NT9X40BA/40BB PBs.

11) An ENET NT9X6520/NT9X6521 bulkhead can be used if the ENET to PM cables are run directly from the peripherals. An ENET NT9X6530/NT9X6531 bulkhead can be used if these cables are run via SLC. Either bulkhead can then be connected to NT9X41BA or NT9X45BA.

12) For further information, refer to RUL4, RUL7, and RUL8.

RUL12 1) Provide one (1) NT9X0520 DS-30 Cable Assembly for each NT9X41BA DS-30 Interface PB provided.

2) Provide one (1) NT9X0524 Cable Assembly for each NT9X45BA (16 DS-30/3 DS-512) Interface PB provided.

3) In order to provide neat dressing of the NT9X0520/NT9X0524 Cable Assemblies, they must be run as follows:

BULKHEAD PANEL TYPE	FROM BULKHEAD CONNECTORS	TO CARD SLOT ON ENET SHELF ASSY
NT9X6520	AT, AR BT, BR CT, CR	*L1 L2 L3
NT9X6521	AT, AR BT, BR CT, CR	*R1 R2 R3
NT9X6530	CT, CR BT, BR AT, AR	*L1 L2 L3

	ET, ER DT, DR GT, GR FT, FR	L4 L5 L6 L7
NT9X6531	AT, AR BT, BR CT, CR DT, DR ET, ER FT, FR GT, GR	10 11 12 13 14 15 16
*L1 = LEFT MOST CARD *R1 = RIGHT MOST CARD		

RUL13 1) Provide sixteen (16) NT9X0530 V-Bus Cable Assemblies for each additional NT9X0801 Enhanced Network Shelf Assy provisioned under RUL1. Provide V-Bus Cables only when the second, third, or fourth shelves are provided.

RUL14 1) Provide one (1) Designation Label corresponding to each card provisioned.

2) Provide one (1) each of P0704534 & P0704536 for each plane 0 NT9X0801 Enhanced Network Shelf Assy.

3) Provide one (1) each of P0704535 & P0704537 for each plane 1 NT9X0801 Enhanced Network Shelf Assy.

RUL15 1) Provide one (1) NT9X40BA/40BB, Quad DS-512 Fiber Interface PB, in slot 8R per shelf.

RUL16 1) For Canadian Offices only, provide two (2) NT0X24CA, Light Fixture per cabinet (NT9X05AB) when lighting is required. Cable troughs must be provisioned when light fixtures are required.

RUL17 1) Provide one (1) NT9X0314 FSP Shorting Plug for each unequipped shelf position.

RUL18 1) Provide one (1) NT0X2430 for each brown ENC Cabinet.

2) Provide one (1) NT0X2516 for each grey ENC Cabinet.

3) Provide one (1) NT0X24CU for each gray ENC Cabinet

RUL19 1) For Initial and ENET Upgrade (Retrofit) jobs provision NT9X45BAs for a combination of 16 DS-30 copper and 3 DS-512 fiber links. For any remaining copper and fiber links, default termination to NT9X41BAs and NT9X40BA/40BBs respectively. Note that, offices equipped with NT9X45BA must have atleast BCS33 load.

2) For ENET installed offices, replace NT9X41BAs with NT9X45BAs, as many as required, on fiber peripheral extensions. Once all NT9X41BAs are replaced use initial offices rules. Note that for offices having excess copper links, recommend that the customer use NT9X45BA for future SERIES II peripheral extensions.

RUL20 1) Provide one (1) NT0X24BT for each brown ENC Cabinet.

2) Provide one (1) NT0X24CN for each grey ENC Cabinet

RUL21 1) Provide one (1) P0675711 or P0689137 Label to be applied to SuperNode FSP Unit. (Only on Brown Cabinets)

RUL22 1) Provide four (4) P0675712 or P0689138 Labels per cabinet. (Only on Brown Cabinets)

RUL23 1) Provide one (1) P0675710 or P0689136 Label to be applied to the front of the cabinet below the blowers. (Only on Brown Cabinets)

ISDN KIT

PEC CODE: NT5X13ZW

CPC CODE: B0225247

RATING: MD

REPLACES: N/A

REPLACED BY: N/A

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit equips the NT5X13AA NETC frame for ISDN applications with the Remote Fiber Link Equipment Frame (NTBX66AA).

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Canada

ISSUE AUTHOR: NTI: Bob Belvin Dept. 3471 (PPK)

MAIN CONTACT: NTC: Jerry Palmer Dept. 3471 (PPK)

NT5X13ZW EMR3-99-ZW CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 08 24	ECM 261 09	Change status rating to MD.

The ISDN Kit is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
RMV	Ntwk P-Side Msg Pro	NT3X75AA		1	65	14	
RMV	Ntwk P-Side Msg Pro	NT3X75AA		1	18	14	
ADD	Ntwk P-Side Msg Pro	NT3X75AB		1	65	14	AP
ADD	Ntwk P-Side Msg Pro	NT3X75AB		1	18	14	AP
ADD	Des Label NT3X75AB	P0677804		1	65	14	AP
ADD	Des Label NT3X75AB	P0677804		1	18	14	AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NT5X13ZW is ordered, these items are provided.

POWER CONVERTER CHANGE KIT

PEC CODE: NT5X13ZY

CPC CODE: 225225

RATING: MD. Replaced by NT2X70AZ.

REPLACES: N/A

REPLACED BY: N/A

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit equips the NT5X13AA NETC frame with NT2X70AD power converters in place of the existing NT2X70AB power converters. This change kit should only be applied if requested by the customer or recommended by a DMS-100 Technical Support group.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Canada
Europe
Asia/Pacific
CALA

ISSUE AUTHOR: NTI: Bob Belvin Dept. 3471 (PPK)

MAIN CONTACT: NTC: Jerry Palmer Dept. 3471 (PPK)

NT5X13ZY EMR3-99-ZY CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 08 24	ECM 261 09	Change status rating to MD.

The Power Converter Change Kit is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
RMV	Power Converter CP	NT2X70AB		1	65	25	
RMV	Power Converter CP	NT2X70AB		1	51	22	
RMV	Power Converter CP	NT2X70AB		1	32	22	
RMV	Power Converter CP	NT2X70AB		1	18	25	
ADD	Power Converter CP	NT2X70AD		1	65	25	AP
ADD	Power Converter CP	NT2X70AD		1	51	22	AP
ADD	Power Converter CP	NT2X70AD		1	32	22	AP
ADD	Power Converter CP	NT2X70AD		1	18	25	AP
ADD	Des Label NT2X70AD	P0664133		1	65	25	AP
ADD	Des Label NT2X70AD	P0664133		1	51	22	AP
ADD	Des Label NT2X70AD	P0664133		1	32	22	AP
ADD	Des Label NT2X70AD	P0664133		1	18	25	AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NT5X13ZY is ordered, these items are provided.

GAIN FEATURE CHANGE KIT

PEC CODE: NT5X13ZZ

CPC CODE: B0225002

RATING: MD

REPLACES: N/A

REPLACED BY: N/A

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit equips the NT5X13AA NETC frame with the network gain feature. This is for IOS application only.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Canada

ISSUE AUTHOR: NTI: Bob Belvin Dept. 3471 (PPK)

MAIN CONTACT: NTC: Jerry Palmer Dept. 3471 (PPK)

NT5X13ZZ EMR3-99-ZZ CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 08 24	ECM 261 09	Change status rating to MD.

The Gain Feature Change Kit is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
RMV	Ntwk X-Point CP	NT3X70AA		4	32	17-20	
RMV	Ntwk X-Point CP	NT3X70AA		4	51	2-5	
ADD	Ntwk X-Pt + Gain CP	NT3X70AB		4	32	17-20	AP
ADD	Ntwk X-Pt + Gain CP	NT3X70AB		4	51	2-5	AP
ADD	Des Label NT3X70AB	P0677228		4	32	17-20	AP
ADD	Des Label NT3X70AB	P0677228		4	51	2-5	AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NT5X13ZZ is ordered, these items are provided.

EMR4

CENTRAL CONTROL SUBSYSTEMS CHAPTER ALL

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CENTRAL CONTROL SUBSYSTEMS CHAPTER ALL

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EMR4-16-000	MESSAGE SWITCH DUPLEX CABINET	NT9X01GA
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EMR4-98-CMPS-1	CM PROCESSOR UPGRADE CHANGE KIT	NT9X06CA
EMR4-98-CMPS-2	CM PROCESSOR UPGRADE KIT	NT9X06CC
EMR4-98-MSPS-1	MS MEMORY UPGRADE KIT	NT9X04AD
EMR4-98-MSPS-2	MESSAGE SWITCH PROCESSOR UPGRADE KIT	NT9X04AF
EMR4-99-DC	FIRMWARE CHANGES FOR BCS-10 SOFTWARE	NT3X45DC
EMR4-99-DD	CENTRAL PROCESSOR ENHANCEMENT	NT3X45DD
EMR4-99-DE	PROGRAM STORE MIXED MEMORY (TWO SHELF PS	NT3X45DE
EMR4-99-DF	PROGRAM STORE MIXED MEMORY (SINGLE SHELF	NT3X45DF
EMR4-99-DG	PROGRAM STORE MIXED MEMORY (CPM SHELF)	NT3X45DG
EMR4-99-DH	DATA STORE MIXED MEMORY LAST SHELF	NT3X45DH
EMR4-99-DJ	DATA STORE EXPANSION MULTIPLE SHELF	NT3X45DJ
EMR4-99-DK	FIRMWARE CHANGES FOR BCS-15/16 SOFTWARE	NT3X45DK
EMR4-99-DL	FIRMWARE CHANGES FOR BCS-15/16 SOFTWARE	NT3X45DL
EMR4-99-DM	FIRMWARE CHANGES FOR 8 MEGAWORDS +	NT3X45DM
EMR4-99-DN	CPM PROGRAM STORE INCREASE	NT3X45DN
EMR4-99-DP	CPM PROGRAM STORE INCREASE	NT3X45DP
EMR4-99-DQ	PROGRAM STORE (PS) MEMORY	NT3X45DQ
EMR4-99-DR	INCREASE TO 3.0 MEGAWORDS	NT3X45DR
EMR4-99-DS	REMOTE SURVEILLANCE & CONTROL VIA WE.	NT3X45DS
EMR4-99-EC	CPM PROGRAM STORE 8MW MEMORY CAPACITY	NT3X45EC
EMR4-99-EM	CPU CAPACITY ENHANCEMENT PC KIT	NT3X45EM
EMR4-99-EN	DATA STORE MIXED MEMORY 256KW AND 1MW CP	NT3X45EN
EMR4-99-EP	NT3X45EP PRODUCT CHANGE KIT	NT3X45EP
EMR4-99-EQ	NT3X45EQ PRODUCT CHANGE KIT	NT3X45EQ
EMR4-99-ER	DATA STORE MIXED MEMORY (INCREASE TO 15.	NT3X45ER
EMR4-99-ES	STRATUM II CLOCK	NT3X45ES
EMR4-99-ET	MIXED MEMORY INCREASE TO 16 MW	NT3X45ET
EMR4-99-EY	CPU CAPACITY ENHANCEMENT	NT3X45EY
EMR4-99-000	PROVISIONING TABLE FOR PRODUCT CHANGE KI	T_CCC_KITS
EMR4-99-001	MEMORY PROVISIONING CONSIDERATIONS	MEMPROV

THIS IS RESERVED FOR AN INDEX

CCC COMMON CIRCUIT PACKS

PEC CODE: NT3X45EV

RATING: MD

REPLACES: NT3X45ED/EJ.

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: NT3X45EV provides circuit pack fill required for the CPU message and device controllers and memory of the CCC frame.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45EV EMR4-01-CCC-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The CCC Common Circuit Packs is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
CMC Processor Interface CP	NT1X33BA		2	65	05	AP
CMC Common Control CP	NT1X37BA		2	65	06	AP
CMC Outgoing Controller CP	NT1X34BA		2	65	07	AP
CMC Incoming Controller CP	NT1X35BA		2	65	08	AP
CMC Peripheral I/F CP	NT1X36BB		2	65	09	AP
CMC Peripheral I/F CP	NT1X36BB		2	65	10	AP
CMC/IOC BP Terminator CP	NT3X4304		2	65	23R	AP
Designation Strip (NT2X7606)	P0656305		2	65		AP
16MW Memory BP Terminator	NT3X4309		2	51	01R	AP
16MW Memory Control CP	NT4X79AA		2	51	09	AP
PS Controller BP Terminator	NT3X4307		2	51	09R	AP
Processor BP Terminator	NT3X4303		2	51	10R	AP
Filler Face Plate .875	NT0X50BA		2	51	12	AP
Filler Face Plate .875	NT0X50BA		2	51	15	AP
Filler Face Plate .875	NT0X50BA		2	51	20	AP
Power Converter (5V/40A)	NT2X06BB		2	51	22	AP
Filler Face Plate .875	NT0X50BA		2	32	01	AP
Single Ended Mem Bus I/F CP	NT3X37BC		2	32	02	AP
Filler Face Plate .875	NT0X50BA		2	32	03	AP
16MW Memory Control CP	NT4X79AA		2	32	04	AP
Filler Face Plate .875	NT0X50BA		2	32	05	AP
16MW Memory BP Terminator	NT3X4309		2	32	21R	AP
Filler Face Plate 2.62	NT0X50BE		2	32	22	AP
Designation Strip (NT3X3209)	P0656303		2	32		AP

RULES:

AP 1) When PEC NT3X45EV is ordered, these items are provided.

2) This PEC provides all of the always provided packs for both planes (one plane takes up one bay).

CENTRAL MESSAGE CONTROLLER

PEC CODE: NT1X32AA

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: CMC

ENGINEERING DESCRIPTION: The CMC provides a communication path between a plane's central processing unit and the other DMS-100/200/300 functional units.

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT1X32AA EMR4-01-CMC-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The Central Message Controller is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
CMC Shelf	NT1X3201		1			AP
Filler Face Plate .875	NT0X50AA		1		01	AP
Master Clock Generator	NT3X13AA		1		02	AP
CMC Processor Interface CP	NT1X33AA		1		04	AP
CMC Common Control CP	NT1X37AA		1		05	AP
CMC Outgoing Control CP	NT1X34AA		1		06	AP
CMC Incoming Control CP	NT1X35AA		1		07	AP
CMC Peripheral Interface CP	NT1X36AA		1		08	AP
CMC Peripheral Interface CP	NT1X36AA		1		09	AP
CMC Peripheral Interface CP	NT1X36AA				10-21	RUL1
Filler Face Plate .875	NT0X50AA				10-21	RUL2
Power Converter (5V/40A)	NT2X06AB		1		22	AP
Power Converter (5V/40A)	NT2X06AB		1		25	AP
Designation Label (NT1X36AA)	P0558318					RUL1

RULES:

AP 1) When PEC NT1X32AA is ordered, these items are provided.

2) Two CMC Peripheral Interface cards provided with this shelf will interface up to ten Network Modules and I/O Controller Modules subject to the rules below.

RUL1 1) Provide one CMC Peripheral Interface card for each additional five Network Modules or five (5) I/O Device Controller modules or any combination thereof subject to the following assignment conditions.

a. Module IOC:00 shall be assigned to port 00, card pos 08, terminal 0.

b. Module IOC:01 shall be assigned to port 05, card pos 09, terminal 0.

c. Plane 0 Network Modules shall be assigned to ports on cards in even numbered slots.

d. Plane 1 Network Modules shall be assigned to ports on cards in odd numbered slots.

e. Network Module duplicates of the two planes shall be assigned to like terminals on cards located in adjacent slots subject to c and d above.

2) Provide one (1) Designation Label P0558318 per NT1X36AA ordered.

RUL2 1) Provide one (1) Filler Face Plate, NT0X50AA, in each location, 10-21 which is not to be equipped with an NT1X36AA to satisfy the forced air cooling requirements of this shelf.

CENTRAL PROCESSOR UNIT NT1X41AA

RATING: MD. See MS0X41AC, Section EMR4-01-000.

ABBREVIATION NAME: CPU

ENGINEERING DESCRIPTION: The Central Processor Unit provides the micro-store and sequencing logic required to execute the program instructions as well as all the arithmetic and logic functions necessary for efficient data manipulation. It also provides the basic system timing for register gating and clocking, emergency timers and the interrupt logic.

REFERENCE DOCUMENTATION: N/A

The Central Processor Unit is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Processor Shelf	NT1X4101		1			AP
Filler Face Plate .875	NT0X50AA				01	AP
Processor Termination CP	NT1X52AA		1		02	AP
Filler Face Plate .875	NT0X50AA				03-07	AP
Bal Data Port Extender CP	NT1X50AB		1		08	AP
CMC Interface CP	NT1X51AA		1		09	AP
Filler Face Plate .875	NT0X50AA				10-11	AP
4K ROM Extension Card	NT1X53AA		1		12	AP
Filler Face Plate .875	NT0X50AA				13	AP
Processor ROM DMS-100 CP	NT1X46AA		1		14	AP
Filler Face Plate .875	NT0X50AA				15	AP
Processor Maintenance CP	NT1X48AA		1		16	AP
Processor Timing & Cont CP	NT1X47AA		1		17	AP
Processor ALF CP	NT1X45AA		1		18	AP
Processor Stack CP	NT1X44AA		1		19	AP
Filler Face Plate .875	NT0X50AA				20	AP
Proc Prog Store Port CP	NT1X43AA		1		21	AP
Power Converter (5V/40A)	NT2X06AB		1		22	AP
Power Converter (5V/40A)	NT2X06AB		1		25	AP

RULES:

AP When PEC NT1X41AA is ordered these items are provided.

ENHANCED CPU CAPACITY COMMON CP

PEC CODE: NT3X45EH

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: NT3X45EH provides circuit packs required for enhanced CPU capacity for the CCC frame.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45EH EMR4-01-CPU-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The Enhanced CPU Capacity Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Processor 8KW ROM CP	NT1X46DA		2	51	14	AP
Proc Timing and Control CP	NT1X47DA		2	51	17	AP
Processor ALF CP	NT1X45DA		2	51	18	AP
Processor Stack 4KW CP	NT1X44DA		2	51	19	AP
Proc Prog Store Port CP	NT1X43DA		2	51	21	AP
Unbal Data Port Ext 40 MHz	NT1X49DA		2	51	10	AP
CMC I/F (40 MHz) CP	NT1X51DA		2	51	11	AP
Desig. Strip (NT3X4106)	P0686468		2	51		AP

RULES:

AP 1) When PEC NT3X45EH is ordered, these items are provided.

2) This PEC provides all of the always provided packs for both planes (one plane takes up one bay).

ENHANCED LOADROUTE/CPU CAPACITY COMMON CP

PEC CODE: NT3X45EK

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: NT3X45EH provides circuit packs required for enhanced CPU capacity for the CCC frame.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45EK EMR4-01-CPU-4 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The Enhanced Loadroute/CPU Capacity Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Proc Timing and Control CP	NT1X47DA		2	51	17	AP
Processor ALF CP	NT1X45DA		2	51	18	AP
Processor Stack 4KW CP	NT1X44DA		2	51	19	AP
Proc Prog Store Port CP	NT1X43DA		2	51	21	AP
Unbal Data Port Ext 40 MHz	NT1X49DA		2	51	10	AP
CMC I/F (40 MHz) CP	NT1X51DA		2	51	11	AP
Desig. Strip (NT3X4106)	P0686468		2	51		AP

RULES:

AP 1) When PEC NT3X45EK is ordered, these items are provided.

2) This PEC provides all of the always provided packs for both planes (one plane takes up one bay).

DATA STORE SHELF

PEC CODE: NT3X31AB

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: DS

ENGINEERING DESCRIPTION: The Data Store provides data storage memory for DMS-100/200/300 Central Processing Unit.

REFERENCE DOCUMENTATION: MS3X31AB 01 01

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X31AB EMR4-01-DS-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The Data Store Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
P/CD Store Shelf	NT3X3101		1			AP
Filler Face Plate .875	NT0X50AA		1		01	AP
Balanced Mem Bus Terminator	NT3X35AB		1		02	RUL2
Filler Face Plate .875	NT0X50AA				02	RUL3
Balanced Mem Bus I/F CP	NT3X36AB		1		03	AP
Memory Controller	NT3X38AA		1		04	AP
16K MOS Memory CP for Spare	NT3X39AA		1		05	AP
16K MOS Memory CP	NT3X39AA				06-21	RUL1
Filler Face Plate .875	NT0X50AA				06-21	RUL3
Power converter (5V/12V)	NT2X07AB		1		22	AP
Power Converter (5V/40A)	NT2X06AB		1		25	AP
Desig. Label for NT3X35AB	P0580262				02	RUL4
Desig. Label for NT3X39AA	P0584741				02, 06-21	RUL4

RULES:

AP 1) When PEC NT3X31AB is ordered, these items are provided.

RUL1 1) Provide one (1) card per 16K words of DS memory up to a maximum of 16.

2) Always provide at least one memory CP.

RUL2 1) Provide one Mem Bus Terminator for the last DS in the CPU data bus daisy chain.

RUL3 1) Provide one (1) Filler Face Plate, NT0X50AA, in each location, 02, 06-21 which is not to be equipped with either a NT3X35AB or a NT3X39AA. to satisfy the forced air cooling requirements of this shelf.

RUL4 1) Provide one (1) Designation Label corresponding to each card or filler face plate provisioned per RUL1 and RUL2.

PROGRAM STORE SHELF

PEC CODE: NT3X31AA

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: PS

ENGINEERING DESCRIPTION: A PS provides memory for DMS-100 Family Central Processing Unit.

REFERENCE DOCUMENTATION: MS3X31AA 01 01

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X31AA EMR4-01-PS-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The Program Store Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
P/CD Store Shelf	NT3X3101		1			AP
Filler Face Plate .875	NT0X50AA		1		01	AP
Unbalanced Mem Bus Term	NT3X34AA		1		02	RUL2
Filler Face Plate .875	NT0X50AA				02	RUL3
Unbalanced Mem Bus I/F CP	NT3X37AA		1		03	AP
Memory Controller	NT3X38AA		1		04	AP
16K MOS Memory CP for Spare	NT3X39AA		1		05	AP
16K MOS Memory CP	NT3X39AA				06-21	RUL1
Filler Face Plate .875	NT0X50AA				06-21	RUL3
Power Converter (5V/12V)	NT2X07AB		1		22	AP
Power Converter (5V/40A)	NT2X06AB		1		25	AP
Desig. Label for NT3X34AA	P0580261				02	RUL4
Desig. Label for NT3X39AA	P0584741				05	RUL4

RULES:

AP 1) When PEC NT3X31AA is ordered, these items are provided.

RUL1 1) Provide one (1) card per 16K words of PS memory up to a maximum of 16.

2) Always provide at least one memory CP.

RUL2 1) Provide one (1) NT3X34AA for the Program Store at the end of a program memory bus daisy chain.

RUL3 1) Provide one (1) Filler Face Plate, NT0X50AA, in each location, 02, 06-21 which is not to be equipped with either a NT3X34AA or a NT3X39AA to satisfy the forced air cooling requirements of this shelf.

RUL4 1) Provide one (1) Designation Label corresponding to each card or filler face plate provisioned per RUL1 and RUL3.

CENTRAL CONTROL COMPLEX FRAME NT0X41AC

RATING: MD. On new jobs replace by NT0X41AJ.

ABBREVIATION NAME: CCC (See Note AP 2 below)

ENGINEERING DESCRIPTION:

REFERENCE DOCUMENTATION: MS0X41AC 01 16

The Central Control Complex Frame is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Central Msg Controller	NT1X32AA	CMC	2	65		AP
Central Processing Unit	NT1X41AA	CPU	2	51		AP
Frame Supervisory Panel	NT0X28AA	FSP	2	45		AP
Program Store	NT3X31AA	PS	2	32		AP
Program Store	NT3X31AA	PS	2	18		RUL1
Data Store	NT3X31AB	DS	2	18		RUL2
Cage Filler Panel	NT0X84AA	CFP	2	18		RUL3
Cooling Unit	NT0X30AD	CU	2	09		AP
Inverter Unit	NT0X87AA	INV	2	04		AP
Framework	NT0X25AA	FW	2			AP
Local Cable	NT0X41AD		2	18		RUL5
Local Cable	NT0X41AE		2	18		RUL6
Power Cable	NT0X95BF		2	18		RUL7
Power Cable	NT0X95BG		2	18		RUL7
DOC Certification Label	P0663265			45		RUL8
Product Change Kit	AR					RUL9

RULE:

AP 1) When PEC MS0X41AC is ordered, these items are provided.

2) NT0X41AC is a double bay frame consisting of 2 identical Central Control Complex Frames (CCC).

3) The Program Store shelf provided with each frame will accommodate the first 256K words of program store memory.

4) The program store bus system can support a maximum of three (3) PS shelves (NT3X31AA) (max 768 K-words) due to a bus length limit of 11 feet. The third shelf must be assigned to POS 18 on an adjacent Memory Extension Frame (MEX 00).

5) The following AP items are equipped per the corresponding MS:

	PEC	ABR	MS
Central Msg Controller	NT1X32AA	CMC	MS1X32AA
Program Store	NT3X31AA	PS	MS3X31AA

Note: Each CCC provides space to mount either one additional Program Store or one Data Store shelf (DS) at position 18. The following are the rules for equipping these:-

RUL1 1) Provide one additional Program Store shelf, NT3X31AA, per CCC to accommodate up to an additional 256K words of program store memory.

2) Equip each per MS3X31AA.

RUL2 1) If Memory Extension Frames are not being supplied, provide one Data Store shelf, NT3X31AB, per CCC to accommodate up to 256K words of data store memory.

2) Equip each per MS3X31AB.

RUL3 1) Provide one Cage Filler Panel per CCC in position 18 if no PS or DS is to be equipped there.

RUL4 1) When customer requirements specify that Grilles, Frame Doors and (or) Frame Trim Panels are to be ordered for these frames, provide two NT0X08AH, two NT0X71AB and (or) four NT0X72AA per NT0X41AC as required.

RUL5 1) Provide one Local cable, NT0X41AD, per CCC when a Program Store NT3X31AA is located in position 18.

RUL6 1) Provide one Local cable, NT0X41AE, per CCC when a Data Store NT3X31AB is located in position 18.

RUL7 1) Provide one of each Power Cable, NT0X95BF & NT0X95BG, per CCC when a Program Store or Data Store is located in position 18.

RUL8 1) Provide one (1) label per NT3X41AC for Canadian offices equipped with IBN software.

2) Put label on FSP Bay 0 only.

RUL9 1) For Product Change Kit details, refer to section EMA4-99-000 Provisioning Table for Product Change Kits.

CENTRAL CONTROL COMPLEX FRAME (DOUBLE BAY)

PEC CODE:	NT3X45EW
RATING:	MD
REPLACED BY:	No Replacement
ABBREVIATION NAME:	CCC
ENGINEERING DESCRIPTION:	NT3X45EW is a double bay frame consisting of two identical Central Control Complex bays. No Memory Extension (MEX) frames are associated with the NT3X45EW frame.
REFERENCE DOCUMENTATION:	MS3X45EW 00 07

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45EW EMR4-01-001 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The Central Control Complex Frame (Double Bay) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
# CCC Common Circuit Packs	NT3X45ED			65,51, 32		RUL2
# CCC Common Circuit Packs	NT3X45EJ			65,51, 32		RUL2
CCC Common Circuit Packs	NT3X45EV			65,51, 32		RUL2
CM & I/O Device CTL SH ASS	NT2X7606	MDC	2	65		AP
Sync Clock Master Osc	NT3X15BB			65	01	RUL3
Stratum 3 Sync Clk Mstr Osc	NT3X15CA			65	01	RUL3
Stratum 2 Sync Mstr Clk CP	NT3X15DA			65	01	RUL3
Filler Face Plate .875	NT0X50BA			65	01-03	RUL7
Master Clock Generator	NT3X13BA			65	03	RUL3
Sync Master Clock Cont	NT3X14BC			65	04	RUL3
CMC Peripheral I/F CP	NT1X36BB			65	11-22	RUL4
Filler Face Plate .875	NT0X50BA			65	11-22	RUL7
I/O Device Control CP	AR			65	15,17, 19,21	RUL6
I/O Message Controller CP	NT1X62BB			65	23	RUL5
Filler Face Plate 1.72	NT0X50BF			65	23	RUL7
Power Converter	NT2X70BA			65	25	RUL21
Power Converter	NT2X70AE			65	25	RUL21
Desig Label for NT3X15BB	P0613355			65	01	RUL11
Desig Label for NT3X15CA	P0654973			65	01	RUL11
Desig Label for NT3X15DA	P0661434			65	01	RUL11
Desig Label for NT3X13BA	P0613352			65	03	RUL11
Desig Label for NT3X14BC	P0645683			65	04	RUL11
Desig Label for NT1X68BD	P0623525			65	15,17 19,21	RUL11
Desig Label for NT1X68BC	P0616642			65	15,17 19,21	RUL11
Desig Label for NT1X55AB	P0631796			65	15,17 19,21	RUL11
Desig Label for NT1X67BC	P0623517			65	15,17 19,21	RUL11
Desig Label for NT1X67BD	P0657675			65	15,17 19,21	RUL11
Desig Label for NT1X67DB	P0599148			65	15,17 19,21	RUL11

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Desig Label for NT2X70BA	P0613351			65	25	RUL11
Desig Label for NT2X70AE	P0698943			65	25	RUL11
Central Proc & Mem Shf Assy	NT3X4106	CPM	2	51		AP
Enhanced CPU Cap Common CP	NT3X45EH			51		RUL2
Enh Loadroute/CPU Cap CPF	NT3X45EK			51		RUL2
Processor 8KW ROM CP	NT1X46EA			51	14	RUL2
Desig Label for NT1X46EA	P0728435			51	14	RUL11
1MW Memory CP	NT4X80AA			51	01-08	RUL12
E2A Telemetry Serial I/F CP	NT1X42AA			51	13	RUL2,14
Filler Face Plate .875	NT0X50BA			51	01-08, 13	RUL13
Rem Cont Processor Maint CP	NT1X48CA			51	16	RUL2,14
Processor Maintenance CP	NT1X48DA			51	16	RUL2,15
Power Converter	NT2X70BA			51	25	RUL21
Power Converter	NT2X70AE			51	25	RUL21
Desig Label for NT1X42AA	P0649153			51	13	RUL11
Desig Label for NT1X48CA	P0649154			51	16	RUL11
Desig Label for NT1X48DA	P0661433			51	16	RUL11
Desig Label for NT4X80AA	P0649156			51	01-08	RUL11
Desig Label for NT2X70BA	P0613351			51	25	RUL11
Desig Label for NT2X70AE	P0698943			51	25	RUL11
Frame Supervisory Panel	NT0X28AF	FSP	2	45		AP
Dept.of Comm.Cert. Label	P0663265			45		RUL18
16MW Data Store Shf Assy	NT3X3209	DS	2	32		AP
1MW Memory CP	NT4X80AA			32	06-21	RUL16
Filler Face Plate .875	NT0X50BA			32	06-21	RUL13
Power Converter	NT2X70BA			32	25	RUL21
Power Converter	NT2X70AE			32	25	RUL21
Desig Label for NT0X50BA	P0599141			32	06-21	RUL11
Desig Label for NT4X80AA	P0649156			32	06-21	RUL11
Desig Label for NT2X70BA	P0613351			32	25	RUL11
Desig Label for NT2X70AE .sep	P0698943			32	25	RUL11
Cage Filler Panel Assy .sep	NT0X84AA	FILL	2	18		AP
DC Fan Cooling Unit	NT3X90AC	CU	2	04		AP
Power Converter Kit	NT2X70AZ			65,51, 32	25	RUL21

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
WRG: SYNC OFF W/O EXT MA FREQ REF	NT2X76CB					RUL8
WRG: SYNC MA OFF W EXT MA ATOM CLK & PRG FREQ I/P	NT2X76CC					RUL9
Wiring for Master Stratum II office synchronizable to BSRF of 2.048 MHz freq.	NT2X76AQ					RUL19
WRG: EXT PROG FREQ I/P, 10.24 MHZ	NT2X76AM					RUL10
WRG: EXT PROG FREQ I/P, 10.00 MHZ	NT2X76AN					RUL10
WRG: EXT PROG FREQ I/P, 5.00 MHZ	NT2X76AP					RUL10
WRG: EXT PROG FREQ I/P, 2.56 MHZ	NT2X76AR					RUL10
WRG: EXT PROG FREQ I/P, 2.048 MHZ	NT2X76AS					RUL10
WRG: EXT PROG FREQ I/P, 1.024 MHZ	NT2X76AT					RUL10
WRG: EXT PROG FREQ I/P, 1.00 MHZ	NT2X76AW					RUL10
Logic Return Cable Assembly	NT0X0008					RUL20
Logic Return Cable Assembly	NT0X0012					RUL20

FLAGS:

\# MD. Replaced by NT3X45EJ.
* MD. Replaced by NT3X45EH.

RULES:

AP 1) When PEC NT3X45EW is ordered, these items are provided.

2) The NT3X45EW is a double bay frame consisting of two (2) identical Central Control Complex bays.

3) The duplicated MDC provided here is capable of interfacing all CPU peripherals (NET & IOC) as CMC0:00 & CMC1:00. It can additionally interface directly to a limited number of I/O devices while functioning as IOC:00 & IOC:01.

   Caution: If used to interface Magnetic Tape Drive (MTD) as IOC:00 or IOC:01 then the CCC and MTC/IOE frames must be located adjacent to each other (see also NT0X43AB, Section EMR5-01-001 and NT0X43AC, Section EMR5-01-002, NT0X43AD, Section EMA5-01-000).

4) The duplicated CPM accommodates up to 8 M-Word of PS memory. No memory card is required for spare as a spare row of memory devices on the controller will serve as the "HOT" spare.

5) The duplicated DS in position 32 can provide up to 15.75 M-Word of DS memory.

6) Two CMC Peripheral Interface cards (NT1X36BB) provided with the MDC shelf will interface a combination of up to five (5) Networks or ten (10) I/O Controller Modules subject to the conditions provided under RUL4.

7) The Central Message & I/O Device Controller Module is capable of functioning both as a conventional CMC and optionally as an I/O Controller. Since these functions overlap with respect to card slot assignment the capacity of each is reduced by the other.

8) By equipping the I/O Controller function on the MDC separate IOC shelves can be eliminated or reduced in number for a net saving in hardware. Subject to the following conditions this option should always be selected:

   a) This option should not be selected if the ultimate network size is expected to exceed 19 NET per plane. Separate IOC shelves should be provided instead.

      Note:

      (i) The above limit allows for a maximum of 3 I/O Device Controller cards per MDC. The user may wish to set the limit to 14 NET to allow for the maximum of 4 cards.

      (ii) The above limits are decreased by one (1) for each additional 2 IOC shelves required.

b) This option should not be selected if the number of I/O Device Controller cards provisioned exceeds 15 (17, if the NET cutoff is 14).

c) Maximum cabling distances (15 feet) to the MTD must not be exceeded. Maximum cabling distance to the DDU is 18 feet.

d) CCC and MTC/IOE frames equipped with MTD must be co-located.

e) If selected the function must be provided on both shelves (planes 0 & 1). The controller on plane 0 shall be designated IOC:00 and on plane 1, IOC:01 (see Table B, Section EMA14-02-000, for fixed assignments affecting I/O modules.).

f) Additional IOC shelves can be provisioned on MTC/IOE frames as required.

9) a) The Central Message & I/O Device Controller, MDC module is located on shelf mounting position 65. The bare shelf assembly does not become an MDC until the CCC is equipped with one (1) NT3X45ED/EJ/EV, CCC Common CP. There are two (2) MDC per CCC frame.

b) The Central Processor & Memory, CPM module is located on shelf mounting position 51. The bare shelf assembly does not become a CPM until the CCC is equipped with one (1) NT3X45ED/EJ/EV, CCC Common CP. There are two (2) CPM per CCC frame.

c) The Data Store, DS module is located on shelf mounting position 32. The bare shelf assembly does not become a DS until the CCC is equipped with one (1) NT3X45ED/EJ/EV, CCC Common CP. There are two (2) DS per CCC frame.

RUL1 1) Reserved for future use.

RUL2 1) When ordering processor maintenance circuit packs, the following combinations are available:

a) For enhanced CPU capacity and (local) processor maintenance, provide two (2) (one per plane) NT1X48DA, one (1) NT3X45EV CP kit and one (1) NT3X45EH CP kit.

b) For enhanced CPU capacity with remote processor maintenance, provide two (2) (one per plane) NT1X48CA, two (2) (one per plane) NT1X42AA, one (1) NT3X45EV CP kit and one (1) NT3X45EH CP kit.

2) When the Autoload Route Enhancement feature is required, provide one (1) NT3X45EK circuit pack fill and two (2) NT1X46EA circuit packs instead of the one (1) NT3X45EH circuit pack fill.

RUL3 1) Provide two (2) (one per plane) of the circuit packs as per Table A.

TABLE A

OPTION SELECTED	3X15BB	3X15CA	3X15DA	3X13BA	3X14BC
Synchronizable Master Office with External Reference Atomic Clock and Programmable Frequency Input	*				*
Synchronizable Slave or Master Office with Internal Clock	*				*
Stratum III Synchronizable Slave or Master Office with Internal Clock		*			*
Stratum II Synchronizable Slave or Master Office with Internal Clock			*		*
Non Synchronizable Office with Internal Clock				*	
Stratum I Master Office with External Reference Atomic Clock and Programmable Frequency Input	*				*

NT3X13BA occupies two slots. NT3X15CA occupies two slots.
NT3X15BB occupies three slots. NT3X15DA occupies two slots.
NT3X14BC occupies one slot.

2) To equip the Stratum II clock feature, provide two (2) NT3X15DA Stratum II Master Clock CP. In addition, equip the remote oscillator shelf NT3X16AA on an IOE frame. The actual Stratum II clock is located on this shelf remote from the CCC frame. Reference Section EMA5-01-000 for further details.

3) When NT3X15CA circuit pack is provided for Stratum III Synchronizable Master Clock Oscillator feature, key slots must be changed on shelf 65 slot 4 to 3, 6, 8 and 10.

RUL4 1) Provide four (two per plane) NT1X36BB CMC Peripheral Interface cards for each additional combination of up to five (5) Networks or ten (10) I/O Controller Modules (IOC). Each NT1X36BB provides a maximum of five (5) ports. Two (2) NT1X36BB CP are always provided in positions 09 and 10 and are used for the first combination of up to five (5) Networks or 10 IOC Modules.

2) Port assignments are as follows:

a. Each Network module will have two (2) assignments (a plane 0 and a plane 1).

b. Each IOC Module will have one (1) assignment per plane.

c. Module IOC:00 shall be assigned to port 00, card pos 09, terminal 0.

d. Module IOC:01 shall be assigned to port 05, card pos 10, terminal 0.

e. Plane 0 Network Modules shall be assigned to ports on NT1X36BB CP in odd numbered slots.

f. Plane 1 Network Modules shall be assigned to ports on NT1X36BB CP in even numbered slots.

g. Networks and IOC Module will have duplicated assignments to each plane of the CCC.

3) Provisionable NT1X36BB Circuit packs are mounted in the following order: 1st Slots 11 and 12, 2nd Slots 13 and 14, 3rd Slots 15 and 16, 4th Slots 17 and 18, 5th Slots 19 and 20, 6th Slots 21 and 22.

RUL5 1) Provide two (2) (one per plane) I/O Message Controller card (NT1X62BB) if shelf is to function as an I/O Controller (see AP 8 above).

RUL6 1) Each Central Message & I/O Device Controller (MDC) - (one per plane) shelf provides space to mount up to four (4) I/O device control cards if the slots are not required for CMC Peripheral I/F cards (see AP 8 above). Refer to Table B, Section EMA14-02-000 for the types of control cards which can mount on this MDC (same rules as for NT2X76BA) and related assignment restrictions. Each MDC shelf is to be provisioned identically.

RUL7 1) For each MDC module (one per plane) provide one (1) Filler Face Plate .875, NT0X50BA, in each position, 01-03 and 11-22 which is not to be equipped with a card and one (1) Filler Face Plate 1.72 (NT0X50BF) in position 23 if not to be equipped with a NT1X62BB to satisfy the forced air coooling requirements of this shelf.

RUL8 1) Provide two (2) (one per plane) (NT2X76CB) if office is a synchronizable slave or master office with internal clock.

RUL9 1) Provide two (2) (one per plane) (NT2X76CC) if office is a synchronizable master which is driven from an external reference atomic clock and programmable reference frequency.

RUL10 1) Select and provide two (2) (one per plane) (NT2X76AM-AW) which corresponds to the operating frequency of the external master reference for an office equipped per RUL9.

RUL11 1) Provide one (1) Designation Label corresponding to each card provisioned.

RUL12 1) Provide two (2) (one per plane) NT4X80AA for every 1 Mega Words of PS memory. Assign cards in descending order starting at slot 8. The top 256K words of program store is reserved. Therefore, up to 7.75 M words are available for program store application.

2) Always provide at least two (2) NT4X80AA per shelf.

RUL13 1) For each CPM and DS module provide one Filler Face Plate (NT0X50BA) in each location which is not equipped with a card to satisfy the forced air cooling requirements of this shelf.

RUL14 1) Provide two (2) (one per plane) of each of NT1X48CA CP and NT1X42AA CP when Switching Control Centre System (SCCS) interface is required. This also provides increased CPU capacity.

RUL15 1) Provide two (2) NT1X48DA for local maintenance and control and increased CPU capacity.

RUL16 1) Provide two (2) (one per plane) NT4X80AA for every 1 Mega Words of DS memory. Assign cards in ascending order starting at slot 6. 16 NT4X80AA are supported per plane. (15.75 MWords are available for Data Store applications.

2) Always provide at least three (3) NT4X80AA per shelf.

RUL17 1) Reserved for future use.

RUL18 1) Provide one (1) label per NT3X45EW for Canadian offices equipped with IBN software. Put Label on FSP Bay 0 only.

RUL19 1) Provide two (2) (one per plane) (NT2X76AQ) for synchronizable master stratum II office synchronizable to BSRF 2.048 MHz frequency. Provide this wiring in addition to NT2X76CB and NT2X76CC wiring for Stratum II Synchronizable Master Office.

RUL20 1) Provide one (1) NT0X0008 and one (1) NT0X0012 Logic Return Cable Assemblies per frame when extending existing offices not equipped with enhanced grounding per IS0X00.

RUL21 1) Provide two (2) (one per plane) NT2X70BA (or NT2X70AE when available) for each shelf position 65, 51, 32 at card slot 25 when NT3X45EV Common CP is ordered.

2) Provide two (2) (one per plane) NT2X70AZ Power Converter Kit to field upgrade the NT2X70BA to a NT2X70AE CP (upon Telco request). When upgrading Power Converters, the entire frame must be changed. Thus six (6) NT2X70AZ Kits must be ordered per CCC frame.

COMPUTING MODULE PROCESSOR SHELF COMMON CP

PEC CODE: NT9X06AC

CPC CODE:

RATING: MD

REPLACES:

REPLACED BY: NT9X06AD

ABBREVIATION NAME: CM

ENGINEERING DESCRIPTION: The Computing Module Processor Shelf Common CP fill provides always provided equipment for the computing module processor shelf. The CM provides duplicated processors, reset controls and provisionable memory circuit packs.

REFERENCE DOCUMENTATION:

MARKETS: Applicable markets:

Canada
US
CALA
Asia/Pacific
Europe
Carrier
Wireless

ISSUE AUTHOR: NTI: Jerry Palmer Dept. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT9X06AC EMR4-02-CMPS-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-------- 96 11 22	---------- ECM 626 34	Previous history not available MD the following circuit packs per ECD 018-46903: NT9X13DA, NT9X13DB, NT9X13DC, NT9X17AA, NT9X20BB, NT9X54AA, NT9X54AB, NT9X49CA, NT9X30AA, NT9X31AA MD the following circuit packs per ECD 018-45348: NT9X14BB, NT9X26AA, NT9X26CA MD the following circuit pack per ECD 018-43648: NT9X26DA MD the following circuit pack per ECD 006-17002: NT9X12AB Also clear SR RR6A684 on NT9X13DC.

The Computing Module Processor Shelf Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
* -5V 20A Power Conv.	NT9X31AA		1		1F	AP
* +5V 80A Power Conv.	NT9X30AA		1		4F	AP
* -5V 20A Power Conv.	NT9X31AA		1		33F	AP
* +5V 80A Power Conv.	NT9X30AA		1		36F	AP
CM Bus Terminator	NT9X21AA		1		7R	AP
Subsystem Clock	NT9X22CA		1		16R	AP
DS512 PB	NT9X20AA		2		17R-18R	AP
* Remote Terminal I/F CP	NT9X26AA		2		19R-20R	AP
DS512 PB	NT9X20AA		2		21R-22R	AP
Subsystem Clock	NT9X22CA		1		23R	AP
CM Bus Terminator	NT9X21AA		1		32R	AP
Shelf CP Fill Front Label	P0700719		1			AP
Shelf CP Fill Rear Label	P0678438		1			AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NT9X06AC is ordered, these items are provided.

COMPUTING MODULE PROCESSOR SHELF COMMON CP

PEC CODE: NT9X06AD

CPC CODE:

RATING: MD

REPLACES: NT9X06AC

REPLACED BY: NT9X06AF

ABBREVIATION NAME: CM

ENGINEERING DESCRIPTION: The Computing Module Processor Shelf Common CP fill provides always provided equipment for the computing module processor shelf. The CM provides duplicated processors, reset controls and provisionable memory circuit packs.

REFERENCE DOCUMENTATION:

MARKETS: Applicable markets:

Canada
US
CALA
Asia/Pacific
Europe
Carrier
Wireless

ISSUE AUTHOR: NTI: Jerry Palmer Dept. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT9X06AD EMR4-02-CMPS-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-------- 96 11 22	---------- ECM 626 34	Previous history not available MD the following circuit packs per ECD 018-46903: NT9X13DA, NT9X13DB, NT9X13DC, NT9X17AA, NT9X20BB, NT9X54AA, NT9X54AB, NT9X49CA, NT9X30AA, NT9X31AA MD the following circuit packs per ECD 018-45348: NT9X14BB, NT9X26AA, NT9X26CA MD the following circuit pack per ECD 018-43648: NT9X26DA MD the following circuit pack per ECD 006-17002: NT9X12AB Also clear SR RR6A684 on NT9X13DC.

The Computing Module Processor Shelf Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
* -5V 20A Power Conv.	NT9X31AA		1		1F	AP
* +5V 80A Power Conv.	NT9X30AA		1		4F	AP
* -5V 20A Power Conv.	NT9X31AA		1		33F	AP
* +5V 80A Power Conv.	NT9X30AA		1		36F	AP
CM Bus Terminator	NT9X21AA		1		7R	AP
Subsystem Clock	NT9X22CA		1		16R	AP
DS512 PB	NT9X20AA		2		17R-18R	AP
DS512 PB	NT9X20AA		2		21R-22R	AP
Subsystem Clock	NT9X22CA		1		23R	AP
CM Bus Terminator	NT9X21AA		1		32R	AP
Shelf CP Fill Front Label	P0700719		1			AP
Shelf CP Fill Rear Label	P0678438		1			AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NT9X06AD is ordered, these items are provided.

CONNECTORIZED DATA STORE SHELF

PEC CODE: NT3X31AC

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: DS

ENGINEERING DESCRIPTION: The Data Store provides data storage memory for DMS-100/200/300 Central Procesing Unit. This unit provides back-panel connectors for connectorized cabling to the CPU.

REFERENCE DOCUMENTATION: MS3X31AC 01 01

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X31AC EMR4-02-DS-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The Connectorized Data Store Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
P/CD Store Shelf	NT3X3106		1			AP
Filler Face Plate .875	NT0X50AA		1		01	AP
Balanced Mem Bus Terminator	NT3X35AB		1		02	RUL2
Filler Face Plate .875	NT0X50AA				02	RUL3
Balanced Mem Bus I/F CP	NT3X36AB		1		03	AP
Memory Controller	NT3X38AA		1		04	AP
16K MOS Memory CP for Spare	NT3X39AA		1		05	AP
16K MOS Memory CP	NT3X39AA				06-21	RUL1
Filler Face Plate .875	NT0X50AA				06-21	RUL3
Power converter (5V/12V)	NT2X07AB		1		22	AP
Power Converter (5V/40A)	NT2X06AB		1		25	AP
Desig. Label for NT3X35AB	P0580262				02	RUL4
Desig. Label for NT3X39AA	P0584741				06-21	RUL4

RULE:

AP 1) When PEC NT3X31AC is ordered, these items are provided.

RUL1 1) Provide one (1) card per 16K words of DS memory up to a maximum of 16.

2) Always provide at least one memory CP.

RUL2 1) Provide one Balanced Mem Bus Terminator (NT3X35AB) if this DS is the only one in the CPU data bus daisy chain. see also MS3X31AB, Section EMR4-01-DS-1.

RUL3 1) Provide one (1) Filler Face Plate, NT0X50AA, in each location, 02, 06-21 which is not to be equipped with either a NT3X35AB or a NT3X39AA. to satisfy the forced air cooling requirements of this shelf.

RUL4 1) Provide one (1) Designation Label corresponding to each card or filler face plate provisioned per RUL1 and RUL2.

MESSAGE SWITCH PROCESSOR SHELF COMMON CP

PEC CODE: NT9X04AE

CPC CODE:

RATING: MD

REPLACES: Not Applicable

REPLACED BY: NT9X04AG

ABBREVIATION NAME: MS

ENGINEERING DESCRIPTION: The Message Switch Processor Shelf Common CP fill contains the power, processor, and port circuit packs that are always provided for an MS processor shelf.

REFERENCE DOCUMENTATION:

MARKETS: Applicable markets:

Canada
US
CALA
Asia/Pacific
Europe
Carrier
Wireless

ISSUE AUTHOR: NTI: Jerry Palmer Dept. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT9X04AE EMR4-02-MSPS-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-------- 96 11 22	---------- ECM 626 34	Previous history not available MD the following circuit packs per ECD 018-46903: NT9X13DA, NT9X13DB, NT9X13DC, NT9X17AA, NT9X20BB, NT9X54AA, NT9X54AB, NT9X49CA, NT9X30AA, NT9X31AA MD the following circuit packs per ECD 018-45348: NT9X14BB, NT9X26AA, NT9X26CA MD the following circuit pack per ECD 018-43648: NT9X26DA MD the following circuit pack per ECD 006-17002: NT9X12AB Also clear SR RR6A684 on NT9X13DC.

The Message Switch Processor Shelf Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
* +5V 80A Converter	NT9X30AA		1		36F	AP
* -5V 20A Converter	NT9X31AA		1		33F	AP
* MS P-Bus Terminator CP	NT9X49CA		1		32F	AP
MS 4-Port CP	NT9X17AA		2		30F-31F	AP
Mapper CP	NT9X15AA		1		11F	AP
System Clock CP	NT9X53AA		1		8F	AP
MS T-Bus Terminator CP	NT9X52AA		1		7F	AP
* +5V 80A Converter	NT9X30AA		1		4F	AP
* -5V 20A Converter	NT9X31AA		1		1F	AP
DS-512 PB	NT9X20AA		2		30R-31R	AP
MS Loading Paddle Board	NT9X32AA		1		10R	AP
Terminal Interface PB	NT9X26AA		1		9R	AP
Shelf CP Fill Front Label	P0698334		1			AP
Shelf CP Fill Rear Label	P0690632		1			AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NT9X04AE is ordered, these items are provided.

MESSAGE SWITCH PROCESSOR SHELF COMMON CP

PEC CODE: NT9X04AG

CPC CODE:

RATING: MD

REPLACES: NT9X04AF

REPLACED BY: NT9X04AH

ABBREVIATION NAME: MS

ENGINEERING DESCRIPTION: The Message Switch Processor Shelf Common CP fill contains the power, processor, and port circuit packs that are always provided for an MS processor shelf.

REFERENCE DOCUMENTATION: SL9X04AH 01 03

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA
Carrier
Wireless

ISSUE AUTHOR: NTI: Jerry Palmer Dept. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT9X04AG EMR4-02-MSPS-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
92 07 27	ECM 626 05	RTIF CP removed from the packfill.
96 11 22	ECM 626 34	MD the following circuit packs per ECD 018-46903: NT9X13DA, NT9X13DB, NT9X13DC, NT9X17AA, NT9X20BB, NT9X54AA, NT9X54AB, NT9X49CA, NT9X30AA, NT9X31AA MD the following circuit packs per ECD 018-45348: NT9X14BB, NT9X26AA, NT9X26CA MD the following circuit pack per ECD 018-43648: NT9X26DA MD the following circuit pack per ECD 006-17002: NT9X12AB Also clear SR RR6A684 on NT9X13DC.

The Message Switch Processor Shelf Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
+5V 80A Converter	NT9X30AA		1		36F	AP
-5V 20A Converter	NT9X31AA		1		33F	AP
MS P-Bus Terminator CP	NT9X49CA		1		32F	AP
MS 4-Port CP	NT9X17AA		2		30F-31F	AP
Mapper CP	NT9X15AA		1		11F	AP
MS T-Bus Terminator CP	NT9X52AA		1		7F	AP
+5V 80A Converter	NT9X30AA		1		4F	AP
-5V 20A Converter	NT9X31AA		1		1F	AP
DS-512 PB	NT9X20AA		2		30R-31R	AP
MS Loading Paddle Board	NT9X32AA		1		10R	AP
Shelf CP Fill Front Label	P0698334		1			AP
Shelf CP Fill Rear Label	P0690632		1			AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NT9X04AG is ordered, these items are provided.

MEMORY EXTENSION FRAME

PEC CODE: NT0X41AB

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: MEX

ENGINEERING DESCRIPTION:

REFERENCE DOCUMENTATION: MS0X41AB 01 07

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT0X41AB EMR4-02-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The Memory Extension Frame is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Connectorized Data Store Shf	NT3X31AC	DS	1	65		AP
Data Store	NT3X31AB	DS		51		RUL1
Frame Supervisory Panel	NT0X28AB	FSP	1	45		AP
Data Store	NT3X31AB	DS		32		RUL1
Data Store	NT3X31AB	DS		18		RUL1
Program Store	NT3X31AA	PS		18		RUL5
# Cooling Unit	NT0X30AD	CU		09		RUL2
Cooling Inverter Unit	NT3X90AA	CU		04		RUL10
Framework	NT0X25AA	FW	1			AP
Cage Filler Panel	NT0X84AA					RUL3
Data Store Local Cable	NT0X41AF		1	51,18		RUL6
Data Store Local Cable	NT0X41AG		1	32		RUL7
Program Store Local Cable	NT0X41AM			18		RULC
Power Cable	NT0X95BC		1	51		RUL8
Power Cable	NT0X95BB		1	51		RUL8
Power Cable	NT0X95BA		1	32		RUL9
Power Cable	NT0X95BD		1	32		RUL9
Power Cable	NT0X95BF		1	18		RULA
Power Cable	NT0X95BG		1	18		RULA
Alarm Interconnect Ca Assy	NT0X95AA		1	09		RULB
Alarm Interconnect Ca Assy	NT0X9567		2	04		RUL11
Product Change Kits	AR					RUL12

Rated MD. Replaced by NT3X90AA.

RULES:

AP 1) When PEC NT0X41AB is ordered, these items are provided.

2) Connectorized Data Store shelf NT3X31AC provided with this frame will accomodate the first 256K words of data store memory on the frame. Equip per MS3X31AC.

RUL1 1) Provide one Data Store shelf, (DS) NT3X31AB, for each additional 256K words of Data Store memory required.

2) Equip each per MS3X31AB.

3) Assign to positions on frame in the following order:- 51, 32 and 18 if not equipped with a data store.

RUL2 1) A Cooling Unit NT0X30AD is required for each MEX which is to be equipped with four (4) memory shelves. This unit is manufacture discontinued. Replace by NT3X90AA.

RUL3 1) Provide one Cage Filler Panel in any position, 51, 32, 18, which is not to be equipped with a DS or a PS and in position 04 if no CU is to be provided.

RUL4 1) (Reserved for future use)

RUL5 1) Provide one Program Store shelf, NT3X31AA, to accommodate the final 256 K-words of program store memory. The first 512 K-words of memory is accommodated on the CCC frame.

RUL6 1) Provide one Data Store Local Cable, NT0X41AF, per DS located in positions 51 or 18.

RUL7 1) Provide one Data Store Local Cable, NT0X41AG, per DS located in position 32.

RUL8 1) Provide one of each Power Cable, NT0X95BC & NT0X95BB, per DS located in position 51.

RUL9 1) Provide one of each Power Cable, NT0X95BA & NT0X95BD, per DS located in position 32.

RUL10 1) A Cooling Inverter Unit NT3X90AA is required for each MEX which is to be equipped with four (4) memory shelves.

RUL11 1) Provide two Alarm Interconnect Cable Assemblies, NT0X9567, if a Cooling Inverter Unit NT3X90AA is provided on the frame.

RUL12 1) Refer to section EMA4-99-000 Provisioning Table for product change kits for product change kit details.

RULA 1) Provide one of each Power Cable, NT0X95BF & NT0X95BG, per DS located in position 18.

RULB 1) Provide one Alarm Interconnect Cable Assembly, NT0X95AA, if a Cooling Unit NT0X30AD is provided on the frame.

RULC 1) Provide one Program Store Local Cable, NT0X41AM, if a PS is located in position 18. This cable connects this PS shelf to the one in position 18 of the adjacent CCC.

DUAL PLANE COMBINED CORE CABINET

PEC CODE: NT9X01BA

CPC CODE: B0223428

RATING: MD

REPLACES: Not Applicable

REPLACED BY: NT9X01JA

ABBREVIATION NAME: DPCC

ENGINEERING DESCRIPTION: The Dual Plane Combined Core Cabinet houses a computing module, two message switches and one System Load Module Shelf Assembly.

REFERENCE DOCUMENTATION: MS9X01BA 01 12

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA
Carrier
Wireless

ISSUE AUTHOR: NTI: Jerry Palmer Dept. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT9X01BA EMR4-02-001 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- --	--- --- --	Previous history not available.
94 04 19	ECM 626 16	MD the Series 10 Processor. Retire Section.
94 06 06	ECM 626 18	ECD 006-19420 - Update BRISC info.
94 07 21	ECM 626 19	ECD 018-42988 - Current Loop Kits.
94 09 02	ECM 626 20	ECD 006-20443 - Introduce NT9X12AD. Make NT9X26DB available for Series 50. Stop NT9X13DC prov. for initials.
94 10 18	ECM 626 22	Manufacture Discontinue Section. Incorporate the NT9X13DD and NT9X14DB.
95 02 09	ECM 626 23	Make the NT9X53AD orderable. Introduce BRISC Series 70 processor Introduce NT9X20BC per EC 018-44319. Clarify Rule 22. Other minor changes.
95 04 06	ECM 626 24	Introduce SLM III. Introduce Mixed Memory for BRISC Series 50. MD NT9X04AY. Clarify Rule 7.
95 08 28	ECM 626 26	EC018-45801 Remove frame fail lights. ET27919 Remove M5 cables.
95 12 19	ECM 626 29	Modified SLM III upgrade information. EC018-44339 - NT9X20BC with 9X17DA.
96 03 22	ECM 626 30	Minor changes.
96 05 24	ECM 626 31	Modified Series 70 min. memory req. Update FASTMEM value for NA005.
96 09 30	ECM 626 33	Modified NT9X17CA rule to require that NT9X17CAs, when provisioned, (4) must be ordered, not just (2). This is a temporary requirement until Design releases a fix for the problem of empty slots between NT9X17CAs causing outages. Provisioning change approved by Chet Salkok, MS PLM. Changes for ECM 626 33 have been removed. History left for reference.
96 11 22	ECM 626 34	MD the following circuit packs per ECD 018-46903: NT9X13DA, NT9X13DB, NT9X13DC, NT9X17AA, NT9X20BB, NT9X54AA, NT9X54AB, NT9X49CA, NT9X30AA, NT9X31AA

Engineering Manual Section Change History

DATE	DOCUMENT	REASON
		MD the following circuit packs per ECD 018-45348: NT9X14BB, NT9X26AA, NT9X26CA MD the following circuit pack per ECD 018-43648: NT9X26DA MD the following circuit pack per ECD 006-17002: NT9X12AB Also clear SR RR6A684 on NT9X13DC.
97 04 10	ECM 626 36	MD the NT9X53AB (MS System Clock CP) per EC 018-48230. Show changes to FASTMEM in SLM provisioning per System Engineering updates. Also clear SR RR73478. The NT9X04AX is an active PEC for NT9X01BA/JA series of SN cabinets per EC 018-50960. Add the SR70EM processor and RTIF Several minor changes for readability and format.
97 06 02	ECM 626 37	Added the SuperNode Data Manager interface to ECM and EMS per EC 018-50981. MD the System Load Module II unit per ED 018-50148.
97 08 18	ECM 626 38	Added the ELPP/FLPP interface application per EC 018-50981.
97 09 29	ECM 626 39	MD the +12V Power Converter per EC 018-51494.

The Dual Plane Combined Core Cabinet is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Msg Sw Memory Upgrade Kit	NT9X04AD					RUL16
	Msg Sw Memory Upgrade Kit	NT9X04AF					RUL16
	MSG Sw Clock I/f Upgrade Kit	NT9X04AZ					RUL16
*	Msg Sw Proc Shf Comm CP	NT9X04AA	MS		26,39		RUL11
*	Msg Sw Proc Shf Comm CP	NT9X04AB	MS		26,39		RUL11
*	Msg Sw Proc Shf Comm CP	NT9X04AE	MS		26,39		RUL11
*	Msg Sw Proc Shf Comm CP	NT9X04AG			26,39		RUL11
	Msg Sw Proc Shf Comm CP Fill	NT9X04AH	MS		26,39		RUL11
#	Product Change Kit	NT9X04AY					RUL11
	Msg Sw Simplex Shf Assy	NT9X0401		2	26,39		AP
	Cable Bulkhead	NT9X6501		2	26,39		AP
	Cable Bulkhead	NT9X6502		2	26,39		AP
#	MS System Clk Ext Opt-1 CP	NT9X53AB			26,39	8F	RUL16, RUL19
*	CPU 16MHz CP	NT9X13DA			26,39	9F	RUL17
*	CPU 16MHz CP	NT9X13DB			26,39	9F	RUL17
*	CPU 16MHz CP	NT9X13DC			26,39	9F	RUL17
	CPU 16 MHZ CP(16 MB)	NT9X13DD			26,39	9F	RUL17
*	6 MB Memory CP	NT9X14BB			26,39	10F	RUL18
	24 MB Memory CP	NT9X14DB			26,39	10F	RUL18
*	MS 4-Port CP	NT9X17AA			26,39	12F-29F	RUL5
	MS 4-Port CP	NT9X17AD			26,39	12F-29F	RUL5
	MS 128-Port CP	NT9X17CA			26,39	12F-29F	RUL22
	MS 64-Port CP	NT9X17DA			26,39	12F-29F	RUL22
	Filler Face Plate	NT9X19AA			26,39	12F-29F	RUL6
	MS Loading PaddleBoard	NT9X32AA			26,39	7R	RUL4
*	Subsystem Clock PB	NT9X54AA			26,39	8R	RUL19
*	Subsystem Clock PB	NT9X54AB			26,39	8R	RUL19
	MS External Clock I/F PB	NT9X54AC			26,39	8R	RUL16, RUL19
	MS Ext Clk I/F PB (Japan)	NT9X54AD			26,39	8R	RUL16, RUL19
	Coax Cable Assy	NT9X0192			26,39	8R	RUL19
	Composite Clk Cable Assy	NT9X0175			26,39	8R	RUL19
	Remote Term I/F Curr Loop	NT9X26AB			26,39	9R	RUL21
	PB Filler Face Plate	NT9X19BA			26,39	11R	RUL4
	4xDS-30 PB	NT9X23AA			26,39	12R-29R	RUL7
	4xDS-30 PB	NT9X23BA			26,39	12R-29R	RUL7
*	DS-512 I/F CM-MS EN-MS PB	NT9X20BB			26,39	12R-29R	RUL22
	ENET/MS Fiber Interface PB	NT9X20BC			26,39	12R-29R	RUL22
	MS Port Expander PB	NT9X25AA			26,39	13R-28R	RUL22
	MS Port Terminator PB	NT9X25BA			26,39	13R-29R	RUL22
	MS P-Bus Terminator CP	NT9X49CB			26,39	32F	RUL22
	4Port SR128 PaddleBoard	NT9X62BB			26,39	12R-27R	RUL22

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
MS Loading PaddleBoard	NT9X32AA			26,39	12R-29R	RUL8
PB Filler Face Plate	NT9X19BA			26,39	32R	RUL4
DS-30 Cable	NT9X0145			26,39		RUL9
Msg Sw Blkhd I/F Upgrade Kit	NT9X04AX			26,39		RUL23

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
* Computing Mod Processor Shelf Common CP	NT9X06AA	CM		13		RUL10
* Computing Mod Processor Shelf Common CP	NT9X06AB	CM		13		RUL10
% Computing Mod Processor Shelf Common CP	NT9X06AC	CM		13		RUL10
Computing Mod Processor Shelf Common CP	NT9X06AD			13		RUL10
% CM Processor Upgrade Kit	NT9X06CA			13		RUL15
CM Processor Upgrade Kit	NT9X06CC			13		RUL15
CM Current Loop Upgrade Kit	NT9X06AZ			13		RUL15
Computing Module Duplex Shelf Assembly	NT9X0601		1	13		AP
Cable Bulkhead (right)	NT9X6507		1	13		AP
Cable Bulkhead (left)	NT9X6508		1	13		AP
* 4Mb Memory CP	NT9X14AA			13	7F-16F	RUL2
* 6Mb Memory CP	NT9X14BB			13	7F-16F	RUL2
% 24Mb Memory CP	NT9X14DA			13	7F-16F	RUL2
% 24Mb Memory CP	NT9X14DB			13	7F-16F	RUL2
96Mb Memory CP	NT9X14EA			13	12F-16F	RUL2
Filler Face Plate	NT9X19AA			13	7F-16F	RUL3
% CPU Port CP	NT9X12AA			13	17F-18F	RUL15
% CPU Port CP	NT9X12AB			13	17F-18F	RUL15
% CPU Port CP	NT9X12AC			13	17F-18F	RUL15
CPU Port CP	NT9X12AD			13	17F-18F	RUL15
% CPU Processor CP	NT9X13BA			13	19F-20F	RUL15
% CPU Processor CP	NT9X13BB			13	19F-20F	RUL15
% CPU Processor CP	NT9X13BC			13	19F-20F	RUL15
* CPU Processor CP	NT9X13EA			13	19F-20F	RUL15
% CPU (68030 33 MHz) Proc CP	NT9X13GA			13	19F-20F	RUL15
% CPU (68030 40 MHz) Proc CP	NT9X13HA			13	19F-20F	RUL15
% CPU (68030 40 MHz) Proc CP	NT9X13HB			13	19F-20F	RUL15
% CPU (68020) Processor CP	NT9X13JA			13	19F-20F	RUL15
33 MHz 88000 BRISC CPU CP	NT9X10AA			13	19F,20F	RUL15
60 MHz 88110 BRISC CPU CP	NT9X10BA			13	19F,20F	RUL15
88110 BRISC CPU (SR70EM) CP	NT9X10CA			13	19F,20F	RUL22
% CPU Port CP	NT9X12AA			13	21F-22F	RUL15
% CPU Port CP	NT9X12AB			13	21F-22F	RUL15
% CPU Port CP	NT9X12AC			13	21F-22F	RUL15
CPU Port CP	NT9X12AD			13	21F-22F	RUL15
Series 60 EMI Kit	NT9X0108		1	13		RUL15
* 6Mb Memory CP	NT9X14BB			13	23F-32F	RUL2
* 4Mb Memory CP	NT9X14AA			13	23F-32F	RUL2
% 24Mb Memory CP	NT9X14DA			13	23F-32F	RUL2
24Mb Memory CP	NT9X14DB			13	23F-32F	RUL2
96Mb Memory CP	NT9X14EA			13	23F-27F	RUL2

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Filler Face Plate	NT9X19AA			13	23F-32F	RUL3
	PB Filler Face Plate	NT9X19BA			13	9R-15R 24R-30R	RUL4
	PB Filler Face Plate	NT9X19BA			13	8R,31R	RUL12
	CM BUS Extender	NT9X27AA			13	8R,31R	RUL12
*	Remote Term I/F PB	NT9X26AA			13	19R,20R	RUL21
	Remote Term I/F Curr Loop	NT9X26AB			13	19R,20R	RUL21
%	BRISC RTIF PB	NT9X26DA			13	19R,20R	RUL21
	BRISC RTIF PB	NT9X26DB			13	19R,20R	RUL21
	BRISC RTIF Circuit Pack	NT9X26DC			13	19R,20R	RUL21
	BRISC RTIF PB	NT9X26EA			13	19R,20R	RUL21
	BRISC RTIF PB	NT9X26FA			13	19R,20R	RUL21
	RS232C & Curr Loop Ca Assy	NT9X0196			13	19R,20R	RUL21

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Filler Packfill	NT9X01FB					RUL1
	CM SLM Ext Shelf Assy	NT9X0702		1	00		AP
*	CM SLM Common CP	NT9X07AA			00		RUL1
	CM SLM Common CP	NT9X07AB			00		RUL1
*	System Load Module I	NT9X44AA			00	8F,24F	RUL1
*	System Load Module II	NT9X44AB			00	8F,24F	RUL1
	System Load Module III	NT9X44AD			00	8F,24F	RUL1
	Filler Face Plate	NT9X19AA			00	13,14,15	RUL1
						29,30,31	RUL1
%	CPU Port CP	NT9X12AA			00	18F,21F	RUL1
%	CPU Port CP	NT9X12AB			00	18F,21F	RUL1
%	CPU Port CP	NT9X12AC			00	18F,21F	RUL1
	CPU Port CP	NT9X12AD			00	18F,21F	RUL1
	Common Cabinet Equipment	NT9X0101	FW	1			AP
	End of Aisle Lamp Cable	NT9X0146					RUL20
	End of Aisle Lamp Cable	NT9X0172					RUL20
	Light Fixture Assy	NT0X24CA					RUL14
	Des Label (NT9X10AA)	P0734152					RUL13
	Des Label (NT9X10BA)	P0806211					RUL13
	Des Label (NT9X12AB)	P0700801					RUL13
	Des Label (NT9X12AC)	P0727356					RUL13
	Des Label (NT9X12AD)	P0725905					RUL13
	Des Label (NT9X13BB)	P0696234					RUL13
	Des Label (NT9X13BC)	P0696235					RUL13
*	Des Label (NT9X13DA)	P0685359					RUL13
*	Des Label (NT9X13DB)	P0696239					RUL13
*	Des Label (NT9X13DC)	P0707892					RUL13
	Des Label (NT9X13DD)	P0743628					RUL29
	Des Label (NT9X13EA)	P0697524					RUL13
	Des Label (NT9X13GA)	P0705929					RUL13
	Des Label (NT9X13HB)	P0713211					RUL13
	Des Label (NT9X13JA)	P0705928					RUL13
	Des Label (NT9X14AA)	P0678447					RUL13
	Des Label (NT9X14BB)	P0679475					RUL13
	Des Label (NT9X14DA)	P0697526					RUL13
	Des Label (NT9X14DB)	P0700802					RUL13
	Des Label (NT9X14EA)	P0736863					RUL13
*	Des Label (NT9X17AA)	P0678439					RUL13
	Des Label (NT9X17CA)	P0678441					RUL13
	Des Label (NT9X17DA)	P0707891					RUL13
*	Des Label (NT9X20BB)	P0707894					RUL13
	Des Label (NT9X20BC)	P0805929					RUL13
	Des Label (NT9X25AA)	P0707896					RUL13
	Des Label (NT9X25BA)	P0697531					RUL13

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Des Label (NT9X26DA)	P0734153					RUL13
	Des Label (NT9X26DB)	P0747896					RUL13
	Des Label (NT9X26DC)	P0810387					RUL13
	Des Label (NT9X26EA)	P0806223					RUL13
	Des Label (NT9X49CB)	P0697532					RUL13
	Des Label (NT9X23AA)	P0678443					RUL13
	Des Label (NT9X27AA)	P0678448					RUL13
	Des Label (NT9X23BA)	P0697530					RUL13
	Des Label (NT9X44AD)	P0809344					RUL13
	Des Label (NT9X53AB)	P0705004					RUL13
*	Des Label (NT9X54AB)	P0699266					RUL13
	Des Label (NT9X54AC)	P0705005					RUL13
	Des Label (NT9X54AD)	P0705006					RUL13
	Des Label (NT9X62BB)	P0869682					RUL13

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT9X13JA	MD	
NT9X26AA	MD	NT9X26AB
NT9X26DA	MD	NT9X26DB
NT9X04AY	MD	
NT9X13DC	MD	NT9X13DD
NT9X53AB	MD	NT9X53AD
NT9X44AA	MD	NT9X44AB
NT9X44AB	MD	NT9X44AD
NT9X14DA	MD	NT9X14DB

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

FLAGS:

% Rating change pending.
* Rated MD.

NOTES:

RULES:

AP 1) When PEC NT9X01BA is ordered, these items are provided.

2) The NT9X0101 is comprised of the following:

- NT0X24AA Cabinet Framework
- NT9X03AA Frame Supervisory Panel
- A0323984 Core Cooling Unit
- Cabinet Common Cabling & FSP Cabling

The NT0X24AA framework provides earthquake and EMI protection. The framework is 72" high, 28" deep and 42" wide. The NT9X03AA FSP is mounted at position 52.
The A0323984 Cooling Unit is located immediately below position 0.

RUL1 1) When the System Load Module (SLM) is a requirement, provide one (1) NT9X07AB CM SLM Common CP fill, two (2) NT9X12AD CPU Port CP and two (2) NT9X44AA SLM I, two (2) NT9X44AB SLM II or two (2) NT9X44AD SLM III units. The NT9X12AD is a replacement for the NT9X12AC and is the preferred card. The NT9X12AD is required for BRISC. The SLM II is a hardware requirement for offices ordering NA001 or higher Product Layers. SLM I and SLM II are now at MD status.

2) When the SLM I or SLM II is not a requirement, provide one (1) NT9X01FB Filler Packfill to satisfy the forced air cooling requirements of the frame.

3) An upgrade from SLM II to SLM III is required when load image size exceeds 240 MBytes. The load image is not the same as CM load size. The formula for calculating load image is: PS + .6*DS + .72*MS + FASTMEM, where PS = Program Store, DS = Data Store, MS = Message Switch load size, and FASTMEM = 27.82M (28.00M in NA005 and higher) when the processor type is a Series 50 or 60. Fastmem is automatically calculated for NA005 and above software loads The MS load size is 7M, 10M, or 16M depending on office configuration. 16M is the only MS load supported in NA004 and

higher. The raw PS and DS values in KBytes can be obtained from MEMCALC and converted to MBytes by dividing by 1024.

4) Upgrade from SLM II to SLM III when stored CM + MS load images exceed 250 MBytes.

5) Provide six (6) NT9X19AA filler face plates when SLM III is provided.

RUL2 1) Provision two (2) 6Mb Memory Circuit Packs, NT9X14BB, for each additional 6Mb increment of memory required. A reminder that in addition to the operational memory provisioned, one extra memory CP must be provided per plane to be assigned as a reliability spare.

2) All offices must equip the Memory CP to the following algorithm: Starting with 24 MByte CP for mixed offices, 1st. Slots 16F and 23F, 2nd. 15F and 24F, 3rd. 14F and 25F, 4th. 13F and 26F, 5th. 12F and 27F, 6th. 11F and 28F, 7th. 10F and 29F, 8th. 9F and 30F, 9th. 8F and 31F, 10th. 7F and 32F.

3) All offices must replace existing NT9X14DA 24 MByte Memory CP with NT9X14DB CP when inserting BCS 26.

4) All BRISC Series 50 offices must utilize NT9X14DB only.

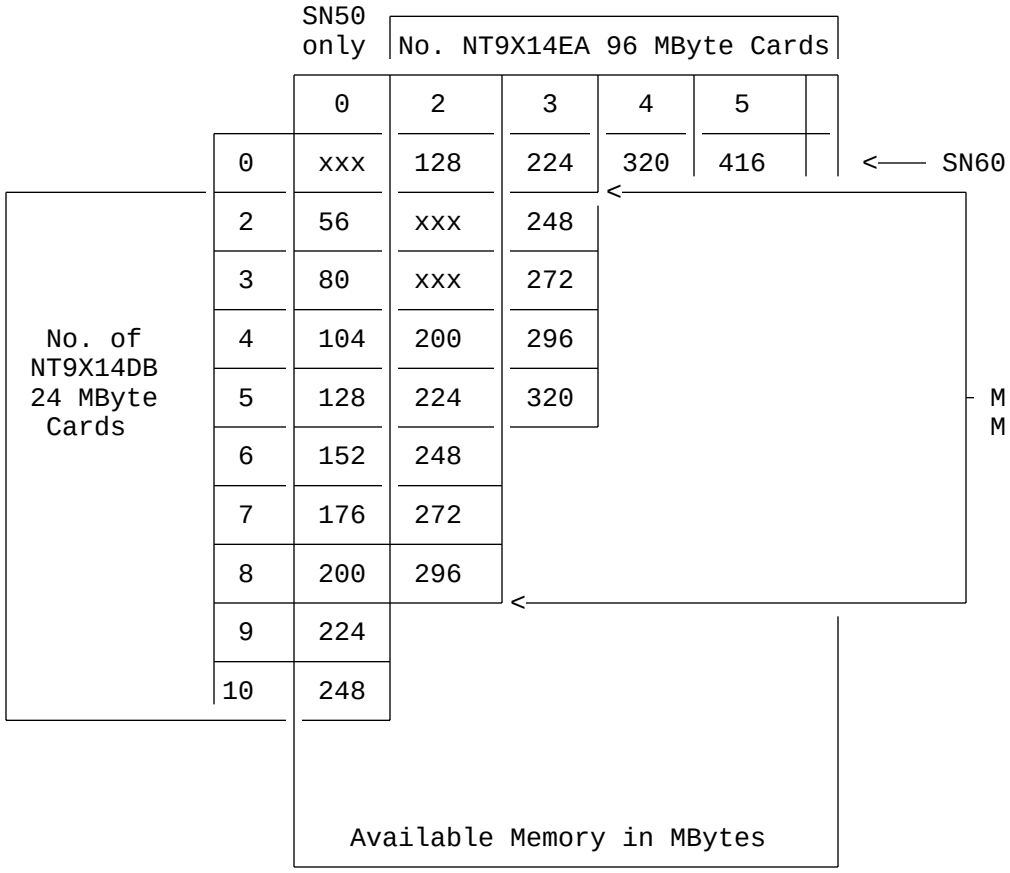
5) BRISC Series 50 Mixed Memory offices may use both the NT9X14DB and the NT9X14EA cards. If two (2) NT9X14EA cards per side are required, mount the cards in slots 15 and 16 for plane 0 and slots 23 and 24 for plane 1. If three (3) NT9X14EA cards per side are required, mount the cards on shelf 13, slots 14, 15, and 16 for plane 0 and slots 23, 24, and 25 for plane 1.

There must be a minimum of two (2) NT9X14EA per side for sparing purposes.

With two (2) NT9X14EA per side, the minimum number of NT9X14DB per side is four (4) and the maximum number is eight (8).

With three (3) NT9X14EA per side, the minimum number of NT9X14DB per side is two (2) and the maximum number is five (5).

Only the following memory configurations for Series 50 Mixed Memory are valid:



Note: xxx in the preceding diagram represents an unsupported configuration.

5) All BRISC Series 60/70 offices must utilize NT9X14EA only.

Number NT9X14EA 96 MByte Cards (with spare)									
	0	1	2	3	4	5	6	7	8
SN60	xxx	xxx	128	224	320	416	512	608	yyy
SN70	224	256	352	448	544	640	736	yyy	yyy

Note: xxx in the preceding diagram represents an unsupported configuration.

Note: yyy in the preceding diagram represents a failure situation.

The maximum addressable memory is 400M when the software load is less than NA005. In NA005, the limit was increased to 608M for Series 60 and 736M for Series 70.

WARNING: A minimum of (2) 96M cards per side are required for Series 70. The real time capacity is impacted when the entire software image resides on the NT9X10BA.

RUL3 1) Provision one (1) Filler Face Plate in each card slot (7F - 16F and 23F - 32F) not equipped with a memory circuit pack to satisfy the forced air cooling requirements of the frame.

RUL4 1) One (1) PaddleBoard Filler Face Plate (NT9X19BA) must be provided in each card slot POS 9R-15R and 24R-30R in shelf position 13 to satisfy forced air cooling requirements.

2) One (1) PaddleBoard Filler Face Plate (NT9X19BA) must be provided in each card slot pos 11R and 32R in shelf positions 26 and 39 to satisfy forced air cooling requirements.

3) One (1) MS Loading PaddleBoard (NT9X32AA) must be provided in each card slot pos 7R in shelf positions 26,39 to provide impedance matching on the backplane.

RUL5 1) For DMS and SL-100 Cabinets provide up to eighteen (18) (from position 29F through 12F) MS 4-Port CPs, NT9X17AA, per each MSPS shelf, as needed. For Meridian Cabinet systems provide up to fourteen (14) (from position 29F through 14F) MS 4-Port CPs, NT9X17AA, per each MSPS shelf, as needed.

Assign cards in descending order.

2) MS 4-Port CPs are provisioned identically in each of the MSPS shelves.

Provide four (4) NT9X17AA/AD (two per MS) for each two LIM cabinets connected to the Message Switch. The DS-30 cards must be provisioned in pairs on the Message Switch so that the DS-30 ports from a LIM cabinet may be spread across adjacent DS-30 cards. Provide one (1) NT9X23BA DS-30 Paddleboard for each NT9X17AA/AD MS 4-port CP provisioned.

Two DS-30 ports are connected from each LMS (LMS0 and LMS1) to each MS (MS0 and MS1) as shown in Figure 3. Each MS port is shown with the specific port on the specific LIM cabinet to which it connects. For example:

LMS1 01 indicates LMS Side 1 LIM 01
29R-0 CP Pos 29R Port 0

Additional LIM cabinets will be connected to additional DS-30 port cards using the same pattern as shown in Figure 3.

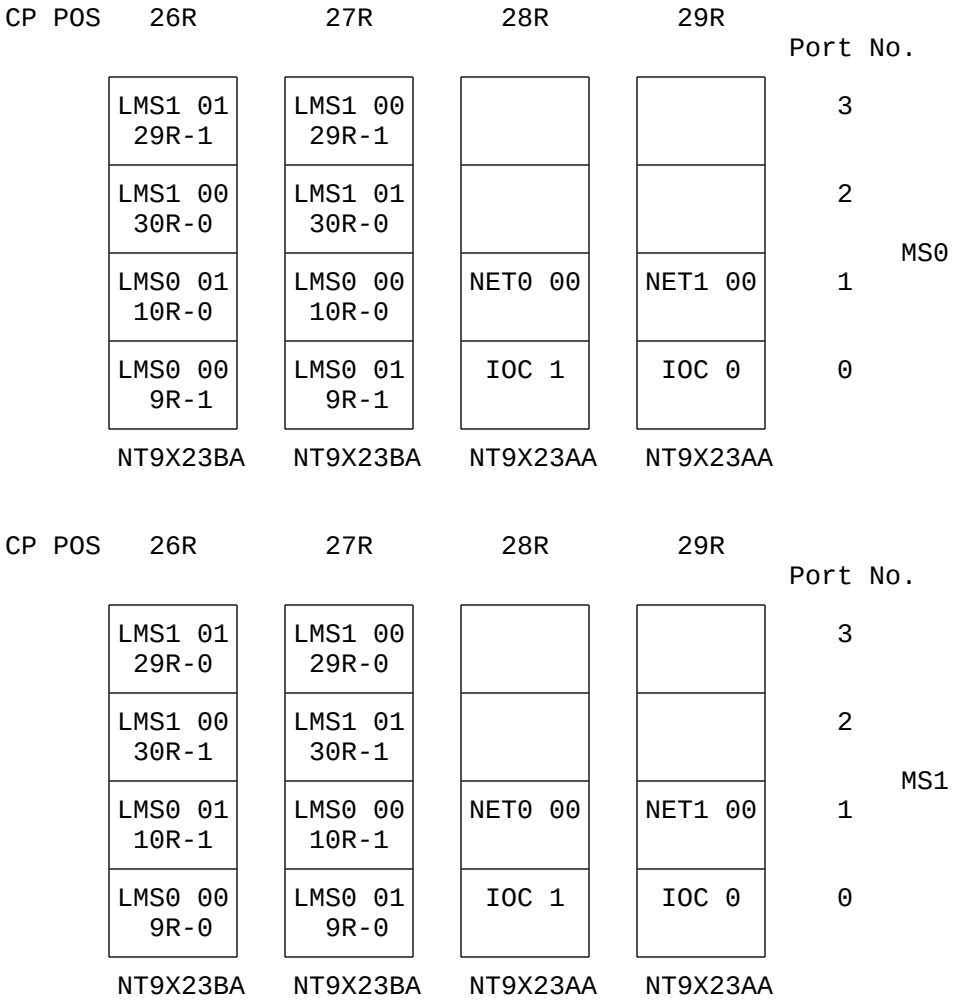


Figure 3
MS DS-30 Port Connections For Two LIM Configuration

3) The number of MS 4-Port CPs, NT9X17AA/AD, required per MS is given by the following:

$$\#\text{ 4-Port CPs per MS} = \#\text{LIM (rounded up to the nearest multiple of 2)} + \frac{(\#\text{NM} + \#\text{IOC})}{4}$$

rounded up to the next even integer as the NT9X17AA circuit packs are assigned in pairs per MS. 'NM' is a single plane.

If MS 4-port CP is used to interface to a LIM, it must be dedicated for that function. Network Modules and IOCs cannot share a MS 4-port CP that is also used to interface to a LIM.

4) The MS 4-Port CP, NT9X17AA/AD is the universal port card providing four (4) independent port appearances. These CPs support the standard DS-30 link to existing Network Modules (NMs), I/O Controllers (IOCs), Link Interface Modules (LIMs), FLIS, AP/FP Modules and SuperNode Data Manager (SDM-FT).

5) IOC:00 and IOC:01 are fixed assigned to MS CP position 29 port 0 and MS CP position 28 port 0 respectively. In addition it is recommended that port assignments proceed from higher number slots toward lower number slots.

   Each IOC has two (2) messaging ports, one port connecting to each plane of the MS. Thus the number of IOC MS ports per MS plane equals the number of IOCs.

6) For SDM-FT applications, provide two SR256 links on one NT9X17AD card per MS. In the rear of this card provide one NT9X62BA rear paddleboard. The length of the cable between the SDM-FT and the NT9X62BA card must be no more than 229.0 meters and the differential length of the pair must be no more than 50 meters.

   The SDM-FT requires one slot per Message switch plane and the cards on the two planes should be located in the same slot number. The SDM-FT port card can only be used for SDM use, no other application (FLIS, APC, etc.) can share any ports on the two slots. Only one SDM-FT is to be connected per SuperNode (DPCC).

7) For Enhanced LPP (NT9X70CA) applications, provide eight SR256 links on two NT9X17AD cards per MS. In the rear of this card provide two NT9X62BB rear paddleboards. The length of the cables between the ELPP and the NT9X62BB card must be no more than 229.0 meters and the differential length of the 8 cables must be no more than 7.5 meters.

   It is recommended that the cards on the two planes be located in adjacent slot numbers. The ELPP port cards can only be used for ELPP use, no other application (FLIS, APC, SDM, etc.) can share any ports on the two slots. Another ELPP can be connected via the same cards as used for the first ELPP. For another one (1) or two (2) ELPPs, another 2 slots and 2 sets of cards will be required.

8) For Fiberized LPP (NT9X70BB Cabinet) applications, provide eight SR256 links on two NT9X17AD cards per MS. In the rear of this card provide two NT9X62BA rear paddleboards. The length of the cables between the FLPP and the NT9X62BA card must be no more than 229.0 meters and the differential length of the 8 cables must be no more than 7.5 meters.

It is recommended that the cards on the two planes be located in adjacent slot numbers. The FLPP port cards can only be used for FLPP use, no other application (FLIS, APC, SDM, etc.) can share any ports on the two slots. Another FLPP can be connected via the same cards as used for the first FLPP. For another one (1) or two (2) FLPPs, another 2 slots and 2 sets of cards will be required.

Rul6) 1) Provide one (1) NT9X19AA, Filler Face Plate in each card slot (12F-29F) not equipped with a CP to satisfy the forced air cooling requirements of the frame.

RUL7 1) The number of NT9X23AA 4xDS-30 PBs to be provided is equal to the number of NT9X17AA MS 4-Port CPs provided in RUL5. Assign cards in descending order per RUL5.

2) Provision NT9X23BA 4xDS-30 PBs in place of NT9X23AA PBs to interface a LIM.

RUL8 1) Provide one (1) NT9X32AA, MS Loading PaddleBoard in each slot (12R-29R) not equipped with a PB (NT9X23__) to provide impedance matching on the backplane.

RUL9 1) Provide one (1) NT9X0145 cable for each DS-30 PaddleBoard, NT9X23__. These cables go from the NT9X23__ PBs to the bulkheads.

RUL10 1) Provide one (1) NT9X06AC Common CP.

2) The NT9X06AC is updated to the NT9X06AD Common CP by application of the NT9X06AZ Product Change Kit for the Current Loop RTIF feature.

RUL11 1) Provide two (2) NT9X04AE Common CP.

2) The NT9X04AE is updated to the NT9X04AG Common CP by applying the NT9X04AZ Product Change Kit for the External Clock interface feature.

3) The NT9X04AG is upgraded to the NT9X04AH Common CP by removing the NT9X49CA, which makes slot 32F provisionable.

The NT9X04AY Product Change Kit is no longer required for this upgrade and is MD.

4) The NT9X04AE may be updated directly to the NT9X04AH Common CP if the external clock interface is not required. The NT9X04AY Product Change Kit is no longer required for this upgrade and is MD.

RUL12 1) When the SLM is a requirement, provide two (2) NT9X27AA CM BUS Extender PB, otherwise provide two (2) paddleboard filler face plates (NT9X19BA).

RUL13 1) Provide 1 Designation Label corresponding to each card provisioned.

2) The NT9X32AA Designation Labels are always provided on shelves 26 and 39 at card slots 12R-29R.

RUL14 1) For Canadian offices only, provide 2 DMS-Core light fixture assemblies per NT9X01BA cabinet when required by the Telco.

This lighting assembly will not be offered for U.S. offices.

RUL15 1) Offices provisioned prior to general availability of the DMS-Core will have a NT9X06AA CM Common Pack fill. This pack fill contains a NT9X13BA CPU Processor CP and NT9X12AA CPU Port CP. Refer to the following Software Release matrix for appropriate provisioning of the CPU Processor CP and CPU Port CP.

2) Provide one (1) NT9X06CC CM Processor Upgrade Kit to field modify a NT9X06AA or NT9X06AB CM Common Pack Fill to a NT9X06AC Common Pack Fill.

3) Provide two (2) NT9X13JA CPU (68020) processor CP in card slots 19F and 20F for each SuperNode Series 10 office. This processor has been Manufacture Discontinued.

If an existing site is configured with a Series 10 processor, the customer is requested to contact the regional sales representative for details on how to upgrade to a Series 20 processor or higher for BCS-35 and above loads. See Section 4.1.2 ECM body.

4) Provide two (2) NT9X13BC CPU (68030 20 MHz) processor CP in card slots 19F and 20F for each SuperNode Series 20 office.

5) Provide two (2) NT9X13GA CPU (68030 33 MHz) processor CP in card slots 19F and 20F for each SuperNode Series 30 office.

6) Provide two (2) NT9X13HB CPU (68030 40 MHz) processor CP in card slots 19F and 20F for each SuperNode Series 40 office.

7) For jobs requiring BRISC (Series 50 or 60 option), provide two (2) NT9X10AA (88000 33 MHz) BRISC CPU CP in card slots 19F and 20F. The NT9X10AA Processor provides ability to function with either NT9X14EA (96 MBytes memory) or NT9X14DB (24 MBytes memory) for Series 50 offices, or both the NT9X14DB and the NT9X14EA for Series 50 Mixed Memory offices. Series 50 Mixed Memory offices must use the NT9X26DC RTIF if mixed memory is required. The NT9X26DB RTIF does not support mixed memory for Series 50. Series 50 Mixed Memory offices are supported from NA004 and above.

   BRISC Series 60 offices do not support mixed memory. Either the NT9X14DB or the NT9X14EA may be used in a BRISC Series 60 office, but not both.

   When NT9X10AA is equipped with 24 MBytes memory, the system is called BRISC Series 50 and it is available from BCS-33 and above. When NT9X10AA is equipped with 96 MBytes memory, the system is called BRISC Series 60 option and it is available from BCS-36 and above. The maximum amount of addressable memory for switches using the 96 MByte cards is 400M in less than NA005. In NA005, the limit has increased to 608M for Series 60 and 736M for Series 70.

   WARNING: A minimum of (2) 96M cards per side are required for Series 70. The real time capacity is impacted when the entire software image resides on the NT9X10BA.

   The NT9X14EA memory boards have the capability to function in Burst mode. Burst mode memory is required to fully utilize the Series 60 BRISC option. This is available in the BCS-36 and above loads. Note that 24 MByte circuit boards do not function in burst mode. The new RTIF NT9X26DB will have to be provisioned with this NT9X10AA processor.

8) Provide one (1) NT9X0108 Series 60 EMI Kit per DPCC cabinet to maintain FCC and DOC EMI compliance when Series 60 processors or higher are provided.

9) For jobs requiring Series 70 option, provide two (2) NT9X10BA 60MHz 88110 BRISC CPU CP in card slots 19F and 20F. The BRISC Series 70 option is available from NA004 and above. The maximum amount of addressable memory for

switches using the 96 MByte cards is 400M in less than NA005. In NA005, the limit increases to 608M for Series 60 and 736M for Series 70. Product is retired for North American applications.

WARNING: A minimum of (2) 96M cards per side are required for Series 70. The real time capacity is impacted when the entire software image resides on the NT9X10BA. The NT9X10BA has 256M of memory organized in 32 MByte blocks. The NT9X26EA RTIF must be provisioned with this NT9X10BA processor. Product is retired for North American applications.

10) A second Series 70EM option is being readied, provision two (2) NT9X10CA 60 MHz 88110 BRISC CPU CP in card slots 19F and 20F. The BRISC Series 70EM option is available from NA007 and above. The NT9X26FA RTIF must be provisioned with this NT9X10CA processor. Contact NPI or NPPI until this product reaches general availability.

11) Provide four (4) NT9X12AD CPU Port CP in card slots 17F, 18F, 21F and 22F for each Computing Module Processor Shelf Circuit Packfill. The NT9X12AD replaces the NT9X12AC, and is the preferred card. The NT9X12AD is required for BRISC. Selection of the NT9X13__ CP is based on availability date of the CP and Hardware-Software Coordination of the CPU Processor to the Memory CP provisioned per the following matrix:

NOTE: The NT9X13EA CPU Processor CP has been rated MD. The NT9X13HA CPU has also been rated MD. The NT9X13EA can be supported for BCS27/28 and BCS29.

	SOFTWARE RELEASE					
	BCS24	BCS25		BCS26		
PROCESSORS NT9X13__	BA	BA	BB	BA	BB	BC
MEMORY CP NT9X14__	BB	BB	BB or BB/DA mix or BB/DB mix	BB	BB or BB/DA mix or BB/DB mix	BB or BB/DB mix or DB
PORT CP NT9X12__	AA	AA	AA or AB	AA	AA or AB	AB or AC

	SOFTWARE RELEASE					
	BCS27	BCS28		BCS29		
PROCESSORS NT9X13__	BC	BC	JA	BC	JA	GA
MEMORY CP NT9X14__	BB or BB/DB mix or DB	BB or BB/DB mix or DB	BB or BB/DB mix or DB	BB or BB/DB mix or DB	BB or BB/DB mix or DB	BB or BB/DB mix or DB
PORT CP NT9X12__	AB or AC	AB or AC	AB or AC	AB or AC	AB or AC	AB or AC

	SOFTWARE RELEASE				
	BCS30				
PROCESSORS NT9X13__	BC	JA	GA	HA	HB
MEMORY CP NT9X14__	BB or BB/DB mix or DB	BB or BB/DB mix or DB	BB or BB/DB mix or DB	BB or BB/DB mix or DB	BB or BB/DB mix or DB
PORT CP NT9X12__	AB or AC	AB or AC	AB or AC	AB or AC	AB or AC

	SOFTWARE RELEASE			
	BCS32			
PROCESSORS NT9X13__	BC	JA	GA	HB
MEMORY CP NT9X14__	BB or DB BB/DB mix	BB or BB/DB mix or DB	BB or BB/DB mix or DB	DB or BB/DA mix DB/BB mix
PORT CP NT9X12__	AC	AC	AC	AB/AC

	SOFTWARE RELEASE	
	BCS 33 Series 50	BCS 36 Series 60
PROCESSORS NT9X13__	10AA	10AA
MEMORY CP NT9X14__	14DB only	14EA only
PORT CP NT9X12__	12AD only	12AD only
RTIF NT9X26__	26DA/DB only	26DB only

RUL16 1) Provide one (1) NT9X04AD Message Switch Memory Upgrade Kit to field upgrade the NT9X04AA MS Common CP to the NT9X04AB Common CP.

2) Provide two (2) NT9X04AF Message Switch Upgrade to field upgrade the NT9X04AB MS Common CP to the NT9X04AE Common CP. When applying this change kit, provision the processor CP according to the latest BCS compatibility.

3) When the External Clock Reference feature is requested in an existing office, provide one (1) NT9X04AZ MS Clock Interface PC Kit to field upgrade the NT9X04AE to the NT9X04AG Common CP. When applying this Kit, provision two (2) NT9X53AB MS System Clock Ext CP and two (2) NT9X54AC External Clock Interface PB for North American Applications or two (2) NT9X54AD (Japan) External Clock Interface PB for Japan offices.

NOTE: The NT9X53AB MS System Clock Ext CP, the NT9X54AC External Clock Interface PB and the NT9X54AD (Japan) External Clock Interface PB are mountable on this frame in the field only, provided the correct change kit is used.

RUL17 1) Provide one (1) CPU 16MHZ CP (NT9X13DD) in card slot POS 9F in shelf position 26,39 for applications in BCS-35 AND ABOVE ONLY. This is not a BCS gating requirement.

2) Provide one (1) CPU 16 MHz CP (NT9X13DC) in card slot POS 9F in shelf position 26,39 for applications in BCS-29 and

higher. The NT9X13DC should not be provisioned on new jobs at BCS-35 and higher.

3) Provide one (1) CPU 16 MHZ CP (NT9X13DB) in card slot POS 9F in shelf position 26,39 for applications in BCS-26 through BCS-28.

4) Provide one (1) CPU 16 MHZ CP (NT9X13DA) in card slot POS 9F in shelf position 26,39 for applications in BCS-25 and lower.

RUL18 1) Provide one (1) 6 MB Memory CP (NT9X14BB) in card slot POS 10F in shelf position 26,39. The NT9X14BB is NOT COMPATIBLE with the NT9X13DD CPU 16MHZ CP.

PM Note: New SN DPCCs should not be provided with the NT9X14BB MS memory for BCS-31 and above loads. Also, Offices with NA004 or higher require a minimum of 16M of memory and there will be only one common MS load.

2) Provide one (1) 24 MB Memory CP (NT9X14DB) in card slot POS 10F in shelf position 26, 39.

WARNING: The NT9X14DB is COMPATIBLE with the NT9X13DD or NT9X13DC ONLY for Series 10-40 Processors. The NT9X13DD and NT9X14DB combination is NOT supported for any BRISC processor and must be changed before attempting the upgrade. In NA004 and above only two configurations are supported for BRISC processors (Series 50-70):
use either the NT9X13DD 16 Meg processor CP.
OR
use the NT9X13DC 4Meg Processor combined with a NT9X14DB 24Meg memory CP

NOTE: the NT9X13DD is NOT COMPATIBLE with the NT9X14BB.

3) If an NT9X14BB or NT9X14DB is not used on the message switch, then provide two (2) NT9X19AA to fill the empty slot 10F on shelf 26 and 39. 4) Deleted.

4) Note: New SN DPCCs should not be provided with the NT9X14BB MS memory for BCS-31 and above loads.

Memory Required on the Message Switch	Circuit Packs Required Per MS PLANE
10 Meg	(1)NT9X13DC (1)NT9X14BB
16 Meg	(1)NT9X13DD
28 Meg	(1)NT9X13DC (1)NT9X14DB
40 Meg	(1)NT9X13DD (1)NT9X14DB see Rul18 note 2

MS Memory Configuration and Software Loads.

PM Note: New SN DPCCs should not be provided with the NT9X14BB MS memory for BCS-31 and above loads. Also, Offices with NA004 or higher require a minimum of 16M of memory and there will be only one common MS load.

SOFTWARE	DESCRIPTION	MS MEMORY REQUIREMENT
MS-S	MS LOAD FOR JNET	REQUIRES 7MB
MS-E	MS LOAD FOR JNET/ENET/SSLPP/PH	REQUIRES 10MB
MS-I	MS LOAD FOR JNET/ENET/SSLPP/SCPII	REQUIRES 16MB

HARDWARE	SOFTWARE RELEASE		
	MS-S	MS-E	MS-I
13DB/14BB	YES	NO	NO
13DC/14BB	YES	YES	NO
13DC/14DB	YES	YES	YES
13DD	YES	YES	YES

RUL19 1) Provide one (1) Subsystem Clock PB (NT9X54AB) in card slot pos 8R in shelf position 26,39 for Stratum II applications. (Note the NT9X54AB is now MD.)

2) Provide one (1) NT9X53AB MS System Clk Ext CP in card slot 8F and one (1) MS External Clock Interface PB (NT9X54AC) in card slot POS 8R in shelf position 26,39 for Stratum I,

Stratum II, Stratum 2.5 or Stratum III North American applications. Also provision two (2) NT9X0192 Coax Cable Assembly and one (1) NT9X0175 Composite Cable Assembly per Message Switch for external clock interface.

3) Provide one (1) MS External Clock PB (NT9X54AD) in card slot POS 8R in shelf position 26,39 for all Japan offices. Also provision two (2) NT9X0192 Coax Cable Assembly and one (1) NT9X0175 Composite Cable Assembly per Message Switch for external clock interface.

RUL20 1) Provide one (1) End of Aisle Lamp cable assembly (NT9X0146) if this is the last cabinet in the line-up. This cable should be provided during the M5 cabling spec. Refer to the CA drawing when this cable is required for end aisle cabling.

2) Provide one (1) End of Aisle Lamp cable assembly (NT9X0172) if the spares cabinet (NT9X01FA) is located between the DPCC and the end of the line-up. This cable should be provided during the M5 cabling spec. Refer to the CA drawing when this cable is required for end aisle cabling.

RUL21 1) Provide one (1) Current Loop Remote Terminal Interface (NT9X26AB) in card slot 9R in shelf position 26,39. The NT9X26AA has been Manufacture Discontinued.

2) For non-BRISC offices, provide two (2) NT9X26AB Current Loop Remote Terminal Interface and two (2) NT9X0196 RS232C & Curr Loop Cable Assemblies in card slots 19R,20R in shelf position 13.

3) For BRISC 50 Mixed Memory offices, provide two (2) NT9X26DC BRISC RTIF Circuit Packs in card slots 19R and 20R and two (2) NT9X0196 RS232 & Current Loop Assemblies.

4) For BRISC 50/60 offices, provide two (2) NT9X26DB/DC BRISC RTIF PB when available in card slots 19R and 20R and two (2) NT9X0196 RS232 & Current Loop Assemblies.

5) For BRISC offices, that already have two (2) NT9X26DA BRISC RTIF PB in card slots 19R and 20R, and Current Loop capability is now required, provide two (2) NT9X0196 RS232 and current loop assemblies.

6) For BRISC 70 offices, provide two (2) NT9X26EA BRISC RTIF PB when available in card slots 19R and 20R and two (2) NT9X0196 RS232 & Current Loop Assemblies.

7) When upgrading from NT9X26AA to NT9X26DA/DB/DC/EA the engineer will need to provision the following:

- (1) NT9X06AW (CM) Current Loop Upgrade Kit consisting of the following:
  - (2) NT9X0196 RS232C & Current Loop Cable
  - (2) A0336796 D Sub Filter Conn Cap
  - (8) A0279319 D Sub Connector Assy Screw Retainer
  - (8) A0317136 Screw Lock Female
- (2) Cables from DPCC Bulkhead to RTIF Term. The PEC for the cables depends on type of VDUs as shown on CA0X15.

RUL22 1) ENET Offices: For the first 64 Messaging Ports for each ENET shelf pair, provide one (1) NT9X17DA and one (1) NT9X20BB/BC for each of the four port groups. The port groups are defined as follows:

port group 1 = ENET shelf plane 0 / MS0 interface
port group 2 = ENET shelf plane 0 / MS1 interface
port group 3 = ENET shelf plane 1 / MS0 interface
port group 4 = ENET shelf plane 1 / MS1 interface

Two (2) NT9X17DA and two (2) NT9X20BB/BC are required for each ENET shelf interface. One circuit pack is mounted in MS0 (shelf 26). The other circuit pack is mounted in MS1 (shelf 39).

Assign NT9X17DA in the following order:
Slots 12,13,14...25,26,27.

It is recommended that port assignments proceed from lower number slots towards higher number slots.

The NT9X17DA is used only with ENET and requires BCS31 or higher.

2) ENET Offices: For the final 64 Messaging Ports for each ENET shelf pair, provide one (1) NT9X17DA and one (1) NT9X25BA for each of the four port groups. The port groups are defined as follows:

port group 1 = ENET shelf plane 0 / MS0 interface
port group 2 = ENET shelf plane 0 / MS1 interface
port group 3 = ENET shelf plane 1 / MS0 interface
port group 4 = ENET shelf plane 1 / MS1 interface

Two (2) NT9X17DA and two (2) NT9X25BA are required for each ENET shelf interface. One circuit pack is mounted in plane 0 (shelf 26). The other circuit pack is mounted in plane 1 (shelf 39).

Assign NT9X17DA in the following order:
13,14,15...25,26,27.

It is recommended that port assignments proceed from lower number slots toward higher number slots.

The NT9X17DA is used only with ENET and requires BCS31 or higher.

3) ENET Offices: When the port requirements exceed 128 Messaging Ports for each ENET shelf pair, provide one (1) NT9X17DA and one (1) NT9X25AA for each of the four port groups, for each additional 64 ports. The port groups are defined as follows:

port group 1 = ENET shelf plane 0 / MS0 interface
port group 2 = ENET shelf plane 0 / MS1 interface
port group 3 = ENET shelf plane 1 / MS0 interface
port group 4 = ENET shelf plane 1 / MS1 interface

Two (2) NT9X17DA and two (2) NT9X25AA are required for each ENET shelf interface. One circuit pack is mounted in MS0 (shelf 26). The other circuit pack is mounted in MS1 (shelf 39).

Assign NT9X17DA in the following order:
13,14,15...24,25,26.

It is recommended that port assignments proceed from lower number slots toward higher number slots.

The NT9X17DA is used only with ENET and requires BCS31 or higher.

4) ENET Offices: For the first 128 Messaging Ports for each ENET shelf pair, provide one (1) NT9X17CA and one (1) NT9X20BC for each of the four port groups. The port groups are defined as follows:

port group 1 = ENET shelf plane 0 / MS0 interface
port group 2 = ENET shelf plane 0 / MS1 interface
port group 3 = ENET shelf plane 1 / MS0 interface
port group 4 = ENET shelf plane 1 / MS1 interface

Two (2) NT9X17CA and two (2) NT9X20BC are required for each ENET shelf interface. One circuit pack is mounted in plane 0 (shelf 26). The other circuit pack is mounted in plane 1 (shelf 39).

Assign NT9X17CA in the following order:
Slots 12,13,14,...25,26,27.

It is recommended that port assignments proceed from lower number slots towards higher number slots.

5) ENET Offices: For the final 128 Messaging Ports for each ENET shelf pair, provide one (1) NT9X17CA and one (1)

NT9X25BA for each of the four port groups. The port groups are defined as follows:

port group 1 = ENET shelf plane 0 / MS0 interface
port group 2 = ENET shelf plane 0 / MS1 interface
port group 3 = ENET shelf plane 1 / MS0 interface
port group 4 = ENET shelf plane 1 / MS1 interface

Two (2) NT9X17CA and two (2) NT9X20BC are required for each ENET shelf interface. One circuit pack is mounted in plane 0 (shelf 26). The other circuit pack is mounted in plane 1 (shelf 39).

Assign NT9X17CA in the following order:
13,14,15,...25,26,27.

It is recommended that port assignments proceed from lower number slots toward higher number slots.

Note: The NT9X17CA and NT9X17DAs can exist in the same port group. However, it is highly recommended that the NT9X17CA occupy the head (first) position in the port group. There is not a significant time difference between switching the order of the cards and adding a card.

For ENET Initials, assign IOCs, EIOCs and LPPs to the highest numbered MS slots in descending order starting from slot 29 (i.e. slots 29, 28, etc.). These slots will contain 4-port cards (NT9X17AA/AD) in the front and 4-port DS-30 interface paddleboards (NT9X23AA for IOCs and EIOCs; NT9X23BA for LPPs) in the rear.

Assign the ENET ports to the lowest numbered MS slots in ascending order starting from slot 12 (i.e. slots 12, 13, etc.). However, the SAEs and EAEs should anticipate and plan all future growth on each ENET shelf and provision the MS cards accordingly, by leaving a spare slot for future expansion.

The following figures represent examples of the physical circuit pack assignments to a MS shelf for ENET-MS port groups of the four possible capacities. Please note these are examples and the MS can contain a mixture of ENET-MS port groups of various capacities and circuit pack locations. The NT9X20 and NT9X25 circuit packs (if required) of an ENET-MS port group must occupy contiguous slots on the MS as shown in the examples. The circuit pack locations shall be the same on the second MS shelf of the Supernode.

slot n	NT9X17DA	NT9X20BC
slot n+1	NT9X17DA	NT9X25BA

or

slot n	NT9X17DA	NT9X20BC
slot n+1	NT9X17DA	NT9X25AA
slot n+2	NT9X17DA	NT9X25BA

or

slot n	NT9X17DA	NT9X20BC
slot n+1	NT9X17DA	NT9X25AA
slot n+2	NT9X17DA	NT9X25AA
slot n+3	NT9X17DA	NT9X25BA

etc.

6) Provide two (2) NT9X49CB MS P-Bus Terminator CP (Tracer Card) to allow for tracing of messages and aid in fault diagnostics and MS maintenance when interfacing with ENET.

RUL23 1) Provide one (1) NT9X04AX Message Switch Bulkhead Interface Upgrade Kit for each message switch shelf when interfacing an ENET cabinet with the NT9X01BA SuperNode cabinet.

CENTRAL MESSAGE CONTROLLER

PEC CODE: NT1X32AB

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: CMC

ENGINEERING DESCRIPTION: The CMC provides a communication path between a plane's central processing unit and the other DMS-100/200/300 functional units.

REFERENCE DOCUMENTATION: MS1X32AB 01 04

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT1X32AB EMR4-03-CMC-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The Central Message Controller is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
CMC Shelf	NT1X3201		1			AP
Filler Face Plate .875	NT0X50AA		1		01	AP
Master Clock Generator	NT3X13AA				02	RUL3
Sync Master Clock Cont	NT3X14AA				02	RUL3
Filler Face Plate .875	NT0X50AA				03	RUL3
CMC Processor Interface CP	NT1X33AA		1		04	AP
CMC Common Control CP	NT1X37AA		1		05	AP
CMC Outgoing Control CP	NT1X34AA		1		06	AP
CMC Incoming Control CP	NT1X35AA		1		07	AP
CMC Peripheral Interface CP	NT1X36AA		1		08	AP
CMC Peripheral Interface CP	NT1X36AA		1		09	AP
CMC Peripheral Interface CP	NT1X36AA				10-21	RUL1
Filler Face Plate .875	NT0X50AA				10-21	RUL2
Power Converter (5V/40A)	NT2X06AB		1		22	AP
Power Converter (5V/40A)	NT2X06AB		1		25	AP

RULES:

AP 1) When PEC NT1X32AB is ordered, these items are provided.

2) Two CMC Peripheral Interface cards provided with this shelf will interface up to ten Network Modules and I/O Controller Modules subject to the rules below.

RUL1 1) Provide one CMC Peripheral Interface card for each additional five Network Modules or five (5) I/O Device Controller modules or any combination thereof subject to the following assignment conditions.

a. Module IOC:00 shall be assigned to port 00, card pos 08, terminal 0.

b. Module IOC:01 shall be assigned to port 05, card pos 09, terminal 0.

c. Plane 0 Network Modules shall be assigned to ports on cards in even numbered slots.

d. Plane 1 Network Modules shall be assigned to ports on cards in odd numbered slots.

e. Network Module duplicates of the two planes shall be assigned to like terminals on cards located in adjacent slots subject to c and d above.

RUL2 1) Provide one (1) Filler Face Plate, NT0X50AA, in each location, 10-21 which is not to be equipped with an NT1X36AA to satisfy the forced air cooling requirements of this shelf.

RUL3 1) Provide one Synchronizable Master Clock Controller (NT3X14AA) and one Filler Face Plate .875 (NT0X50AA) if inter-office synchronization of CCC clocks is expected to be a requirement of the office. Otherwise provide one Master Clock Generator (NT3X13AA).

CENTRAL PROCESSOR UNIT NT1X41AB

RATING: MD. Replaced by NT3X41AD.

ABBREVIATION NAME: CPU

ENGINEERING DESCRIPTION: The Central Processor Unit provides the micro-store and sequencing logic required to execute the program instruction as well as all the arithmetic and logic function necessary for efficient data manipulation. It also provides the basic system timing for register gating and clocking, emergency timers and the interrupt logic. It also houses part of the clock synchronization circuitry.

REFERENCE DOCUMENTATION: MS1X41AB 01 05

The Central Processor Unit is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Processor Shelf	NT1X4108		1			AP
	Filler Face Plate .875	NT0X50AA				01	AP
	Processor Termination CP	NT1X52AA		1		02	AP
#	Sync Clock Master Osc	NT3X15AA				03	RUL1
	Sync Clock Master Osc	NT3X15AB				03	RUL1
	Filler Face Plate .875	NT0X50AA				03	RUL1
	Unbalanced Data Port Ext	NT1X49AA				08	RUL2
	Balanced Data Port Ext CP	NT1X50AB				08	RUL2
	CMC Interface CP	NT1X51AA		1		09	AP
	Filler Face Plate .875	NT0X50AA				10-11	AP
	4K ROM Extension Card	NT1X53AA		1		12	AP
	Filler Face Plate .875	NT0X50AA				13	AP
	Processor ROM DMS-100 CP	NT1X46AA		1		14	AP
	Filler Face Plate .875	NT0X50AA				15	AP
	Pocessor Maintenance CP	NT1X48AA		1		16	AP
	Processor Timing & Cont CP	NT1X47AA		1		17	AP
	Processor ALF CP	NT1X45AA		1		18	AP
	Processor Stack CP	NT1X44AA		1		19	AP
	Filler Face Plate .875	NT0X50AA				20	AP
	Proc Prog Store Port CP	NT1X43AA		1		21	AP
	Power Converter (5V/40A)	NT2X06AB		1		22	AP
	Power Converter (5V/10A)	NT2X06AB				25	RUL1
	Power Conv (+/-5V,+/-12V)	NT2X70AA				25	RUL1
	Desig. Label for NT3X15AB	P0599371				03	RUL3
#	Desig. Label for NT3X15AA	P0586903				03	RUL3
	Desig. Label for NT0X50AA	P0578498				03	RUL3
	Desig. Label for NT1X49AA	P0586901				08	RUL3
	Desig. Label for NT1X50AB	P0591363				08	RUL3
	Desig. Label for NT2X06AB	P0591398				25	RUL3
	Desig. Label for NT2X70AA	P0586902				25	RUL3

Rated A&M. On new jobs replace with NT3X15AB.

RULE:

AP 1) When PEC NT1X41AB is ordered, these items are provided.

RUL1 1) Provide one Synchronizable Clock Master Oscillator (NT3X15AB) and one Power Converter (+/-5V,+/-12V) (NT2X70AA) if inter-office synchronization of CCC clocks is

expected to be a requirement of the office. Otherwise provide one Filler Face Plate .875 (NT0X50AA) and one Power Converter (5V/40A) (NT2X06AB).

RUL2 1) Provide one Unbalanced Data Port Extender (NT1X49AA) if for the ultimate size of the office no Data Store shelf is expected to be mounted on a MEX. Otherwise provide one Balanced Data Port Extender (NT1X50AB).

2) Ensure that Data Store shelves are provied with corresponding unbalanced or balanced interface and terminator cards. See MS3X31AE and MS3X31AF, Sections EMR4-04-DS-1 and EMR4-04-DS-2.

RUL3 1) Provide one (1) Designation Label corresponding to each card or filler face plate provisioned per RUL1 and RUL2.

1M-WORD DATA STORE SHELF

PEC CODE: NT3X31AE

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: DS

ENGINEERING DESCRIPTION: The Data Store provides data storage memory for DMS-100/200/300 Central Processing Unit.

REFERENCE DOCUMENTATION: MS3X31AE 01 03

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X31AE EMR4-03-DS-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The 1M-Word Data Store Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
P/CD Store Shelf	NT3X3101		1			AP
Filler Face Plate .875	NT0X50AA		1		01	AP
Differential Mem Bus Term	NT3X35AB				02	RUL2
Single-Ended Mem Bus Term	NT3X34AA				02	RUL2
Filler Face Plate .875	NT0X50AA				02	RUL4
Differential Mem Bus I/F CP	NT3X36AB				03	RUL3
Single-Ended Mem Bus I/F	NT3X37AA				03	RUL3
1M-Word Memory Controller	NT3X42AA		1		04	AP
64K MOS Memory CP for Spare	NT3X40AA		1		05	AP
64K MOS Memory CP	NT3X40AA				06-21	RUL1
Filler Face Plate .875	NT0X50AA				06-21	RUL4
1M-Word Backplane Term	NT3X4302		1		21R	AP
Power Converter (5V/12V)	NT2X07AB		1		22	AP
Power Converter (5V/40A)	NT2X06AB		1		25	AP
Desig. Label for NT3X34AA	P0580261				02	RUL5
Desig. Label for NT3X35AB	P0580262				02	RUL5
Desig. Label for NT3X36AB	P0586905				03	RUL6
Desig. Label for NT3X37AA	P0591370				03	RUL6
Desig. Label for NT0X50AA	P0578498				02, 06-21	RUL7

RULES:

AP 1) When PEC NT3X31AE is ordered, these items are provided.

RUL1 1) Provide one (1) card per 64K words of DS memory up to a maximum of 16.

2) Always provide at least one memory CP.

3) NOTE: Due to CPU design limitations, 64K MOS Memory cards must not be equipped in slots 20 and 21 of DS:15.

RUL2 1) Provide one Mem Bus Terminator for the last DS in the CPU data bus daisy chain.

2) Provide NT3X34AA if a NT1X49AA is to be equipped in slot 08 of each CPU (NT1X41AB). Provide NT3X35AB if a NT1X50AB is to be equipped in slot 08 of each CPU.

RUL3 1) Provide one Single-Ended Mem Bus Interface (NT3X37AA) if a NT1X49AA is to be equipped in slot 08 of each CPU. Provide one Differential Mem Bus Interface (NT3X36AB) if a NT1X50AB is to be equipped in slot 08 of each CPU.

RUL4 1) Provide one (1) Filler Face Plate, NT0X50AA, in each location, 02, 06-21 which is not to be equipped with a NT3X34AA, a NT3X35AB or a NT3X40AA to satisfy the forced air cooling requirements of this shelf.

RUL5 1) Provide one (1) Designation Label which corresponds to the bus terminator CP provisioned under RUL2.

RUL6 1) Provide one (1) Designation Label which corresponds to the bus I/F CP provisioned under RUL3.

RUL7 1) Provide one (1) Designation Label corresponding to each filler face plate provisioned per RUL4.

1M-WORD PROGRAM STORE SHELF

PEC CODE: NT3X31AD

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: PS

ENGINEERING DESCRIPTION: A PS provides memory for DMS-100/200/300 Central Processing Unit.

REFERENCE DOCUMENTATION: MS3X31AD 01 03

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X31AD EMR4-03-PS-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The 1M-Word Program Store Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
P/CD Store Shelf	NT3X3101		1			AP
Filler Face Plate .875	NT0X50AA		1		01	AP
Single Ended Mem Bus Term	NT3X34AA		1		02	AP
Single Ended Mem Bus I/F CP	NT3X37AA		1		03	AP
1M-Word Memory Controller	NT3X42AA		1		04	AP
64K MOS Memory CP for Spare	NT3X40AA		1		05	AP
64K MOS Memory CP	NT3X40AA				06-21	RUL1
Filler Face Plate .875	NT0X50AA				06-21	RUL2
1M-Word Backplane Terminator	NT3X4302		1		21R	AP
Power Converter (5V/12V)	NT2X07AB		1		22	AP
Power Converter (5V/40A)	NT2X06AB		1		25	AP
Desig. Label for NT0X50AA	P0578498				06-21	RUL3

RULES:

AP 1) When PEC NT3X31AD is ordered, these items are provided.

RUL1 1) Provide one (1) card per 64K words of PS memory up to a maximum of 16.

2) Always provide at least one memory CP.

3) NOTE: Due to CPU design limitations, a 64K MOS Memory card must not be equipped in slot 21 of PS:00.

RUL2 1) Provide one (1) Filler Face Plate, NT0X50AA, in each location, 06-21, which is not to be equipped with a NT3X40AA to satisfy the forced air cooling requirements of this shelf.

RUL3 1) Provide one (1) Designation Label corresponding to each filler face plate provisioned per RUL2.

CENTRAL CONTROL COMPLEX (1MW) FRAME NT0X41AJ

RATING: MD. On new jobs replace by NT3X45DA.

ABBREVIATION NAME: CCC (See Note AP 2 below)

ENGINEERING DESCRIPTION:

REFERENCE DOCUMENTATION: MS0X41AJ 01 17

The Central Control Complex (1MW) Frame is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Central Msg Controller	NT1X32AB	CMC	2	65		AP
Central Processing Unit	NT1X41AB	CPU	2	51		AP
Frame Supervisory Panel	NT0X28AB	FSP	2	45		AP
1 M-Word Program Store	NT3X31AD	PS	2	32		AP
1 M-Word Data Store	NT3X31AE	DS	2	18		AP
Cooling Unit	NT0X30AD	CU	2	09		AP
Inverter Unit	NT0X87AA	INV	2	04		AP
Framework	NT0X25AA	FW	2			AP
SYNC OFF W/O EXT MA FREQ REF	NT0X41BA					RUL2
SYNC M OFF W EXT MA FREQ REF	NT0X41BB					RUL3
EXT MA FREQ REF, 10.24 MHz	NT0X41BD					RUL4
EXT MA FREQ REF, 10.00 MHz	NT0X41BE					RUL4
EXT MA FREQ REF, 5.00 MHz	NT0X41BF					RUL4
EXT MA FREQ REF, 2.56 MHz	NT0X41BG					RUL4
EXT MA FREQ REF, 2.048MHz	NT0X41BH					RUL4
EXT MA FREQ REF, 1.024MHz	NT0X41BJ					RUL4
EXT MA FREQ REF, 1.0 MHz	NT0X41BK					RUL4
Product Change Kits	AR					RUL5

RULE:

AP 1) When PEC NT0X41AJ is ordered, these items are provided.

2) NT0X41AJ is a double bay frame consisting of 2 identical Central Control Complex Frames (CCC).

3) The duplicated PS provided in position 32 has a design capacity of 1M-Word; however note that only 960K-Words (15 x 64K-Word memory cards) of PS memory can be assigned and used. (see MS3X31AD, Section EMR4-03-PS-1).

4) The Data Store shelf provided with each frame will accommodate the first 1M word of data store memory. Additional memory must be accommodated on shelves equipped on memory extension frames.

5) The following AP items are equipped per the corresponding MS:

	PEC	ABBR	MS
Central Msg Controller	NT1X32AB	CMC	MS1X32AB
Central Processing Unit	NT1X41AB	CPU	MS1X41AB
1 M-Word Program Store	NT3X31AD	PS	MS3X31AD
1 M-Word Data Store	NT3X31AE	DS	MS3X31AE

RUL1 1) When customer requirements specify that Grilles, Frame Doors and (or) Frame trim Panels are to be ordered for these frames, provide two NT0X08AH, two NT0X71AB and (or) four NT0X72AA per NT0X41AJ as required.

RUL2 1) Provide one (1) (NT0X41BA) if office is to be equipped for inter-office clock synchronization either as a slave or as a master which is not driven from an external master reference frequency.

RUL3 1) Provide one (1) (NT0X41BB) if office is to be equipped for inter-office clock synchronization as a master which is driven from an external reference frequency.

RUL4 1) Select and provide one (1) NT0X41BD-BK which corresponds to the operating frequency of the external master reference for an office equipped per RUL3.

RUL5 1) For product change kit details, refer to section EMA4-99-000 Provisioning Table for Product Change Kits.

EMI DUAL PLANE COMBINED CORE CABINET

PEC CODE: NT9X01JA

CPC CODE: B0228041

RATING: MD

REPLACES: NT9X01BA

REPLACED BY: NT9X01JB

ABBREVIATION NAME: DPCC

ENGINEERING DESCRIPTION: The EMI Dual Plane Combined Core Cabinet houses a computing module, two message switches and one System Load Module Shelf assembly.

REFERENCE DOCUMENTATION: MS9X01JA 01 39

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA
Carrier
Wireless

ISSUE AUTHOR: NTI: Jerry Palmer Dept. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT9X01JA EMR4-03-001 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 08 18	ECM 331 21	Cancelled; Reference to ECM 626
92 10 07	ECM 331 22	ET 14739 Correction in RUL5
94 04 19	ECM 626 16	Introduce the NT9X53AD clock card. MD the Series 10 Processor.
94 06 06	ECM 626 18	ECD 006-19420 - Update BRISC info.
94 07 21	ECM 626 19	ECD 018-42988 - Current Loop Kits. Put a hold on the NT9X53AD clock card.
94 09 02	ECM 626 20	ECD 006-20443 - Introduce NT9X12AD. Make NT9X26DB available for Series 50. Stop NT9X13DC prov. for initials.
94 10 18	ECM 626 22	Manufacture Discontinue Section. Incorporate the NT9X13DD and NT9X14DB.
95 02 09	ECM 626 23	Make the NT9X53AD orderable. Introduce BRISC Series 70 processor Introduce NT9X20BC per EC 018-44319. Rewrite Rule 31 for clarity. Other minor changes.
95 04 06	ECM 626 24	Introduce SLM III for NA004. Introduce Mixed Memory for BRISC 50. MD NT9X04AY. MD NT9X01PA.
95 08 28	ECM 626 26	EC018-45801 Remove frame fail lights. ET27919 Remove M5 cables.
95 12 19	ECM 626 29	Modified SLM III upgrade information. EC018-44339 - NT9X20BC with 9X17DA.
96 03 22	ECM 626 30	Correct text of RUL12.
96 05 24	ECM 626 31	Modified Series 70 min. memory req. Update FASTMEM value for NA005.
96 09 30	ECM 626 33	Modified NT9X17CA rule to require that NT9X17CAs, when provisioned, (4) must be ordered, not just (2). This is a temporary requirement until Design releases a fix for the problem of empty slots between NT9X17CAs causing outages. Provisioning change approved by Chet Salkok, MS PLM. Changes for ECM 626 33 have been removed. History left for reference.
96 11 22	ECM 626 34	MD the following circuit packs per ECD 018-46903: NT9X13DA, NT9X13DB, NT9X13DC, NT9X17AA, NT9X20BB, NT9X54AA, NT9X54AB, NT9X49CA,

Engineering Manual Section Change History

DATE	DOCUMENT	REASON
		NT9X30AA, NT9X31AA MD the following circuit packs per ECD 018-45348: NT9X14BB, NT9X26AA, NT9X26CA MD the following circuit pack per ECD 018-43648: NT9X26DA MD the following circuit pack per ECD 006-17002: NT9X12AB Also clear SR RR6A684 on NT9X13DC.
97 04 10	ECM 626 36	MD the NT9X53AB (MS System Clock CP) per EC 018-48230. Show changes to FASTMEM in SLM provisioning per System Engineering updates. Also clear SR RR73478. The NT9X04AX is an active PEC for NT9X01BA/JA series of SN cabinets per EC 018-50960. Add the SR70EM processor and RTIF Several minor changes for readability and format.
97 06 02	ECM 626 37	Added the SuperNode Data Manager interface to ECM and EMS per EC 018-50981. MD the System Load Module II unit per ED 018-50148.
97 08 18	ECM 626 38	Added the ELPP/FLPP interface application per EC 018-50981.
97 09 29	ECM 626 39	MD the +12V Power Converter per EC 018-51494.

The EMI Dual Plane Combined Core Cabinet is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
* Bulkhead Alarm I/F Cable	P0673159			52		RUL22
Dual FSP Conn Panel Assy	NTEX5017			52		RUL22
* 37 Pin Filter Adapters	A0316598			52		RUL22
Dual FSP Bulkhead Panel Assy	NTEX5018			52		RUL22
* Alarm Cable Assy	NT9X0124			52		RUL22
FSP Bulking Cable Assembly	NT9X0522			52		RUL22
Dual FSP Connector Pnl Assy	NTEX5017			52		RUL22
Dual FSP Bulkhead Panel Assy	NTEX5018			52		RUL22
FSP Bulking Cable Assembly	NT9X0522			52		RUL22
* Msg Sw Proc Shf Comm CP	NT9X04AB	MS		26,39		RUL11
* Msg Sw Proc Shf Comm CP	NT9X04AE	MS		26,39		RUL11
* Msg Sw Proc Shf Comm CP	NT9X04AG	MS		26,39		RUL11
* Msg Sw Proc Shf Comm CP Fill	NT9X04AH	MS		26,39		RUL11
* Product Change Kit	NT9X04AY					RUL11
MS Ext Clk I/F Upgrade Kit	NT9X04AZ			26,39		RUL11
Msg Sw Memory Upgrade Kit	NT9X04AD					RUL16
Msg Sw Memory Upgrade Kit	NT9X04AF					RUL16
Msg Sw Simplex Shf Assy	NT9X0440		2	26,39		AP
% MS System Clock CP	NT9X53AA			26,39	8F	RUL29
* MS Ext System Clock I/F CP	NT9X53AB			26,39	8F	RUL29
% Combined Clock CP	NT9X53AC			26,39	8F	RUL29
DMS-Bus System Clock CP	NT9X53AD			26,39	8F	RUL29
* CPU 16 MHZ CP	NT9X13DA			26,39	9F	RUL18
* CPU 16 MHZ CP	NT9X13DB			26,39	9F	RUL18
* CPU 16 MHZ CP	NT9X13DC			26,39	9F	RUL18
CPU 16 MHZ CP(16 MB)	NT9X13DD			26,39	9F	RUL18
* 6 MB Memory CP	NT9X14BB			26,39	10F	RUL19
% 24 MB Memory CP	NT9X14DB			26,39	10F	RUL19
* MS 4-Port CP	NT9X17AA			26,39	12F-29F	RUL5
% MS 4-Port CP for FLIS	NT9X17AC			26,39	12F-29F	RUL5
MS 4-Port CP	NT9X17AD			26,39	12F-29F	RUL5
MS 128-Port CP	NT9X17CA			26,39	12F-29F	RUL31
MS 64-Port CP	NT9X17DA			26,39	12F-29F	RUL31
Filler Face Plate	NT9X19AA			26,39	12F-29F	RUL6
MS Loading PaddleBoard	NT9X32AA			26,39	7R	RUL4
* Subsystem Clock PB	NT9X54AA			26,39	8R	RUL20
* Subsystem Clock PB	NT9X54AB			26,39	8R	RUL20
Subsystem Clock PB (Ext I/F)	NT9X54AC			26,39	8R	RUL20
Subsystem Clock PB (Japan)	NT9X54AD			26,39	8R	RUL20
* Remote Term I/F PB	NT9X26AA			26,39	9R	RUL30
Remote Term I/F Curr Loop	NT9X26AB			26,39	9R	RUL30
PB Filler Face Plate	NT9X19BA			26,39	11R	RUL4

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	4xDS-30 PB	NT9X23AA			26,39	12R-29R	RUL7
	4xDS-30 PB	NT9X23BA			26,39	12R-29R	RUL7
*	DS-512 ENET/MS Fiber I/F PB	NT9X20BB			26,39	12R-29R	RUL31
	ENET/MS Fiber Interface PB	NT9X20BC			26,39	12R-29R	RUL31
	SR512 Fiber PaddleBoard	NT9X62BA			26,39	12R-27R	RUL5,31
	4Port SR128 PaddleBoard	NT9X62BB			26,39	12R-27R	RUL5
	MS Port Expander PB	NT9X25AA			26,39	13R-27R	RUL31
	MS Port Terminator PB	NT9X25BA			26,39	13R-27R	RUL31
*	MS P-Bus Terminator CP	NT9X49CA			26,39	32F	RUL31
	DMS-Bus Tracer CP for ENET	NT9X49CB			26,39	32F	RUL31
*	MS P-Bus Terminator CP	NT9X49CC			26,39	32F	RUL31
	MS Loading PaddleBoard	NT9X32AA			26,39	12R-29R	RUL8
	PB Filler Face Plate	NT9X19BA			26,39	32R	RUL4
	DS-30 Cable	NT9X0164			26,39		RUL9
*	DS30 Blkhd I/F (left)(SL100)	NT9X6510			26,39		RUL17
	MS Blkhd I/F (left)(DMS100)	NT9X6556			26,39		RUL17
	DS30 Blkhd I/F (left)(SL100)	NT9X6510			26,39		RUL17
*	DS30 Blkhd I/F (rt) (SL100)	NT9X6511			26,39		RUL17
	DS30 Blkhd I/F (rt) (SL100)	NT9X6537			26,39		RUL17
*	DS30 Blkhd I/F (left) (Mer)	NT9X6513			26,39		RUL27
	DS30 Blkhd I/F (left) (Mer)	NT9X6558			26,39		RUL27
*	DS30 Blkhd I/F (rt) (Mer)	NT9X6514			26,39		RUL27
	DS30 Blkhd I/F (rt) (Mer)	NT9X6538			26,39		RUL27
*	DS30 Blkhd I/F (left) (DMS)	NT9X6501			26,39		RUL17
	DS30 Blkhd I/F (left)(SL100)	NT9X6557			26,39		RUL17
	DS30 Blkhd I/F (rt) (DMS)	NT9X6536			26,39		RUL17
	DS30 Blkhd I/F (rt) Strmline	NT9X6545			26,39		RUL32
	DS30 Blkhd I/F left Strmline	NT9X6546			26,39		RUL32
	DS30 Blkhd I/F left Cabntizd	NT9X6558			26,39		RUL34
	DS30 I/F Ca Assy (SL-100)	NT9X0164			26,39		RUL9
	DS30 I/F Ca Assy (Mer)	NT9X0180			26,39		RUL28
	DS30 I/F Ca Assy (Mer)	NT9X0182			26,39		RUL28
	DS30 I/F Ca Assy (Mer)	NT9X0184			26,39		RUL28
	DS30 I/F Ca Assy (Mer)	NT9X0186			26,39		RUL28
	DS30 I/F Ca Assy (Mer)	NTEX5009			26,39		RUL28
	DS30 I/F Ca Assy (Mer)	NTEX5011			26,39		RUL28
	DS30 I/F Ca Assy (Mer)	NTEX5013			26,39		RUL28
	DS30 I/F Ca Assy (Mer)	NTEX5015			26,39		RUL28
	Inter-MS DS-30 Cable Assy	NTEX5022			26,39		RUL41
	Inter-MS DS-30 Cable Assy	NTEX5023			26,39		RUL41
	Fiber Optic Cable	A0352268			26,39		RUL41
	Optical Fiber Label (Eng.)	P0736273			26,39,13		RUL42
	Cabling Interface Kit (Mer)	NT9X0188			26,39		RUL14
	DS30 I/F Ca Assy (DMS)	NT9X0145			26,39		RUL9
	DS30 I/F Ca Assy Streamline	NT9X6544			26,39		RUL33
	Coax Ca Assy (NT9X54AC/AD)	NT9X0192			26,39		RUL20

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Composite Clk CA Assy	NT9X0175			26,39		RUL20
*	Coax Ca Assy (NT9X54AB)	NT9X0150			26,39		RUL20
*	Cable Assy	NT9X0158			26,39		RUL20
*	Coax Cable Assy	NT9X0159			26,39		RUL20
	Msg Sw Blkhd I/F Upgrade Kit	NT9X04AX			26,39		RUL37
*	Computing Mod Processor Shelf Common CP	NT9X06AB	CM		13		RUL10
%	Computing Mod Processor Shelf Common CP	NT9X06AC			13		RUL10
	Computing Mod Processor Shelf Common CP	NT9X06AD	CM		13		RUL10
	CM Processor Upgrade Kit	NT9X06CC			13		RUL15
	CM Current Loop Upgrade Kit	NT9X06AZ			13		RUL10
	Computing Module Duplex Shelf Assembly	NT9X0605		1	13		AP
%	6Mb Memory CP	NT9X14BB			13	7F-16F	RUL2
*	24Mb Memory CP	NT9X14DA			13	7F-16F	RUL2
	24Mb Memory CP	NT9X14DB			13	7F-16F	RUL2
	96Mb Memory CP	NT9X14EA			13	12F-16F	RUL2
	Filler Face Plate	NT9X19AA			13	7F-16F	RUL3
%	CPU Port CP	NT9X12AA			13	17F-18F	RUL15
%	CPU Port CP	NT9X12AB			13	17F-18F	RUL15
%	CPU Port CP	NT9X12AC			13	17F-18F	RUL15
	CPU Port CP	NT9X12AD			13	17F-18F	RUL15
	CPU Processor CP (BCS24)	NT9X13BA			13	19F-20F	RUL15
	CPU Processor CP (BCS25)	NT9X13BB			13	19F-20F	RUL15
	CPU Processor CP (BCS26)	NT9X13BC			13	19F-20F	RUL15
*	CPU Processor CP	NT9X13EA			13	19F-20F	RUL15
	CPU (68030) 33MHz Proc CP	NT9X13GA			13	19F-20F	RUL15
*	CPU (68030) 40MHz Proc CP	NT9X13HA			13	19F-20F	RUL15
	CPU (68030) 40MHz Proc CP	NT9X13HB			13	19F-20F	RUL15
%	CPU (68020) Processor CP	NT9X13JA			13	19F-20F	RUL15
	33 MHz 88000 BRISC CPU CP	NT9X10AA			13	19F,20F	RUL15
	60 MHz 88110 BRISC CPU CP	NT9X10BA			13	19F,20F	RUL15
	88110 BRISC CPU (SR70EM) CP	NT9X10CA			13	19F,20F	RUL22
%	CPU Port CP	NT9X12AA			13	21F-22F	RUL15
%	CPU Port CP	NT9X12AB			13	21F-22F	RUL15
%	CPU Port CP	NT9X12AC			13	21F-22F	RUL15
	CPU Port CP	NT9X12AD			13	21F-22F	RUL15
	Series 60 EMI Kit	NT9X0108		1	13		RUL15
%	6Mb Memory CP	NT9X14BB			13	23F-32F	RUL2
*	24Mb Memory CP	NT9X14DA			13	23F-32F	RUL2
	24Mb Memory CP	NT9X14DB			13	23F-32F	RUL2
	96Mb Memory CP	NT9X14EA			13	23F-27F	RUL2
	Filler Face Plate	NT9X19AA			13	23F-32F	RUL3

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	PB Filler Face Plate	NT9X19BA			13	9R-15R	RUL4
						24R-30R	
	PB Filler Face Plate	NT9X19BA			13	8R,31R	RUL12
	CM BUS Extender	NT9X27AA			13	8R,31R	RUL12
%	Remote Term I/F PB	NT9X26AA			13	19R,20R	RUL30
	Remote Term I/F Curr Loop	NT9X26AB			13	19R,20R	RUL30
*	BRISC RTIF PB	NT9X26DA			13	19R,20R	RUL30
	BRISC RTIF PB	NT9X26DB			13	19R,20R	RUL30
	BRISC RTIF Circuit Pack	NT9X26DC			13	19R,20R	RUL30
	BRISC RTIF PB	NT9X26EA			13	19R,20R	RUL30
	BRISC RTIF PB	NT9X26FA			13	19R,20R	RUL30
%	Cable Bulkhead (right)	NT9X6507		1	13		RUL30
%	Cable Bulkhead (left)	NT9X6508			13		RUL30
	Cable Bulkhead (right)	NT9X6539			13		RUL30
	Cable Bulkhead (right)	NT9X6540			13		RUL30
	RS232C & Curr Loop Ca Assy	NT9X0196		2	13		RUL30
	Filler Packfill	NT9X01FB					RUL1
	CM SLM Ext Shelf Assy	NT9X0702		1	00		AP
*	CM SLM Common CP	NT9X07AA			00		RUL1
	CM SLM Common CP	NT9X07AB			00		RUL1
*	System Load Module I	NT9X44AA			00	8F,24F	RUL1
*	System Load Module II	NT9X44AB			00	8F,24F	RUL1
	System Load Module III	NT9X44AD			00	8F,24F	RUL1
	Filler Face Plate	NT9X19AA			00	13,14,15	RUL1
						29,30,31	RUL1
%	CPU Port CP	NT9X12AA			00	18F,21F	RUL1
%	CPU Port CP	NT9X12AB			00	18F,21F	RUL1
%	CPU Port CP	NT9X12AC			00	18F,21F	RUL1
	CPU Port CP	NT9X12AD			00	18F,21F	RUL1
	Common Cabinet Equipment	NT9X0113	FW	1			AP
	Overhead Power Block Kit	NTEX5001					RUL35
	Power Boot Kit	NT9X0322		1			RUL35
	End of Aisle Lamp Cable	NT9X0146					RUL21
	End of Aisle Lamp Cable	NT9X0172					RUL21
	Kick Plate Assy (Brown)	NT0X2430					RUL23
	Kick Plate Assy (Grey)	NT0X2516					RUL24
	Des Label (NT9X12AB)	P0700801					RUL13
	Des Label (NT9X12AC)	P0727356					RUL13
	Des Label (NT9X12AD)	P0725905					RUL13
	Des Label (NT9X13AA)	P0679475					RUL13
	Des Label (NT9X13BB)	P0696234					RUL13
	Des Label (NT9X13BC)	P0696235					RUL13
	Des Label (NT9X13DA)	P0685359					RUL13

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
*	Des Label (NT9X13DB)	P0696239					RUL13
*	Des Label (NT9X13DC)	P0696240					RUL13
	Des Label (NT9X13DD)	P0743628					RUL29
	Des Label (NT9X13EA)	P0697524					RUL13
	Des Label (NT9X13GA)	P0705929					RUL13
*	Des Label (NT9X13HA)	P0705930					RUL13
	Des Label (NT9X13HB)	P0713211					RUL13
	Des Label (NT9X13JA)	P0705928					RUL13
	Des Label (NT9X10AA)	P0734152					RUL13
	Des Label (NT9X10BA)	P0806211					RUL13
	Des Label (NT9X14BB)	P0689619					RUL13
*	Des Label (NT9X14DA)	P0697526					RUL13
	Des Label (NT9X14DB)	P0700802					RUL13
	Des Label (NT9X14EA)	P0736863					RUL13
*	Des Label (NT9X17AA)	P0678439					RUL13
	Des Label (NT9X17AC)	P0726961					RUL13
	Des Label (NT9X17AD)	P0735096					RUL13
	Des Label (NT9X62BA)	P0726963					RUL13
	Des Label (NT9X17CA)	P0678441					RUL13
	Des Label (NT9X17DA)	P0707891					RUL13
*	Des Label (NT9X20BB)	P0707894					RUL13
	Des Label (NT9X20BC)	P0805929					RUL13
	Des Label (NT9X25AA)	P0707896					RUL13
	Des Label (NT9X25BA)	P0697531					RUL13
*	Des Label (NT9X49CA)	P0712899					RUL13
	Des Label (NT9X49CB)	P0697532					RUL13
	Des Label (NT9X19AA)	P0709515					RUL13
	Des Label (NT9X23AA)	P0678443					RUL13
	Des Label (NT9X23BA)	P0697530					RUL13
	Des Label (NT9X26AA)	P0705116					RUL13
	Des Label (NT9X26AB)	P0705003					RUL13
	Des Label (NT9X26DA)	P0734153					RUL13
	Des Label (NT9X26DB)	P0747896					RUL13
	Des Label (NT9X26DC)	P0810387					RUL13
	Des Label (NT9X26EA)	P0806223					RUL13
	Des Label (NT9X27AA)	P0678448					RUL13
	Des Label (NT9X44AB)	P0726504					RUL13
	Des Label (NT9X44AD)	P0809344					RUL13
	Des Label (NT9X53AA)	P0705117					RUL13
	Des Label (NT9X53AB)	P0705004					RUL13
	Des Label (NT9X53AC)	P0726965					RUL13
	Des Label (NT9X53AD)	P0803728					RUL13
*	Des Label (NT9X54AB)	P0699266					RUL13
	Des Label (NT9X54AC)	P0705005					RUL13
	Des Label (NT9X54AD)	P0703652					RUL13
	Des Label (NT9X62BB)	P0869682					RUL13

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Warning Label, English ONLY "High Voltage"	P0675711		1			RUL38
Warning Label,English/French "High Voltage/Haute Tension"	P0689137		1			RUL38
Warning Label, English ONLY "High Voltage"	P0675712		4			RUL39
Warning Label,English/French "High Voltage/Haute Tension"	P0689138		4			RUL39
Warning Label, English ONLY "Disconnect Fan"	P0675710		1			RUL40
Warning Label,English/French "Disconnect Fan"	P0689136		1			RUL40

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT9X13JA	MD	No Replacement
NT9X26AA	MD	NT9X26AB
NT9X26DA	MD	NT9X26DB
NT9X04AY	MD	No Replacement
NT9X01PA	MD	No Replacement
NT9X53AB	MD	NT9X53AD
NT9X44AB	MD	NT9X44AD

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

FLAGS:

* This PEC has been Rated MD.
% This PEC has a Rating Change Pending.

NOTES:

1) The NT9X01JA frame is applicable to DMS-Core offices interfacing SL-100C, DMS-100, and Meridian Cabinet Equipment.

2) NTXF27AA - Cesium, Loran Composite Master. For offices requiring external clock synchronization to Cesium/Rubidium Stratum I standard, provide the NTXF27AA package. Note that this package also supports Loran Composite Master clock source, but the necessary provisionable cable is not yet available for the latter application.

3) SLM II requires software package NTXE54AA. The Device Independent Recording Package (DIRP) on SLM is optional, and it is activated internally by the presence of package module DIRPSLM in NTXJ44AA- SLM File System.

RULES:

AP 1) When PEC NT9X01JA is ordered, these items are provided.

2) The NT9X0113 is comprised of the following:

- NT0X24AA Cabinet Framework
- NT9X03AA Frame Supervisory Panel
- A0323984 Core Cooling Unit
- Cabinet Common Cabling & FSP Cabling

The NT0X24AA framework provides earthquake and EMI protection. The framework is 72" high, 28" deep and 42" wide. The NT9X03AA FSP is mounted at position 52.
The A0323984 Cooling Unit is located immediately below position 0.

RUL1 1) When the System Load Module (SLM) is a requirement, provide one (1) NT9X07AB CM SLM Common CP fill, two (2) NT9X12AD CPU Port CP, and either two (2) NT9X44AB SLM II or two (2) NT9X44AD SLM III units. The NT9X44AA SLM I has been manufacture discontinued. The SLM II is now at MD status and replaced by the SLM III. The NT9X12AD replaces the NT9X12AC and is the preferred card. The NT9X12AD is required for BRISC.

2) When the SLM is not a requirement, provide one (1) Filler Packfill NT9X01FB to satisfy the forced air cooling requirements of the frame.

3) Provide SLM II when office images will exceed 30 MBytes during the engineering interval. The SLM II is a hardware requirement for offices ordering NA001 or higher Product Layers.

4) Provide SLM III when either a minimum disk drive capacity of 1 GByte or a minimum tape drive capacity of 500 MBytes are required in offices with a software load of NA004 or greater.

5) An upgrade from SLM II to SLM III is required when load image size exceeds 240 MBytes. The load image is not the same as CM load size. The formula for calculating load image is: PS + .6*DS + .72*MS + FASTMEM, where PS = Program Store, DS = Data Store, MS = Message Switch load size, and FASTMEM = 27.82M (28.00M in NA005 and higher) when the processor type is a Series 50 or 60. Fastmem is automatically calculated for NA005 and above software loads The MS load size is 7M, 10M, or 16M depending on office configuration. 16M is the only MS load supported in NA004 and higher. The raw PS and DS values in KBytes can be obtained from MEMCALC and converted to MBytes by dividing by 1024.

6) Provide six (6) NT9X19AA filler face plates when SLM III is provided.

RUL2 1) Provision two (2) 6Mb Memory Circuit Packs, NT9X14BB, for each additional 6Mb increment of memory required. A reminder that in addition to the operational memory provisioned, one extra memory CP must be provided per plane to be assigned as a reliability spare.

2) All offices must equip the Memory CP to the following algorithm: Starting with 24 MByte CP for mixed offices, 1st. Slots 16F and 23F, 2nd. 15F and 24F, 3rd. 14F and 25F, 4th. 13F and 26F, 5th. 12F and 27F, 6th. 11F and 28F, 7th. 10F and 29F, 8th. 9F and 30F, 9th. 8F and 31F, 10th. 7F and 32F.

3) All offices must replace existing NT9X14DA 24 MByte Memory CP with NT9X14DB CP when inserting BCS 26.

4) All BRISC Series 50 offices must utilize NT9X14DB only.

5) BRISC Series 50 Mixed Memory offices may use both the NT9X14DB and the NT9X14EA cards. If two (2) NT9X14EA cards per side are required, mount the cards in slots 15 and 16 for plane 0 and slots 23 and 24 for plane 1. If three (3) NT9X14EA cards per side are required, mount the cards on

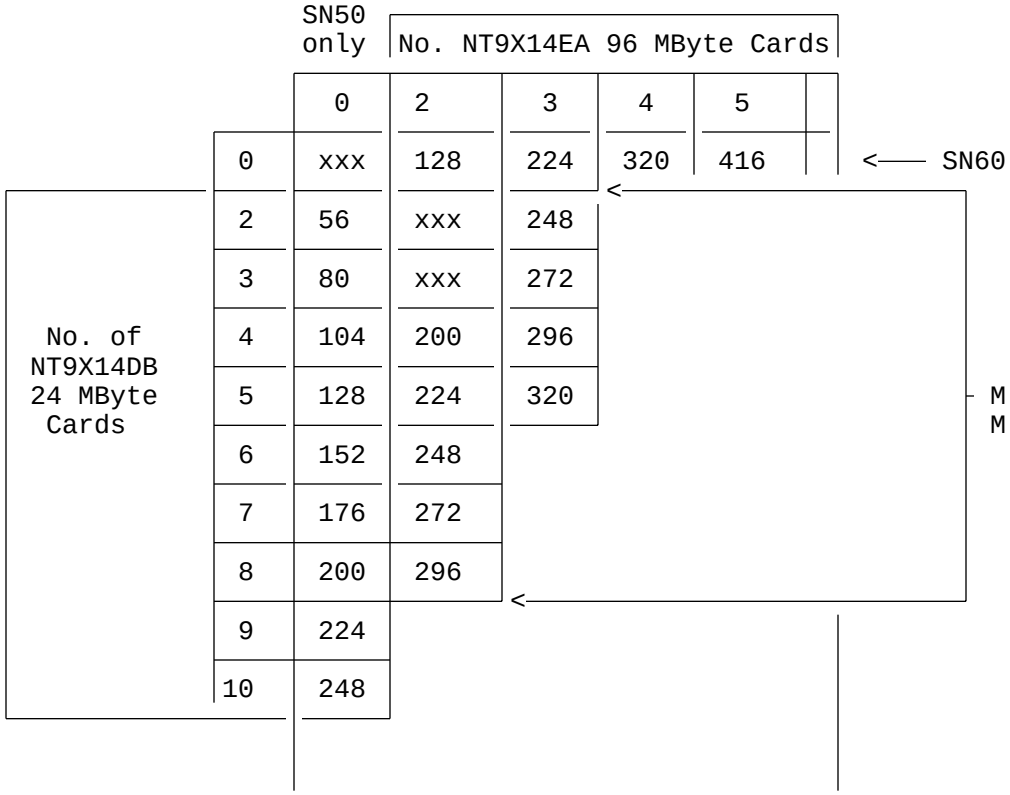
shelf 13, slots 14, 15, and 16 for plane 0 and slots 23, 24, and 25 for plane 1.

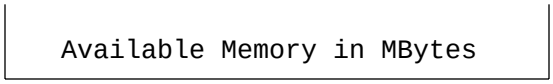
There must be a minimum of two (2) NT9X14EA per side for sparing purposes.

With two (2) NT9X14EA per side, the minimum number of NT9X14DB per side is four (4) and the maximum number is eight (8).

With three (3) NT9X14EA per side, the minimum number of NT9X14DB per side is two (2) and the maximum number is five (5).

Only the following memory configurations for Series 50 Mixed Memory are valid:





Note: xxx in the preceding diagram represents an unsupported configuration.

6) All BRISC Series 60 and Series 70 offices must use NT9X14EA only.

Number NT9X14EA 96 MByte Cards (with spare)									
	0	1	2	3	4	5	6	7	8
SN60	xxx	xxx	128	224	320	416	512	608	yyy
SN70	224	256	352	448	544	640	736	yyy	yyy

Note: xxx in the preceding diagram represents an unsupported configuration.

Note: yyy in the preceding diagram represents a failure situation.

The maximum addressable memory is 400M when the software load is less than NA005. In NA005, the limit was increased to 608M for Series 60 and 736M for Series 70.

WARNING: A minimum of (2) 96M cards per side are required for Series 70. The real time capacity is impacted when the entire software image resides on the NT9X10BA.

RUL3 1) Provision one (1) Filler Face Plate in each card slot (7F - 16F and 23F - 32F) not equipped with a memory circuit pack to satisfy the forced air cooling requirements of the frame.

RUL4 1) One (1) PaddleBoard Filler Face Plate (NT9X19BA) must be provided in each card slot pos 11R and 32R in shelf position 26 and 39 to satisfy forced air cooling requirements.

2) One (1) MS Loading PaddleBoard (NT9X32AA) must be provided in each card slot pos 7R in shelf position 26 and 39 to provided impedance matching on the backplane. Do not order with NT9X04AH since it already contains NT9X32AA.

3) One (1) PaddleBoard Filler Face Plate (NT9X19BA) must be provided in each card slot pos 9R-15R and 24R-30R in shelf position 13 to satisfy forced air cooling requirements.

RUL5 1) For DMS and SL-100 Cabinets provide up to eighteen (18) (from position 29F through 12F) MS 4-Port CPs, NT9X17AA/AD, per each MSPS shelf as needed. For Meridian Cabinet systems provide up to fourteen (14) (from position 29F through 14F) MS 4-Port CPs, NT9X17AA/AD, per each MSPS shelf, as needed.
Assign cards in descending order.

2) MS 4-Port CPs are provisioned identically in each of the MSPS shelves.

Provide four (4) NT9X17AA/AD (two Per MS) for each two LIM cabinets connected to the Message Switch. The DS-30 cards must be provisioned in pairs on the Message Switch so that the DS-30 ports from a LIM cabinet may be spread across adjacent DS-30 cards. Provide one (1) NT9X23BA DS-30 Paddleboard for each NT9X17AA/AD MS 4-port CP provisioned.

Two DS-30 ports are connected from each LMS (LMS0 and LMS1) to each MS (MS0 and MS1) as shown in Figure 3. Each MS port is shown with the specific port on the specific LIM cabinet to which it connects. For example:

LMS1 01 indicates LMS Side 1 LIM 01
29R-0 CP Pos 29R Port 0

Additional LIM cabinets will be connected to additional DS-30 port cards using the same pattern as shown in Figure 3.

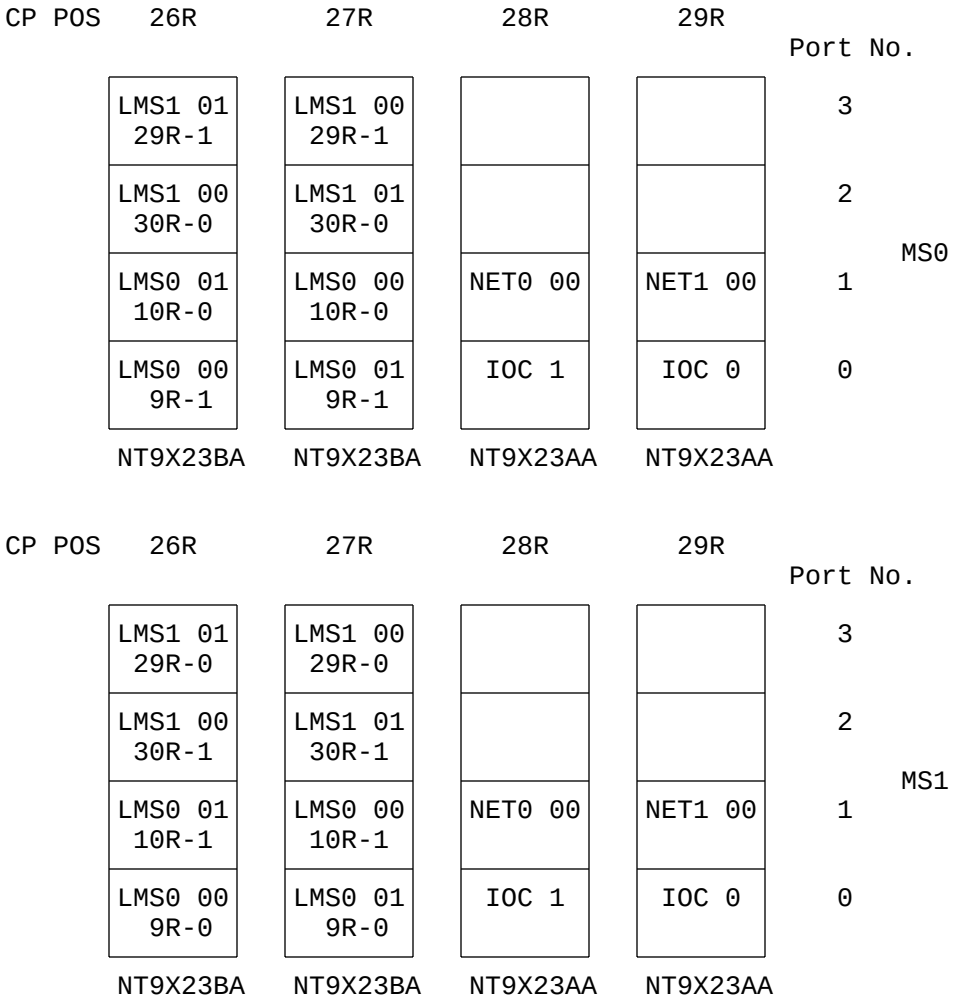


Figure 3
MS DS-30 Port Connections For Two LIM Configuration

3) The number of MS 4-Port CPs, NT9X17AA/AD, required per MS is given by the following:

$$\#\text{ 4-Port CPs per MS} = \#\text{LIM (rounded up to the nearest multiple of 2)} + \frac{(\#\text{NM} + \#\text{IOC})}{4}$$

rounded up to the next even integer as the NT9X17AA circuit packs are assigned in pairs per MS. 'NM' is a single plane.

If MS 4-port CP is used to interface to a LIM, it must be dedicated for that function. Network Modules and IOCs cannot share a MS 4-port CP that is also used to interface to a LIM.

4) The MS 4-Port CP, NT9X17AA/AD is the universal port card providing four (4) independent port appearances. These CPs support the standard DS-30 link to existing Network Modules (NMs), I/O Controllers (IOCs), and Link Interface Modules (LIMs), FLIS, AP/FP Modules and SuperNode Data Manager (SDM-FT).

5) IOC:00 and IOC:01 are fixed assigned to MS CP position 29 port 0 and MS CP position 28 port 0 respectively. In addition it is recommended that port assignments proceed from higher number slots toward lower number slots.

   Each IOC has two (2) messaging ports, one port connecting to each plane of the MS. Thus the number of IOC MS ports per MS plane equals the number of IOCs.

6) The NT9X17AD will be VO-ed in BCS34 and GA in BCS35. The NT9X17AD must be used in all new offices.

7) Provision NT9X17AD MS-4 Port Circuit Pack for FLIS Application. This pack can be used with NT9X62BA, SR-512 PaddleBoard. BCS33 is the required software for NT9X17AD in FLIS application.

8) For SDM-FT applications, provide two SR256 links on one NT9X17AD card per MS. In the rear of this card provide one NT9X62BA rear paddleboard. The length of the cable between the SDM-FT and the NT9X62BA card must be no more than 229.0 meters and the differential length of the pair must be no more than 50 meters.

   The SDM-FT requires one slot per Message switch plane and the cards on the two planes should be located in the same slot number. The SDM-FT port card can only be used for SDM use, no other application (FLIS, AP/FP etc.) can share any ports on the two slots. Only one SDM-FT is to be connected per SuperNode (DPCC).

9) For Enhanced LPP (NT9X70CA) applications, provide eight SR256 links on two NT9X17AD cards per MS. In the rear of this card provide two NT9X62BB rear paddleboards. The length of the cables between the ELPP and the NT9X62BB card must be no more than 229.0 meters and the differential length of the 8 cables must be no more than 7.5 meters.

It is recommended that the cards on the two planes be located in adjacent slot numbers. The ELPP port cards can only be used for ELPP use, no other application (FLIS, APC, SDM, etc.) can share any ports on the two slots. Another ELPP can be connected via the same cards as used for the first ELPP. For another one (1) or two (2) ELPPs, another 2 slots and 2 sets of cards will be required.

10) For Fiberized LPP (NT9X70BB Cabinet) applications, provide eight SR256 links on two NT9X17AD cards per MS. In the rear of this card provide two NT9X62BA rear paddleboards. The length of the cables between the FLPP and the NT9X62BA card must be no more than 229.0 meters and the differential length of the 8 cables must be no more than 7.5 meters.

    It is recommended that the cards on the two planes be located in adjacent slot numbers. The FLPP port cards can only be used for FLPP use, no other application (FLIS, APC, SDM, etc.) can share any ports on the two slots. Another FLPP can be connected via the same cards as used for the first FLPP. For another one (1) or two (2) FLPPs, another 2 slots and 2 sets of cards will be required.

11) See note after RUL9.

RUL6 1) Provide one (1) NT9X19AA, Filler Face Plate in each card slot (12F-29F) not equipped with a CP to satisfy the forced air cooling requirements of the frame.

RUL7 1) The number of NT9X23AA 4xDS-30 PBs to be provided is equal to the number of NT9X17AA/AD MS 4-Port CPs provided in RUL5.
Assign cards in descending order per RUL5.

2) Provision NT9X23BA 4xDS-30 PBs in place of NT9X23AA PBs to interface a LIM.

3) For Meridian Cabinet offices, provide a maximum of eight (8) NT9X23AA 4xDS-30 PB. Assign PB in descending order from 29R through 22R.

4) See note after RUL9.

RUL8 1) Provide one (1) NT9X32AA, MS Loading PaddleBoard in any unequipped slot (12R-29R), to provide impedance matching on the backplane. By equipping all unused slots (12R-29R) with NT9X32AA, the backplane impedance will have no discontinuities and will more closely match the termination value.

RUL9 1) Provide one (1) NT9X0164 cable for each NT9X23__ DS-30 PaddleBoard provided for SL100C Customer systems. These cables go from the NT9X23__ PBs to the DS-30 Bulkheads as follows:

FROM CONNECTOR P2 OF NT9X23__ IN PB POSITION	TO	
	CONN DESIG	BULKHEAD DESIGNATION
12R	A	DS30 BULKHEAD INTERFACE (RIGHT) NT9X6510
13R	B	
14R	C	
15R	D	
16R	E	
17R	F	
18R	G	
19R	H	
20R	I	
21R	G	DS30 BULKHEAD INTERFACE (LEFT) NT9X6511
22R	H	
23R	I	
24R	D	
25R	E	
26R	F	
27R	A	
28R	B	
29R	C	

2) Provide one (1) NT9X0145 cable for each NT9X23__ DS-30 PaddleBoard provided for DMS-100 systems. These cables go from the NT9X23__ PBs to the DS-30 Bulkheads as follows:

FROM CONNECTOR P2 OF NT9X23__ IN PB POSITION	TO	
	CONN DESIG	BULKHEAD DESIGNATION
12R	A	DS30 BULKHEAD INTERFACE (RIGHT) NT9X6536
13R	B	
14R	C	
15R	D	
16R	E	
17R	F	
18R	G	
19R	H	
20R	I	
21R	G	DS30 BULKHEAD INTERFACE (LEFT) NT9X6501
22R	H	
23R	I	
24R	D	
25R	E	
26R	F	
27R	A	
28R	B	
29R	C	

3) NOTE: For Meridian cabinet systems:

Bulkhead connectors A and B provide one (1) DS30 port. Bulkhead connector C provides two (2) DS30 ports. All other connectors (D to I) provide four (4) DS30 ports.

When the link from a piece of equipment does not use all the available ports on a connector, the unused ports cannot be used for other equipment.

For example: If an IOC shelf (requires one DS30 port) is assigned to connector D (supports 4 ports), the three unused DS30 ports are wasted.

Since each bulkhead connector is associated with a specific MS Port CP slot, the number of MS Port CPs calculated in RUL5 may have to be increased to account for wasted port connections. This will also increase the number of paddleboards required (reference RUL7).

RUL10 1) Provide one (1) NT9X06AD Common CP.

2) The NT9X06AC Common CP is updated to the NT9X06AD Common CP by applying the NT9X06AZ PC Kit for the Current Loop RTIF Feature. This kit upgrades the NT9X26AA to the NT9X26AB.

RUL11 1) Provide two (2) NT9X04AG Common CP.

2) The NT9X04AE Common CP may be updated to the NT9X04AG Common CP for the External Clock feature by applying the NT9X04AZ PC Kit.

3) Provide one (1) NT9X04AH per MS shelf to interface with ENET.

4) The NT9X04AG may be updated to the NT9X04AH by removing the NT9X49CA and making slot 32F provisionable. The NT9X04AY PC Kit is no longer required for this upgrade and is MD.

5) The NT9X04AE may be updated directly to the NT9X04AH Common CP if the external clock interface is not required. The NT9X04AY Product Change Kit is no longer required for this upgrade and is MD.

RUL12 1) When the SLM is a requirement, provide two (2) NT9X27AA CM BUS Extender PB, otherwise provide two (2) paddleboard filler face plates (NT9X19BA).

RUL13 1) Provide 1 Designation Label corresponding to each card provisioned.

2) The NT9X32AA Designation Labels are always provided on Shelves 26 & 39 at Card Slots 12R-29R.

RUL14 1) Provide one (1) NT9X0188 Cabling Interface Kit when powering the NT9X01JA cabinet from a Meridian Cabinet Power Distribution Panel (PDP). The kit provides power, ABS and alarm cables.

RUL15 1) Offices provisioned prior to general availability of the DMSCore will have a NT9X06AB CM Common Packfill. This packfill contains a NT9X12AA CPU Port CP. Refer to the following Software Release matrix for appropriate provisioning of the CPU Processor CP, and CPU Port CP.

2) Provide one (1) NT9X06CC CM Processor Upgrade Kit to field modify a NT9X06AB CM Common Packfill to a NT9X06AC Common Packfill. Provide one (1) NT9X06AZ PC Kit to field modify

a NT9X06AC CM Common Packfill to a NT9X06AD Common Packfill.

3) Provide two (2) NT9X13JA CPU (68020) processor CP in card slots 19F and 20F for each SuperNode Series 10 office. This processor has been Manufacture Discontinued.

   If an existing site is configured with a Series 10 processor, the customer is requested to contact the regional sales representative for details on how to upgrade to a Series 20 processor or higher for BCS-35 and above loads. See Section 4.1.2 ECM body.

4) Provide two (2) NT9X13BC CPU (68030 20 MHz) Proc CP in card slots 19F and 20F for each SuperNode Series 20 office.

5) Provide two (2) NT9X13GA CPU (68030 33 MHz) Proc CP in card slots 19F and 20F for each SuperNode Series 30 office.

6) Provide two (2) NT9X13HB CPU (68030 40 MHz) Proc CP in card slots 19F and 20F for each SuperNode Series 40 office.

7) For jobs requiring BRISC (Series 50 or 60 option), provide two (2) NT9X10AA (88000 33 MHz) BRISC CPU CP in card slots 19F and 20F. The NT9X10AA Processor provides ability to function with either NT9X14EA (96 MBytes memory) or NT9X14DB (24 MBytes memory) for Series 50 offices, or both the NT9X14DB and the NT9X14EA for Series 50 Mixed Memory offices. Series 50 Mixed Memory offices must use the NT9X26DC RTIF if mixed memory is required. The NT9X26DB RTIF does not support mixed memory for Series 50. Series 50 Mixed Memory offices are supported from NA004 and above.

   BRISC Series 60 offices do not support mixed memory. Either the NT9X14DB or the NT9X14EA may be used in a BRISC Series 60 office, but not both.

   When NT9X10AA is equipped with 24 MBytes memory, the system is called BRISC Series 50 and it is available from BCS-33 and above. When NT9X10AA is equipped with 96 MBytes memory, the system is called BRISC Series 60 option and it is available from BCS-36 and above. The maximum amount of addressable memory for switches using the 96 MByte cards is 400M in less than NA005. In NA005, the limit is 608M for Series 60 and 736M for Series 70.

   WARNING: A minimum of (2) 96M cards per side are required for Series 70. The real time capacity is impacted when the entire software image resides on the NT9X10BA.

The NT9X14EA memory boards have the capability to function in Burst mode. Burst mode memory is required to fully utilize the Series 60 BRISC option. This is available in the BCS-36 and above loads. Note that 24 MByte circuit boards do not function in burst mode. The new RTIF NT9X26DB will have to be provisioned with this NT9X10AA processor.

8) Provide one (1) NT9X0108 Series 60 EMI Kit per DPCC cabinet to maintain FCC and DOC EMI compliance when Series 60 processors or higher are provided.

9) For jobs requiring Series 70 option, provide two (2) NT9X10BA 60MHz 88110 BRISC CPU CP in card slots 19F and 20F. The BRISC Series 70 option is available from NA004 and above. The maximum amount of addressable memory for switches using the 96 MByte cards is 400M in less than NA005. In NA005, the limit is 608M for Series 60 and 736M for Series 70.

   WARNING: A minimum of (2) 96M cards per side are required for Series 70. The real time capacity is impacted when the entire software image resides on the NT9X10BA. The NT9X10BA has 256M of memory organized in 32 MByte blocks. The NT9X26EA RTIF must be provisioned with this NT9X10BA processor. Product is retired for North American applications.

10) A second Series 70EM option is being readied, provision two (2) NT9X10CA 60 MHz 88110 BRISC CPU CP in card slots 19F and 20F. The BRISC Series 70EM option is available from NA007 and above. The NT9X26FA RTIF must be provisioned with this NT9X10CA processor. Contact NPI or NPPI until this product reaches general availability.

11) Provide four (4) NT9X12AD CPU Port CP in card slots 17F, 18F, 21F and 22F for each Computing Module Processor Shelf Circuit Packfill. The NT9X12AD replaces the NT9X12AC, and is the preferred card. The NT9X12AD is required for BRISC. Selection of the NT9X13__ CP is based on availability date of the CP and Hardware-Software Coordination of the CPU Processor to the Memory CP provisioned per the following matrix:

    NOTE: The NT9X13EA CPU Processor CP has been rated MD. The NT9X13HA CPU has also been rated MD. The NT9X13EA can be supported for BCS27/28 and BCS29.

	SOFTWARE RELEASE					
	BCS24	BCS25		BCS26		
PROCESSORS NT9X13__	BA	BA	BB	BA	BB	BC
MEMORY CP NT9X14__	BB	BB	BB or BB/DA mix or BB/DB mix	BB	BB or BB/DA mix or BB/DB mix	BB or BB/DB mix or DB
PORT CP NT9X12__	AA	AA	AA or AB	AA	AA or AB	AB or AC

	SOFTWARE RELEASE					
	BCS27	BCS28		BCS29		
PROCESSORS NT9X13__	BC	BC	JA	BC	JA	GA
MEMORY CP NT9X14__	BB or BB/DB mix or DB	BB or BB/DB mix or DB	BB or BB/DB mix or DB	BB or BB/DB mix or DB	BB or BB/DB mix or DB	BB or BB/DB mix or DB
PORT CP NT9X12__	AB or AC	AB or AC	AB or AC	AB or AC	AB or AC	AB or AC

	SOFTWARE RELEASE				
	BCS30				
PROCESSORS NT9X13__	BC	JA	GA	HA	HB
MEMORY CP NT9X14__	BB or BB/DB mix or DB	BB or BB/DB mix or DB	BB or BB/DB mix or DB	BB or BB/DB mix or DB	BB or BB/DB mix or DB
PORT CP NT9X12__	AB or AC	AB or AC	AB or AC	AB or AC	AB or AC

	SOFTWARE RELEASE			
	BCS32			
PROCESSORS NT9X13__	BC	JA	GA	HB
MEMORY CP NT9X14__	BB or DB BB/DB mix	BB or BB/DB mix or DB	BB or BB/DB mix or DB	DB or BB/DA mix DB/BB mix
PORT CP NT9X12__	AC	AC	AC	AB/AC

RUL16 1) Provide two (2) NT9X04AF Message Switch Memory Upgrade Kits to field modify the NT9X04AB MS Common CP to NT9X04AE Com-

mon CP. When applying this change kit, provision the processor CP according to the latest BCS Software Compatability.

2) Provide one (1) NT9X04AD Memory Upgrade Kit to field modify the NT9X04AA to the NT9X04AB MS Common CP.

RUL17 1) Provide one (1) DS-30 Bulkhead Interface left (NT9X6510) per MS shelf and one (1) DS-30 Bulkhead Interface right (NT9X6511) per MS shelf for EMI interface to SL-100C Systems. The NT9X6510 has been rated MD and replaced by the NT9X6557. The NT9X6511 has been rated MD and been replaced by NT9X6537.

2) Provide one (1) MS Bulkhead Interface (left) (NT9X6556) and one (1) DS-30 Bulkhead Interface (right) (NT9X6536) per MS Shelf for interface to DMS-100 Systems. NT9X6501 has been rated MD and replaced by NT9X6556.

RUL18 1) Provide one (1) CPU 16MHZ CP (NT9X13DD) in card slot POS 9F in shelf position 26,39 for applications in BCS-35 AND ABOVE ONLY. This is not a BCS gating requirement.

2) Provide one (1) CPU 16 MHz CP (NT9X13DC) in card slot POS 9F in shelf position 26,39 for applications in BCS-29 and higher. The NT9X13DC should not be provisioned on new jobs at BCS-35 and higher.

3) Provide one (1) CPU 16 MHZ CP (NT9X13DB) in card slot POS 9F in shelf position 26,39 for applications in BCS-26 through BCS-28.

4) Provide one (1) CPU 16 MHZ CP (NT9X13DA) in card slot POS 9F in shelf position 26,39 for applications in BCS-25 and lower.

RUL19 1) Provide one (1) 6 MB Memory CP (NT9X14BB) in card slot POS 10F in shelf position 26,39. The NT9X14BB is NOT COMPATIBLE with the NT9X13DD CPU 16MHZ CP.

PM Note: New SN DPCCs should not be provided with the NT9X14BB MS memory for BCS-31 and above loads. Also, Offices with NA004 or higher require a minimum of 16M of memory and there will be only one common MS load.

2) Provide one (1) 24 MB Memory CP (NT9X14DB) in card slot POS 10F in shelf position 26, 39.

WARNING: The NT9X14DB is COMPATIBLE with the NT9X13DD or NT9X13DC ONLY for Series 10-40 Processors. The NT9X13DD and NT9X14DB combination is NOT supported for any BRISC processor and must be changed before attempting the up-grade. In NA004 and above only two configurations are sup-ported for BRISC processors (Series 50-70):
use either the NT9X13DD 16 Meg processor CP.
OR
use the NT9X13DC 4Meg Processor combined with a NT9X14DB 24Meg memory CP NOTE: the NT9X13DD is NOT COMPATIBLE with the NT9X14BB.

3) If an NT9X14BB or NT9X14DB is not used on the message switch, then provide two (2) NT9X19AA to fill the empty slot 10F on shelf 26 and 39. 4) Deleted.

4) Note: New SN DPCCs should not be provided with the NT9X14BB MS memory for BCS-31 and above loads.

Memory Required on the Message Switch	Circuit Packs Required Per MS PLANE
10 Meg	(1)NT9X13DC (1)NT9X14BB
16 Meg	(1)NT9X13DD
28 Meg	(1)NT9X13DC (1)NT9X14DB
40 Meg	(1)NT9X13DD (1)NT9X14DB

MS Memory Configuration and Software Loads.

PM Note: New SN DPCCs should not be provided with the NT9X14BB MS memory for BCS-31 and above loads. Also, Offices with NA004 or higher require a minimum of 16M of memory and there will be only one common MS load.

SOFTWARE	DESCRIPTION	MS MEMORY REQUIREMENT
MS-S	MS LOAD FOR JNET	REQUIRES 7MB
MS-E	MS LOAD FOR JNET/ENET/SSLPP/PH	REQUIRES 10MB
MS-I	MS LOAD FOR JNET/ENET/SSLPP/SCPII	REQUIRES 16MB

HARDWARE	SOFTWARE RELEASE		
	MS-S	MS-E	MS-I
13DB/14BB	YES	NO	NO
13DC/14BB	YES	YES	NO
13DC/14DB	YES	YES	YES
13DD	YES	YES	YES

RUL20 1) Provide one (1) MS Clock Interface PB (NT9X54AB) in card slot POS 8R in shelf position 26,39 for Stratum II, Stratum 2.5 or Stratum III North American applications. Also provision one (1) NT9X0192 Coax Cable Assembly per Message Switch for clock interface. The NT9X54AC has a Rating Change Pending and replaced by the NT9X54AD for North American Applications.

2) Provide one (1) MS External Clock Interface PB (NT9X54AC) in card slot POS 8R in shelf position 26,39 for Stratum I, Stratum II, Stratum 2.5 or Stratum III North American applications.

3) Provide one (1) MS External Clock PB (NT9X54AD) in card slot POS 8R in shelf position 26,39 for all Japan offices.

4) The NT9X53AD, NT9X53AC and NT9X53AB all are functionally compatible with NT9X54AC. However, the NT9X53AD is the recommended pack.

Note that, the NT9X53AB requires BCS28 or higher. NT9X53AC is incompatible with BCS30 or older BCS's. NT9X53AD is incompatible with BCS36 or older BCS's. For Stratum 2 configurations, provision the NT9X53AC instead of the NT9X53AD.

RUL21 1) Provide one (1) End of Aisle Lamp cable assembly (NT9X0146) if this is the last cabinet in the line-up. This cable should be provided during the M5 cabling spec. Refer to the CA drawing when this cable is required for end aisle cabling.

2) Provide one (1) End of Aisle Lamp cable assembly (NT9X0172) if the spares cabinet (NT9X01FA) is located between the NT9X01JA and the end of the line-up. This cable should be provided during the M5 cabling spec. Refer to the CA drawing when this cable is required for end aisle cabling.

RUL22 1) Provide one (1) Dual FSP Conn Panel Assy (NTEX5017) when 37 PIN "D" connectors are used for alarm cabling.

2) Also provide two (2) Dual FSP Bulkhead Panel Assy (NTEX5018) and two (2) FSP Bulking Cable Assemblies (NT9X0522) per Bulkhead Alarm I/F panel.

3) The items above are not required for new SuperNode cabinets which all use 25-pin connectors. For new cabinets provide the following instead.

4) Provide one (1) Dual FSP Connector Panel Assembly (NTEX5017) and one (1) Dual FSP Bulkhead Panel Assembly (NTEX5018).

5) Provide two (2) FSP Bulking Cable Assembly (NT9X0522) per dual FSP bulkhead panel assembly.

RUL23 1) Provision for a brown-colored cabinet. Used only with other brown exterior parts.

RUL24 1) Provision for a grey-colored cabinet. Used only with other grey exterior parts.

RUL25 1) Reserved.

RUL26 1) Reserved.

RUL27 1) Provide one (1) DS-30 Bulkhead Interface left (NT9X6558) per MS shelf and one (1) DS-30 Bulkhead Interface right (NT9X6538) per MS shelf for EMI interface to Meridian Cabinet systems. The NT9X6513 has been rated MD and replaced by the NT9X6558. The NT9X6514 has been rated MD and replaced by the NT9X6538.

RUL28 1) Provide NT9X0180, NT9X0182, NT9X0184, and NT9X0186 DS30 Cable Assemblies for every two (2) NT9X23__ DS-30 PaddleBoard provided for Meridian Cabinet systems. These cables go from the NT9X23__ PBs to the DS30 Bulkheads as follows:

FROM P2 ON NT9X23 PB		TO		
CA ASSY	CARD SLOT	CONN DESIGN	DS30 PORT	BULKHEAD DESIG.
NT9X0180	29R, 28R	C	1,2	NT9X6513 (LEFT)
		B	1	
		A	1	
		F	1,2,3,4	
NT9X0182	27R, 26R	E		
		D		
NT9X0184	25R, 24R	I		
		H		
NT9X0186	23R, 22R	A		(RIGHT) NT9X6514 rated MD. NT9X6538
		B		
NTEX5009	21R, 20R	C		
		D		
NTEX5011	19R, 18R	E		
		F		
NTEX5013	17R, 16R	G		
		H		
NTEX5015	15R, 14R	I		
		G		NT9X6513

RUL29 1) Provide one (1) NT9X53AD Combined Clock CP in card slot 8F in shelf position 26,39 for NA001 and higher. For Stratum 2 configurations, provision the NT9X53AC instead of the 9X53AD.

Note that the NT9X53AB requires BCS28 or higher. NT9X53AC is incompatible with BCS30 or older BCS's. NT9X53AD is incompatible with BCS36 or older BCS's.

2) When the External Clock Reference feature is requested in an existing office via the NT9X04AZ PC Kit, replace the existing NT9X53AA MS System Clock by providing two (2) NT9X53AD, two (2) NT9X53AC, or two (2) NT9X53AB in card slot 8F in shelf position 26,39.

Note that the NT9X53AB requires BCS28 or higher. NT9X53AC is incompatible with BCS30 or older BCS's. NT9X53AD is incompatible with BCS36 or older BCS's. For Stratum 2 configurations, provision the NT9X53AC instead of the NT9X53AD.

RUL30 1) Provide one (1) NT9X26AB Current Loop Remote Terminal Interface in card slot 9R in shelf position 26,39. The NT9X26AA has been Manufacture Discontinued.

2) If a Supernode is equipped with the Enhanced RTIF circuit pack (NT9X26AB) and the 20mA current loop local port is used, an approved 20mA current loop equipped VDT can be cabled directly to the Supernode RTIF. This connection is ISG compliant. (NOTE: The local port of the Enhanced RTIF circuit pack (NT9X26AB) can be used as either a 20mA current loop or RS232C EIA port). BCS28 or beyond must be required for the application of NT9X26AB Enhanced RTIF.

3) If a Supernode is equipped with the NT9X26AA RTIF circuit pack or the RS232C EIA port of the NT9X26AB is used, the back to back modem or the modem eliminators are still required to maintain ISG compliance. RTIF terminals connected to a Supernode via EIA must be connected through back to back modems or RAD units (U.S. Only).

4) For non-BRISC offices, provide two (2) NT9X26AB Current Loop Remote Terminal Interface and two (2) NT9X0196 RS232C & Current Loop Cable Assemblies in card slots 19R, 20R in shelf position 13.

5) For BRISC 50 Mixed Memory offices, provide two (2) NT9X26DC BRISC RTIF Circuit Packs in card slots 19R and 20R and two (2) NT9X0196 RS232 & Current Loop Assemblies.

6) For BRISC 50/60 offices, provide two (2) NT9X26DB/DC BRISC RTIF PB in card slots 19R and 20R and two (2) NT9X0196 RS232 & Current Loop Assemblies.

7) For BRISC offices, that already have two (2) NT9X26DA BRISC RTIF PB in card slots 19R and 20R, and Current Loop capability is now required, provide two (2) NT9X0196 RS232 and current loop assemblies.

8) For BRISC 70 offices, provide two (2) NT9X26EA BRISC RTIF PB in card slots 19R and 20R and two (2) NT9X0196 RS232 & current loop assemblies.

9) For BRISC 70EM offices, provide two (2) NT9X26FA BRISC RTIF PB when available in card slots 19R and 20R and two (2) NT9X0196 RS232 & current loop assemblies.

10) When upgrading from NT9X26AA to NT9X26DA/DB/DC/EA/FA the engineer will need to provision the following:

- (1) NT9X06AW (CM) Current Loop Upgrade Kit consisting of the following:
  - (2) NT9X0196 RS232C & Current Loop Cable
  - (2) A0336796 D Sub Filter Conn Cap
  - (8) A0279319 D Sub Connector Assy Screw Retainer
  - (8) A0317136 Screw Lock Female
- (2) Cables from DPCC Bulkhead to RTIF Term. The PEC for the cables depends on type of VDUs as shown on CA0X15.

11) For all offices, provide one (1) NT9X6539 and one (1) NT9X6540 cable bulkheads. The NT9X6507 and NT9X6508 Bulkheads have a rating change pending.

RUL31 1) ENET Offices: For the first 64 Messaging Ports for each ENET shelf pair, provide one (1) NT9X17DA and one (1) NT9X20BB/BC for each of the four port groups. The port groups are defined as follows:

port group 1 = ENET shelf plane 0 / MS0 interface
port group 2 = ENET shelf plane 0 / MS1 interface
port group 3 = ENET shelf plane 1 / MS0 interface
port group 4 = ENET shelf plane 1 / MS1 interface

Two (2) NT9X17DA and two (2) NT9X20BB/BC are required for each ENET shelf interface. One circuit pack is mounted in MS0 (shelf 26). The other circuit pack is mounted in MS1 (shelf 39).

Assign NT9X17DA in the following order:
Slots 12,13,14...25,26,27.

It is recommended that port assignments proceed from lower number slots towards higher number slots.

The NT9X17DA is used only with ENET and requires BCS31 or higher.

2) ENET Offices: For the final 64 Messaging Ports for each ENET shelf pair, provide one (1) NT9X17DA and one (1) NT9X25BA for each of the four port groups. The port groups are defined as follows:

port group 1 = ENET shelf plane 0 / MS0 interface
port group 2 = ENET shelf plane 0 / MS1 interface
port group 3 = ENET shelf plane 1 / MS0 interface
port group 4 = ENET shelf plane 1 / MS1 interface

Two (2) NT9X17DA and two (2) NT9X25BA are required for each ENET shelf interface. One circuit pack is mounted in plane 0 (shelf 26). The other circuit pack is mounted in plane 1 (shelf 39).

Assign NT9X17DA in the following order:
13,14,15...25,26,27.

It is recommended that port assignments proceed from lower number slots toward higher number slots.

The NT9X17DA is used only with ENET and requires BCS31 or higher.

3) ENET Offices: When the port requirements exceed 128 Messaging Ports for each ENET shelf pair, provide one (1) NT9X17DA and one (1) NT9X25AA for each of the four port groups, for each additional 64 ports. The port groups are defined as follows:

port group 1 = ENET shelf plane 0 / MS0 interface
port group 2 = ENET shelf plane 0 / MS1 interface
port group 3 = ENET shelf plane 1 / MS0 interface
port group 4 = ENET shelf plane 1 / MS1 interface

Two (2) NT9X17DA and two (2) NT9X25AA are required for each ENET shelf interface. One circuit pack is mounted in MS0 (shelf 26). The other circuit pack is mounted in MS1 (shelf 39).

Assign NT9X17DA in the following order:
13,14,15...24,25,26.

It is recommended that port assignments proceed from lower number slots toward higher number slots.

The NT9X17DA is used only with ENET and requires BCS31 or higher.

4) ENET Offices: For the first 128 Messaging Ports for each ENET shelf pair, provide one (1) NT9X17CA and one (1) NT9X20BC for each of the four port groups. The port groups are defined as follows:

port group 1 = ENET shelf plane 0 / MS0 interface
port group 2 = ENET shelf plane 0 / MS1 interface
port group 3 = ENET shelf plane 1 / MS0 interface
port group 4 = ENET shelf plane 1 / MS1 interface

Two (2) NT9X17CA and two (2) NT9X20BC are required for each ENET shelf interface. One circuit pack is mounted in plane 0 (shelf 26). The other circuit pack is mounted in plane 1 (shelf 39).

Assign NT9X17CA in the following order:
Slots 12,13,14,...25,26,27.

It is recommended that port assignments proceed from lower number slots towards higher number slots.

5) ENET Offices: For the final 128 Messaging Ports for each ENET shelf pair, provide one (1) NT9X17CA and one (1) NT9X25BA for each of the four port groups. The port groups are defined as follows:

port group 1 = ENET shelf plane 0 / MS0 interface
port group 2 = ENET shelf plane 0 / MS1 interface
port group 3 = ENET shelf plane 1 / MS0 interface
port group 4 = ENET shelf plane 1 / MS1 interface

Two (2) NT9X17CA and two (2) NT9X20BC are required for each ENET shelf interface. One circuit pack is mounted in plane 0 (shelf 26). The other circuit pack is mounted in plane 1 (shelf 39).

Assign NT9X17CA in the following order:
13,14,15,...25,26,27.

It is recommended that port assignments proceed from lower number slots toward higher number slots.

Note: The NT9X17CA and NT9X17DAs can exist in the same port group. However, it is highly recommended that the NT9X17CA occupy the head (first) position in the port group. There is not a significant time difference between switching the order of the cards and adding a card.

For ENET Initials, assign IOCs, EIOCs and LPPs to the highest numbered MS slots in descending order starting from slot 29 (i.e. slots 29, 28, etc.). These slots will contain 4-port cards (NT9X17AA/AD) in the front and 4-port DS-30 interface paddleboards (NT9X23AA for IOCs and EIOCs; NT9X23BA for LPPs) in the rear.

Assign the ENET ports to the lowest numbered MS slots in ascending order starting from slot 12 (i.e. slots 12, 13, etc.). However, the SAEs and EAEs should anticipate and plan all future growth on each ENET shelf and provision the MS cards accordingly, by leaving a spare slot for future expansion.

The following figures represent examples of the physical circuit pack assignments to a MS shelf for ENET-MS port groups of the four possible capacities. Please note these are examples and the MS can contain a mixture of ENET-MS port groups of various capacities and circuit pack locations. The NT9X20 and NT9X25 circuit packs (if required) of an ENET-MS port group must occupy contiguous slots on the MS as shown in the examples. The circuit pack locations shall be the same on the second MS shelf of the Supernode.

	Front	Rear	
12	NT9X17DA	NT9X20BC	I/F ENC0 00, SH 39, 64 PORTS
13	NT9X17DA	NT9X20BC	I/F ENC1 00, SH 39, 64 PORTS

	Front	Rear	
12	NT9X17DA	NT9X20BC	I/F ENC0 00, SH 39, 128 PORTS
13	NT9X17DA	NT9X25BA	
14	NT9X17DA	NT9X20BC	I/F ENC1 00, SH 39, 128 PORTS
15	NT9X17DA	NT9X25BA	

	Front	Rear	
12	NT9X17DA	NT9X20BC	I/F ENC0 00, SH 39, 196 PORTS
13	NT9X17DA	NT9X25AA	
14	NT9X17DA	NT9X25BA	
15	NT9X17DA	NT9X20BC	I/F ENC1 00, SH 39, 196 PORTS
16	NT9X17DA	NT9X25AA	
17	NT9X17DA	NT9X25BA	

	Front	Rear	
12	NT9X17DA	NT9X20BC	I/F ENC0 00, SH 39, 256 PORTS
13	NT9X17DA	NT9X25AA	
14	NT9X17DA	NT9X25AA	
15	NT9X17DA	NT9X25BA	
16	NT9X17DA	NT9X20BC	I/F ENC1 00, SH 39, 256 PORTS
17	NT9X17DA	NT9X25AA	
18	NT9X17DA	NT9X25AA	
19	NT9X17DA	NT9X25BA	

6) Provide two (2) NT9X49CA MS P-Bus Terminator CP in Super-node offices without ENET.

7) Provide two (2) NT9X49CB DMS-Bus Tracer CP one per MS, to allow for tracing of messages and aid in fault diagnostics and MS maintenance. This card must be used in all new offices and any existing offices that interface with ENET.

8) Provision NT9X62BA, SR-512 Fiber PaddleBoard, when several fiber links are required, and all of which do not have to run at full DS-512 bandwidth. This pack cannot be used for the inter-MS-Link (IML) feature. BCS33 is the required software for NT9X62BA.

RUL32 1) Provide one (1) NT9X6545 DS-30 Bulkhead Interface Left and one (1) NT9X6546 DS-30 Bulkhead Interface Right per MS shelf for Streamline.

RUL33 1) Provide one (1) NT9X6544 DS-30 Interface Cable Assembly for each NT9X23__ DS-30 Paddleboard. The MS can accept no more than forty (40) cables per shelf (twenty (20) per bulkhead). This limits the number of NT9X17__ circuit packs, which limits the number of CDSN and IOC that can be terminated. If this limit poses a problem, use ENET.

RUL34 1) Provide one (1) NT9X6558 DS-30 Bulkhead Interface Left for cabinetized systems.

RUL35 1) Provide one (1) NTEX5001 Overhead Power Block Kit for overhead power cabling of the SuperNode frame.

2) Provide one (1) NT9X0322 Power Boot Kit.

RUL36 Deleted.

RUL37 1) Provide one (1) NT9X04AX Message Switch Bulkhead Interface Upgrade Kit for each message switch shelf when interfacing an ENET cabinet with the NT9X01JA SuperNode cabinet.

RUL38 1) Provide one (1) P0675711 or P0689137 Label to be applied to Supernode FSP Unit. (Apply to Brown Cabinet only)

RUL39 1) Provide four (4) P0675712 or P0689138 Labels per cabinet. (Apply to Brown Cabinet Only)

RUL40 1) Provide one (1) P0675710 or P0689136 Label to be applied to the front of the cabinet below the blowers. (Apply to Brown Cabinet only)

RUL41 1) Port 0 on NT9X23AA CP in slots 28 and 29 are reserved for links to IOCs. The remaining ports can be used for Inter-MS links. RUL41 2) Provide NTEX5022 Cable for Inter-MS link option for connection between MS 0 and MS 1 when copper connection is required for DS-30 paddleboards when supernode cabinets are provisioned.

3) Provide NTEX5023 Cable for Inter-MS link option for connection between MS 0 and MS 1 when copper connection is required for DS-30 paddleboards when streamline cabinets are provisioned.

4) Provide A0352268 Cable for Inter-MS link option for connection between MS 0 and MS 1 when fiber optic connection is required for DS-512 paddleboards. This is not yet verified for FLIS application.

RUL42 1) Provide one (1) P0736273 Optical Fiber Label (English) per shelf when DS-512 Fiber paddleboards are provisioned. (ie. NT9X20xx/NT9X62xx etc..)

2) According to Customer based safety regulations, that indicate that "Laser Warning" labels must be affixed to SuperNode cabinets provisioned with fiber optic cables.

1M-WORD CONNECTORIZED DATA STORE SHELF

PEC CODE: NT3X31AF

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: DS

ENGINEERING DESCRIPTION: The Data Store provides data storage memory for DMS-100/200/300 Central Processing Unit. This unit provides back-panel connectors for connectorized cabling to the CPU.

REFERENCE DOCUMENTATION: MS3X31AF 01 03

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X31AF EMR4-04-DS-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The 1M-Word Connectorized Data Store Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
P/CD Store Shelf	NT3X3106		1			AP
Filler Face Plate .875	NT0X50AA		1		01	AP
Differential Mem Bus Term	NT3X35AB		1		02	RUL2
Filler Face Plate .875	NT0X50AA				02	RUL3
Differential Mem Bus I/F CP	NT3X36AB		1		03	AP
1M-Word Memory Controller	NT3X42AA		1		04	AP
64K MOS Memory CP for Spare	NT3X40AA		1		05	AP
64K MOS Memory CP	NT3X40AA				06-21	RUL1
Filler Face Plate .875	NT0X50AA				06-21	RUL3
1M-Word Backplane Terminator	NT3X4302		1		21R	AP
Power Converter (5V/12V)	NT2X07AB		1		22	AP
Power Converter (5V/40A)	NT2X06AB		1		25	AP
Desig. Label for NT3X35AB	P0580262				02	RUL4
Desig. Label for NT0X50AA	P0578498				02, 06-21	RUL5

RULE:

AP 1) When PEC NT3X31AF is ordered, these items are provided.

RUL1 1) Provide one (1) card per 64K words of DS memory up to a maximum of 16.

2) Always provide at least one memory CP.

3) NOTE: Due to CPU design limitations, 64K MOS Memory cards must not be equipped in slots 20 and 21 of DS:15.

RUL2 1) Provide one Balanced Mem Bus Terminator (NT3X35AB) if this DS is the last one in the CPU data bus daisy chain. see also MS3X31AE on Section EMR4-04-DS-1.

RUL3 1) Provide one (1) Filler Face Plate, NT0X50AA, in each location, 02, 06-21 which is not to be equipped with either a NT3X35AB or a NT3X40AA to satisfy the forced air cooling requirements of this shelf.

RUL4 1) Provide one (1) Designation Label which corresponds to the bus terminator CP provisioned under RUL2.

RUL5 1) Provide one (1) Designation Label corresponding to each filler face plate provisioned per RUL3.

MEMORY EXTENSION FRAME

PEC CODE: NT0X41AK

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: MEX

ENGINEERING DESCRIPTION:

REFERENCE DOCUMENTATION: MS0X41AK 01 04

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT0X41AK EMR4-04-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The Memory Extension Frame is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
1M-Word Conn Data Store Shf	NT3X31AF	DS	1	65		RUL0
1M-Word Data Store	NT3X31AE	DS		51		RUL1
Frame Supervisory Panel	NT0X28AB	FSP	1	45		AP
1M-Word Data Store	NT3X31AE	DS		32		RUL1
1M-Word Data Store	NT3X31AE	DS		18		RUL1
# Cooling Unit	NT0X30AD	CU		09		RUL2
Cooling Inverter Unit	NT3X90AA	CU		04		RUL10
Framework	NT0X25AA	FW	1			AP
Cage Filler Panel	NT0X84AA					RUL3
Data Store Local Cable	NT0X41AF		1	51,18		RUL5
Data Store Local Cable	NT0X41AG		1	32		RUL6
Power Cable	NT0X95BA		2	65		RULB
Power Cable	NT0X95BC		1	51		RUL7
Power Cable	NT0X95BB		1	51		RUL7
Power Cable	NT0X95BA		1	32		RUL8
Power Cable	NT0X95BD		1	32		RUL8
Power Cable	NT0X95BF		1	18		RUL9
Power Cable	NT0X95BG		1	18		RUL9
Alarm Interconnect Ca Assy	NT0X95AA		1	09		RULA
Alarm Interconnect Ca Assy	NT0X9567		2	04		RUL11
Product Change Kits	AR					RUL12

Rated MD. Replace by NT3X90AA.

RULES:

AP 1) When PEC NT0X41AK is ordered, these items are provided.

RUL0 1) Provide one 1M-Word Connectorized Data Store shelf (NT3X31AF) to accommodate the first additional 1M word of data store memory on the MEX frame. Equip per MS3X31AF.

RUL1 1) Provide one 1M-Word Data Store shelf, (DS) NT3X31AE, for each additional 1M words of Data Store memory required.

2) Equip each per MS3X31AE.

3) Assign to positions on frame in the following order:- 51, 32, 18.

RUL2 1) A Cooling Unit NT0X30AD is required for each MEX which is to be equipped with four (4) memory shelves. This unit is manufacture discontinued. Replace by NT3X90AA.

RUL3 1) Provide one Cage Filler Panel in any position, 51, 32, 18, which is not to be equipped with a DS and in position 04 if no CU is to be provided.

RUL4 1) When customer requirements specify that Grilles, Frame Doors and (or) Frame Trim Panels are to be ordered for these frames provide one NT0X08AH, one NT0X71AB and (or) two NT0X72AA per MEX as required.

RUL5 1) Provide one Data Store Local Cable, NT0X41AF, per DS located in positions 51 or 18.

RUL6 1) Provide one Data Store Local Cable, NT0X41AG, per DS located in position 32.

RUL7 1) Provide one of each Power Cable, NT0X95BC & NT0X95BB, per DS located in position 51.

RUL8 1) Provide one of each Power Cable, NT0X95BA & NT0X95BD, per DS located in position 32.

RUL9 1) Provide one of each Power Cable, NT0X95BF & NT0X95BG, per DS located in position 18.

RUL10 1) A Cooling Inverter Unit NT3X90AA is required for each MEX which is to be equipped with four (4) memory shelves.

RUL11 1) Provide two Alarm Interconnect Cable Assemblies, NT0X9567, if a Cooling Inverter Unit NT3X90AA is provided on the frame.

RUL12 1) For product change kit details, refer to section EMA4-99-000 Provisioning Change Kits.

RULA 1) Provide one Alarm Interconnect Cable Assembly, NT0X95AA, if a Cooling Unit NT0X30AD is provided on the frame.

RULB 1) Provide two (2) Power Cables, NT0X95BA, per DS located in position 65.

CENTRAL PROCESSOR UNIT & MEMORY NT3X41AA

RATING: MD. Replaced by NT3X41DA. See MS3X45AA.

ABBREVIATION NAME: CPM

ENGINEERING DESCRIPTION: The Central Processor Unit & Memory provides the micro-store and sequencing logic required to execute the program instructions as well as all the arithmetic and logic functions mecessary for efficient data manipulation. It also provides the basic system timing for register gating and clocking, emergency tmers and the interrupt logic. Additionally it accommodates a limited amount (up to 448K-words) of memory store.

REFERENCE DOCUMENTATION: MS3X41AA 01 03

The Central Processor Unit & Memory is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Processor Shelf	NT3X4101		1			AP
Filler Face Plate .875	NT0X50AA				01	RUL4
64K MOS Memory CP for Spare	NT3X40AA				01	RUL1
1M-Word Backplane Terminator	NT3X4302				01R	RUL1
64K MOS Memory CP	NT3X40AA				02-08	RUL2
Filler Face Plate .875	NT0X50AA				02-08	RUL4
1M-Word Memory Controller	NT3X42AA				09	RUL1
Filler Face Plate .875	NT0X50AA				09	RUL4
Unbalanced Data Port Ext	NT1X49AA				10	RUL3
Balanced Data Port Ext CP	NT1X50AB				10	RUL3
Processor Backplane Term	NT3X4303		1		10R	AP
CMC Interface CP	NT1X51AA		1		11	AP
4K ROM Extension Card	NT1X53AA		1		12	AP
Filler Face Plate .875	NT0X50AA		1		13	AP
Processor ROM DMS-100 CP	NT1X46AA		1		14	AP
Filler Face Plate .875	NT0X50AA		1		15	AP
Processor Maintenance CP	NT1X48AA		1		16	AP
Processor Timing & Cont CP	NT1X47AA		1		17	AP
Processor ALF CP	NT1X45AA		1		18	AP
Processor Stack CP	NT1X44AA		1		19	AP
Filler Face Plate .875	NT0X50AA		1		20	AP
Proc Prog Store Port CP	NT1X43AC		1		21	AP
Power Converter (5V/40A)	NT2X06AB		1		22	AP
Power Conv (+/-5V,+/-12V)	NT2X70AA				25	RUL1
Filler Face Plate 2.62	NT0X50AE				25	RUL4
Desig. Label for NT1X49AA	P0586901				10	RUL6
Desig. Label for NT1X50AB	P0591363				10	RUL6
Desig. Label for NT0X50AA	P0578498				01, 02-08, 09	RUL7
Desig. Label for NT0X50AE	P0591361				25	RUL7
Desig. Label for NT3X42AA	P0584746				09	RUL8
Desig. Label for NT2X70AA	P0586902				25	RUL8
Desig. Label for NT3X40AA	P0584745				01	RUL8
WRG: for On-Line MEM Spare	NT3X41AC					RUL1
WRG: for Fast DUNIT Option	NT3X41AE					RUL1
WRG: Address for DS:01	NT3X41AF					RUL5
WRG: Address for DS:02	NT3X41AG					RUL5
WRG: Address for DS:03	NT3X41AH					RUL5
WRG: Address for DS:04	NT3X41AJ					RUL5

RULE:

AP 1) When PEC NT3X41AA is ordered, these items are provided.

RUL1 1) Provide one of each of these items if part of this shelf is to be used either for Program Store or for Data Store (up to 448K-words) (see also MS3X45AA, RUL2 Section EMR4-05-000).

RUL2 1) Provide one (1) NT3X40AA for every 64K-words of memory up to a maximum of 7 cards (448k-words) if this shelf is to be used per RUL1. Assign cards in descending order by position starting with position 08.

2) Always provide at least one memory CP if this shelf is to be used per RUL1.

RUL3 1) Provide one Unbalanced Data Port Extender (NT1X49AA) if for the ultimate size of the office no Data Store shelf is expected to be mounted on a MEX. Otherwise provide one Balanced Data Port Extender (NT1X50AB).

2) Ensure that Data Store shelves are provied with corresponding single-ended or differential interface or interface terminator cards. See MS3X32AB, Section EMR4-05-DS-1.

RUL4 1) Provide one (1) Filler Face Plate in each location, 01-09 (NT0X50AA) and 25 (NT0X50AE) which is not to be equipped with a card to satisfy the forced air cooling requirements of this shelf.

RUL5 1) Select and provide one (1) only from among these items to furnish the 1M-word block address corresponding to the DS module number assigned if this shelf is to be used for DS per RUL1.

2) NOTE: (see MS3X45AA RUL1, Section EMR4-05-000)

a) This module cannot be DS:00.
b) This module must always be assigned the highest DS number for the office.
c) DS:00 must be equipped in shelf position 32 on the frame.

RUL6 1) Select and provide one (1) only Designation Label which corresponds to the port extender CP provisioned under RUL3.

RUL7 1) Provide one (1) Designation Label corresponding to each filler face plate provisioned per RUL4.

RUL8 1) Provide one (1) Designation Label corresponding to each card provisioned per RUL1.

1M-WORD DATA STORE SHELF

PEC CODE: NT3X32AB

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: DS

ENGINEERING DESCRIPTION: The Data Store provides data storage memory for DMS-100 Family Central Processing Unit.

REFERENCE DOCUMENTATION: MS3X32AB 01 01

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X32AB EMR4-05-DS-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The 1M-Word Data Store Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
P/D Store Shelf	NT3X3201		1			AP
Filler Face Plate .875	NT0X50AA		1		01	AP
Diff. Mem Bus I/F & Term	NT3X36AC				02	RUL2
Sngl-End Mem Bus I/F & Term	NT3X37AC				02	RUL2
Differential Mem Bus I/F	NT3X36AB				02	RUL2
Single-Ended Mem Bus I/F	NT3X37AA				02	RUL2
Filler Face Plate .875	NT0X50AA		1		03	AP
1M-Word Memory Controller	NT3X42AA		1		04	AP
64K MOS Memory CP for Spare	NT3X40AA		1		05	AP
64K MOS Memory CP	NT3X40AA				06-21	RUL1
Filler Face Plate .875	NT0X50AA				06-21	RUL3
1M-Word Backplane Term	NT3X4302		1		21R	AP
Filler Face Plate 2.62	NT0X50AE		1		22	AP
Pwr Converter +/-5V,+/-12V	NT2X70AA		1		25	AP
Desig. Label for NT3X36AB	P0586905				02	RUL5
Desig. Label for NT3X36AC	P0591369				02	RUL5
Desig. Label for NT3X37AA	P0591370				02	RUL5
Desig. Label for NT3X37AC	P0591371				02	RUL5
Desig. Label for NT0X50AA	P0578498				06-21	RUL6
WRG: Address for DS:01	NT3X32AE					RUL4
WRG: Address for DS:02	NT3X32AF					RUL4
WRG: Address for DS:03	NT3X32AG					RUL4
WRG: Address for DS:04	NT3X32AH					RUL4
WRG: Address for DS:05	NT3X32AJ					RUL4

RULES:

AP 1) When PEC NT3X32AB is ordered, these items are provided.

RUL1 1) Provide one (1) card per 64K words of DS memory up to a maximum of 16.

2) Always provide at least one memory CP.

3) NOTE: Due to CPU design limitations, 64K MOS Memory cards must not be equipped in slots 20 and 21 of DS:15.

RUL2 1) Provide one combined memory bus interface and terminator card if shelf is the last DS in the CPU data bus daisy

chain, otherwise provide one memory bus interface. The type of card to be provided will depend on the data bus arrangement selected (see MS3X41AA, Section EMR4-05-CPU-1) as follows:

DATA BUS ARRANGED FOR:	PROVIDE PEC: IF LAST SHELF	PROVIDE PEC: IF NOT LAST SHELF
Unbalanced Operation: (CPM (NT3X41AA) E/W NT1X49AA in slot 10)	NT3X37AC	NT3X37AA
Balanced Operation: (CPM (NT3X41AA) E/W NT1X50AB in slot 10)	NT3X36AC	NT3X36AB

2) NOTE: The DS contained in the CPU shelf is ignored in determining the last DS shelf for purposes of this rule. See also MS3X41AA, RUL1, Section EMR4-05-CPU-1.

RUL3 1) Provide one (1) Filler Face Plate, NT0X50AA, in each location, 06-21 which is not to be equipped with a NT3X40AA to satisfy the forced air cooling requirements of this shelf.

RUL4 1) Select and provide one (1) only from among these items to furnish the 1M-word block address corresponding to the DS module number assigned. Shelf defaults to DS:00.

RUL5 1) Select and provide one (1) only Designation Label which corresponds to the bus I/F CP provisioned under RUL2.

RUL6 1) Provide one (1) Designation Label corresponding to each filler face plate provisioned per RUL3.

CENTRAL MESSAGE & I/O DEVICE CONTROLLER NT2X76AA

RATING: MD. Replaced by NT2X76BA. See MS3X45AA.

ABBREVIATION NAME: MDC

ENGINEERING DESCRIPTION: The MDC provides a communication path between a plane's central processing unit and the other DMS-100 Family functional units. For applications in small and intermediate sized offices it can additionally function as an I/O Controller Module.

REFERENCE DOCUMENTATION: MS2X76AA 01 07

The Central Message & I/O Device Controller is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	MDC Shelf Assembly	NT2X7601		1			AP
#	Sync Clock Master Osc	NT3X15AA				01	RUL1
	Sync Clock Master Osc	NT3X15AB				01	RUL1
	Filler Face Plate .875	NT0X50AA				01	RUL5
	Filler Face Plate .875	NT0X50AA				02	RUL5
	Filler Face Plate .875	NT0X50AA				03	RUL5
	Master Clock Generator	NT3X13AA				03	RUL1
	Sync Master Clock Cont	NT3X14AA				04	RUL1,10
*	Sync Master Clock Cont	NT3X14BB				04	RUL11
	CMC Processor Interface CP	NT1X33AA		1		05	AP
	CMC Common Control CP	NT1X37AA		1		06	AP
	CMC Outgoing Control CP	NT1X34AA		1		07	AP
	CMC Incoming Control CP	NT1X35AA		1		08	AP
	CMC Peripheral Interface CP	NT1X36AB		2		09,10	AP
	CMC Peripheral Interface CP	NT1X36AB				11-22	RUL2
	Filler Face Plate .875	NT0X50AA				11-22	RUL5
	I/O Device Control CP	AR				15,17, 19,21	RUL4
	I/O Message Controller CP	NT1X62AB				23	RUL3
	Filler Face Plate 1.72	NT0X50AF				23	RUL5
	CMC/IOC Backplane Term	NT3X4304		1		23R	AP
	Pwr Converter +/-5V,+/-12V	NT2X70AA		1		25	AP
	Desig. Label for NT3X13AA	P0591368				03	RUL9
	Desig. Label for NT3X14AA	P0586904				04	RUL9
	Desig. Label for NT3X14BB	P0634801				04	RUL9
	Desig. Label for NT3X15AB	P0599371				01	RUL9
	Desig. Label for NT1X67AB	P0586906				15,17, 19	RUL9
	Desig. Label for NT1X67BC	P0623517				15,17, 19	RUL9
	Desig. Label for NT1X67BB	P0596557				15,17, 19	RUL9
	Desig. Label for NT1X68AB	P0591367				15,19, 21	RUL9
	Desig. Label for NT1X68AC	P0613392				15,19, 21	RUL9
	Desig. Label for NT1X68BD	P0618544				15,19, 21	RUL9
	Desig. Label for NT0X50AA	P0578498				01-03 11-22	RUL9
	Desig. Label for NT0X50AF	P0596104				23	RUL9

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
WIRING:						
$ SYNC OFF.W/O EXT MA FREQ REF	NT2X76AB					RUL6
% SYNC MA OF W EXT MA FREQ REF	NT2X76AC					RUL7
MA OFF W EXT 10.24 MHz	NT2X76AD					RUL10
MASTER ATOMIC CLOCK						
EXT MA FREQ REF, 10.24 MHz	NT2X76AM					RUL8
EXT MA FREQ REF, 10.00 MHz	NT2X76AN					RUL8
EXT MA FREQ REF, 5.00 MHz	NT2X76AP					RUL8
EXT MA FREQ REF, 2.56 MHz	NT2X76AR					RUL8
EXT MA FREQ REF, 2.048 MHz	NT2X76AS					RUL8
EXT MA FREQ REF, 1.024 MHz	NT2X76AT					RUL8
EXT MA FREQ REF, 1.0 MHz	NT2X76AW					RUL8
SYNC OFF W/O EXT MA FREQ REF	NT2X76BB					RUL6
SYNC MA OF W EXT MA FREQ REF	NT2X76BC					RUL7

\# Rating change pending. On new jobs replace with NT3X15AB.
$ MD. Replaced by NT2X76BB.
% MD. Replaced by NT2X76BC.

* NOTE: Advanced information. User please verify RTS date.

RULE:

AP 1) When PEC NT2X76AA is ordered, these items are provided.

2) Two CMC Peripheral Interface cards provided with this shelf will interface up to ten Network Modules and I/O Controller Modules subject to the conditions provided under RUL2.

3) The Central Message & I/O Device Controller Module is capable of functioning both as a conventional CMC and optionally as an I/O Controller. Since these functions overlap with respect to card slot assignment the capacity of each is reduced by the other.

4) By equipping the I/O Controller function on the MDC separate IOC shelves can be eliminated or reduced in number for a net saving in hardware. Subject to the following conditions this option should always be selected:-

a) This option should not be selected if the ultimate network size is expected to exceed 19 NET per plane. Separate IOC shelves should be provided instead.

Note: (i) The above limit allows for a maximum of 3 I/O Device Controller cards per MDC. The user may wish to set the limit to 14 NET to allow for the maximum of 4 cards.

(ii) The above limits are decreased by one (1) for each additional 2 IOC shelves required.

b) This option should not be selected if the number of I/O Device Controller cards provisioned exceeds 15 (17, if the NET cutoff is 14).

c) Maximum cabling distances (15 feet) to the MTD must not be exceeded. Maximum cabling distance to the DDU is 18 feet.

d) CCC and MTC/IOE frames equipped with MTD must be co-located.

e) If selected the function must be provided on both shelves (planes 0 & 1). The controller on plane 0 shall be designated IOC:00 and on plane 1, IOC:01 (see Table B, Section EMA14-02-000, for fixed assignments affecting I/O modules.).

f) Additional IOC shelves can be provisioned on MTC/IOE frames as required.

g) This option should not be selected if for the ultimate office size an MEX frame will be required.

RUL1 1) Provide one Synchronizable Master Clock Controller (NT3X14AA) and one Synchronizable Master Clock Oscillator (NT3X15AB) if inter-office synchronization of CCC clocks is expected to be a requirement of the office. Otherwise provide one Master Clock Generator (NT3X13AA).

RUL2 1) Provide one CMC Peripheral Interface card for each additional five Network Modules or five (5) I/O Device Controller modules or any combination thereof subject to the following assignment conditions.

a. Module IOC:00 shall be assigned to port 00, card pos 09, terminal 0.

b. Module IOC:01 shall be assigned to port 05, card pos 10, terminal 0.

c. Plane 0 Network Modules shall be assigned to ports on cards in odd numbered slots.

d. Plane 1 Network Modules shall be assigned to ports on cards in even numbered slots.

e. Network Module duplicates of the two planes shall be assigned to like terminals on cards located in adjacent slots subject to c and d above.

RUL3 1) Provide one (1) I/O Message Controller card (NT1X62AB) if shelf is to function as an I/O Controller (see AP 4 above).

RUL4 1) The Central Message & I/O Device Controller shelf provides space to mount up to four (4) I/0 device control cards if the slots are not required for CMC Peripheral I/F cards (see AP 4 above). Refer to Table B, Section EMA14-02-000, for the types of control cards which can mount on NT2X76AA and related assignment restrictions.

RUL5 1) Provide one (1) Filler Face Plate .875, NT0X50AA, in each position, 01-03 and 11-22 which is not to be equipped with a card and one (1) Filler Face Plate 1.72 (NT0X50AF) in position 23 if not to be equipped with a NT1X62AB to satisfy the forced air cooling requirements of this shelf.

RUL6 1) Provide one (1) (NT2X76BB) if office is to be equipped for inter-office clock synchronization either as a slave or as a master which is not driven from an external master reference frequency.

RUL7 1) Provide one (1) (NT2X76BC) if office is to be equipped for inter-office clock synchronization as a master which is driven from an external master reference frequency.

RUL8 1) Select and provide one (1) (NT2X76AM-AW) which corresponds to the operating frequency of the external master reference for an office equipped per RUL7.

RUL9 1) Provide one (1) corresponding designation label for each card provisioned under RUL1, RUL4, RUL5 and RUL11.

RUL10 1) Provide one (1) NT3X14AA and one (1) NT2X76AD if office is to be a master office with external 10.24 MHz master atomic

clock. This feature (NT3X14AA alone) is not supported in software and should not be used at this time.

RUL11 1) Provide one (1) NT3X14BB if office is to be a master office with external reference atomic clock and programmable frequency input and equipped with Master Reference Frequency Frame (or equivalent).

2) NT3X14BB is downward compatible with NT3X14AA.

1M-WORD PROGRAM STORE SHELF NT3X32AA

RATING: MD. See MS3X45AA.

ABBREVIATION NAME: PS

ENGINEERING DESCRIPTION: A PS provides memory for DMS-100 Family Central Processing Unit.

REFERENCE DOCUMENTATION: MS3X32AA 01 04

The 1M-Word Program Store Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
P/D Store Shelf Assembly	NT3X3201		1			AP
Filler Face Plate .875	NT0X50AA		1		01	AP
Sngl End Mem Bus I/F & Term	NT3X37AC		1		02	RUL2
Single Ended MEM Bus I/F CP	NT3X37AA		1		02	RUL2
Filler Face Plate .875	NT0X50AA		1		03	AP
1M-Word Memory Controller	NT3X42AA		1		04	AP
64K MOS Memory CP for Spare	NT3X40AA		1		05	AP
64K MOS Memory CP	NT3X40AA				06-21	RUL1
Filler Face Plate .875	NT0X50AA				06-21	RUL3
1M-Word Backplane Term	NT3X4302		1		21R	AP
Filler Face Plate 2.62	NT0X50AE		1		22	AP
Pwr Converter +/-5V,+/-12V	NT2X70AA		1		25	AP
Desig. Label for NT3X37AA	P0591370				02	RUL4
Desig. Label for NT3X37AC	P0591371				02	RUL4
Desig. Label for NT0X50AA	P0578498				06-21	RUL5

RULE:

AP 1) When PEC NT3X32AA is ordered, these items are provided.

RUL1 1) Provide one (1) card per 64K words of PS memory up to a maximum of 16.

2) Always provide at least one memory CP.

3) NOTE: Due to CPU design limitations, 64K MOS Memory cards must not be equipped in slots 20 and 21 of PS:01.

RUL2 1) Provide one Single-Ended Mem Bus I/F & Term. (NT3X37AC) if the PS is the last one in the program store memory bus daisy chain; else provide one Single-Ended Mem Bus I/F CP (NT3X37AA).

RUL3 1) Provide one (1) Filler Face Plate, NT0X50AA, in each location, 06-21, which is not to be equipped with a NT3X40AA to satisfy the forced air cooling requirements of this shelf.

RUL4 1) Select and provide one (1) only Designation Label which corresponds to the bus I/F CP provisioned under RUL2.

RUL5 1) Provide one (1) Designation Label corresponding to each filler face plate provisioned per RUL3.

CENTRAL CONTROL FRAME (DOUBLE BAY) NT3X45AA

RATING: MD. On new jobs replace by NT3X45DA.

ABBREVIATION NAME: CCC (See Note AP 2 below)

REFERENCE DOCUMENTATION: MS3X45AA 01 15

The Central Control Frame (Double Bay) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Central MSG & I/O Dev Ctlr	NT2X76AA	MDC	2	65		RUL1
Central Proc & Mem Module	NT3X41AA	CPM	2	51		RUL1
Frame Supervisory Panel	NT0X28AA	FSP	2	45		RUL1
1 M-Word Data Store	NT3X32AB	DS	2	32,18		RUL2
1 M-Word Program Store	NT3X32AA	PS	2	32,18		RUL2
Cooling Unit	NT0X30AD	CU	2	09		RUL1
Inverter Unit	NT0X87AA	INV	2	04		RUL1
Framework	NT0X25AA	FW	2			AP
Local Cable CPM to PS	NT3X45AC		2	18		RUL2
Local Cable DS to DS (CPM)	NT3X45AE		2	32		RUL2
Local Cable CCC to MEX	NT3X45AH	MEX	2			RUL4
Local Cable PS to PS	NT3X45AJ		2	18		RUL2
Local Cable CPM to PS	NT3X45AK		2	32		RUL2
Local Cable CPM to DS	NT3X45AL		2	32		RUL2
Local Cable PS to PS (CPM)	NT3X45AM		2	32		RUL2
Local Cable CPM to DS	NT3X45AN		2	18		RUL2
DOC Certification Label	P0663265			45		RUL5
Product Change Kits	AR					RUL6

RULE:

AP 1) When PEC NT3X45AA is ordered, these items are provided.

2) NT3X45AA is a double bay frame consisting of 2 identical Central Control Complex Frames (CCC).

RUL1 1) Provide two (2) of each of these items per CCC pair (NT3X45AA). Equip NT2X76AA and NT3X41AA per MS2X76AA and MS3X41AA respectively.

2) The duplicated MDC ordered here is capable of interfacing all CPU peripherals (NET & IOC) as CMC0:00 & CMC1:00. It can additionally interface directly to a limited number of I/O devices while functioning as IOC:00 & IOC:01 (see MS2X76AA, Section EMR4-05-MDC-1).

   Caution: if used to interface Magnetic Tape Drives (MTD) as IOC:00 or IOC:01 then the CCC and MTC frames must be located adjacent to each other (see also NT0X43AB, Section EMR5-01-001).

3) The duplicated CPM can accommodate up to 448K-Words of either PS or DS (normal n + 1-spare format). In order to gain access to this block of memory, shelf position 32 must be equipped with corresponding duplicated PS or DS memory shelves. These shelves, designated either PS:00 or DS:00, must be fully equipped with memory cards (1M-Word) before memory cards can be assigned on the CPM.

4) CPM design also allows the spare memory card to be assigned as normal memory so as to increase store capacity (512K-words). However since this degrades CCC reliability, is not supported by existing or planned S/W and is not considered a DMS offering it will not be considered here.

5) The duplicated DS ordered in position 18 or 32 will accommodate the first 1M-Word of DS memory. Additional memory may be accommodated on the CPM shelf and (or) on new DS shelves equipped on Memory Extension Frames (MEX) (see MS3X45AB, Section EMR4-06-000).

6) In order to maintain contiguous memory assignment then:

   a) Program store or data store on the CPM must always be assigned as the highest numbered PS or DS.

   b) all other PS or DS shelves must be fully equipped with memory cards before this shelf is equipped.

   c) these conditions must be maintained during extensions by re-assignment of cards and address strapping as required. However, note that a maximum of two (2) shelves per plane may be designated as PS.

RUL2 1) The provisioning of Program Store and Data Store Memory on the CCC is determined based on the office program store requirements. Three different configurations are possible. The configuration which will most economically accommodate

the anticipated ultimate program store requirements of the office should be selected:

NOTE: Due to its limited applcation, greater probability of expensive field conversion and in order to assist the manufacturing process, Configuration I must not be selected.

		FOR PROGRAM STORE ULTIMATE SIZE OF: (in K-Words)		
		0000-1024	1024-1472	1472-1920
PROVISION:		CONFIG I	CONFIG II	CONFIG III
Provision PS:00	PEC	NT3X32AA	NT3X32AA	NT3X32AA
	POS	18	32	32
Provision PS:01*	PEC	Do not	Use CPM*	NT3X32AA*
	POS	provide		18
Provision DS:00	PEC	NT3X32AB	NT3X32AB	NT3X32AC
	POS	32	18	MEX 00 65
Provision CPM for:		DS* (as req'd)	PS:01* (as req'd)	Not used as memory
Provide Local Cables:		NT3X45AC NT3X45AE* NT3X45AL	NT3X45AK NT3X45AM* NT3X45AN	NT3X45AJ* NT3X45AK NT3X45AH

* These items need not be provided initially. They can be furnished as and when required.

2) Equip NT3X32AA and NT3X32AB per MS3X32AA and MS3X32AB respectively.

RUL3 1) When customer requirements specify that Grilles, Frame Doors and (or) Frame Trim Panels are to be ordered for these frames, provide two NT0X08AH, two NT0X71AB and (or) four NT0X72AA per NT3X45AA as required.

RUL4 1) Provide two (2) NT3X45AH per CCC pair (NT3X45AA) if Memory Extension Frames (MEX) are also being provided initially. Corresponding switchboard cables are not to be ordered on the cable spec if these cables are provisioned.

RUL5 1) Provide one (1) label per NT3X45AA for Canadian offices equipped with IBN software.

2) Put label on FSP Bay 0 only.

RUL6 1) For product change kit details, refer to section EMA4-99-000 Provisioning Table for Product Change Kits.

DPCC MERIDIAN CABINET INTERFACE

PEC CODE: NT9X01PA

CPC CODE: B0229768

RATING: MD

REPLACES: Not Applicable.

REPLACED BY: No Replacement.

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The DPCC Meridian Cabinet Interface fill contains the circuit packs and paddle boards that are always provided for an Meridian Cabinet SuperNode.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA
Carrier
Wireless

ISSUE AUTHOR: NTI: Scott Maggiolo Dept. 3471 (PPK)

MAIN CONTACT: NTI: Scott Maggiolo Dept. 3471 (PPK)

NT9X01PA EMR4-05-001 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 07 11	ECM 626 25	MD Section.

The DPCC Meridian Cabinet Interface is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
-5VOLTS POWER CONVERTER CP	NT9X31AA		4	26,39	1F,33F	AP
+5VOLTS POWER CONVERTER CP	NT9X30AA		2	26,39	4F,36F	AP
T-BUS ACCESS CP	NT9X52AA		2	26,39	7F	AP
MS SYS CLK-EXT OPTION 1 CP	NT9X53AB		2	26,39	8F	AP
CPU (16 MHZ) CP	NT9X13DB		2	26,39	9F	AP
MEM. 6M CP (SYNC OVERRIDE)	NT9X14BB		2	26,39	10F	AP
MAPPER CIRCUIT PACK	NT9X15AA		2	26,39	11F	AP
MS-4PORT CIRCUIT PACK	NT9X17AA		4	26,39	30F,31F	AP
MS P-BUS TERMINATOR CP	NT9X49CA		2	26,39	32F	AP
M.S. LOAD CP	NT9X32AA		4	26,39	7R,10R	AP
REMOTE TERM INTF ADD TRAP	NT9X26AA		2	26,39	9R	AP
FILLER PADDLEBOARD CP	NT9X19BA		4	26,39	11R,32R	AP
DS512 PADDLEBOARD CP	NT9X20AA		8	26,39	30R,31R	AP
DESIGN STRIP FT MS-9X01PA	P0703653		2	26,39		AP
SHELF PACKFILL REAR LABEL	P0690632		2	26,39		AP
-5VOLTS POWER CONVERTER CP	NT9X31AA		2	13	1F,33F	AP
+5VOLTS POWER CONVERTER CP	NT9X30AA		2	13	4F,36F	AP
CPU PORT CP (BCS-26)	NT9X12AB		4	13	17F,18F, 21F,22F	AP
CMBUS TERMINATOR PADDLEBRD	NT9X21AA		2	13	7R,32R	AP
CM PROC SH BUS EXTENDER CP	NT9X27AA		2	13	8R,31R	AP
FILLER PADDLEBOARD CP	NT9X19BA		14	13	9R-15R, 24R-30R	AP
CM SUBSYS CLOCK PDBRD	NT9X22CA		2	13	16R,23R	AP
DS512 PADDLEBOARD CP	NT9X20AA		4	13	17R,18R, 21R,22R	AP
REMOTE TERM INTF ADD TRAP	NT9X26AA		2	13	19R,20R	AP
DESIG STRIP REAR CM-9X01PA	P0703651		1	13		AP
DESIGN STRIP FT CM-9X01PA	P0703650		1	13		AP
+12V POWER CONVERTER CP	NT9X47AA		2	00	1F,33F	AP
+5VOLTS POWER CONVERTER CP	NT9X30AA		2	00	4F,36F	AP
FILLER CIRCUIT PACK	NT9X19AA		8	00	7F,16F, 17F,19F, 20F,22F, 23F,32F	AP
SYSTEM LOAD UNIT ASSY	NT9X44AA		2	00	8F,24F	AP
CPU PORT CP (BCS-26)	NT9X12AB		2	00	18F,21F	AP

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
CM EXT SH BUS EXTENDER CP	NT9X27BA		2	00	7R,32R	AP
PARA PORT INTF PADDLEBRD	NT9X46AA		4	00	8R,18R,	AP

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
FILLER PADDLEBOARD CP	NT9X19BA		16	00	9R-15R, 17R,20R, 25R-31R	AP
CM SUBSYS CLOCK PDBRD	NT9X22CA		2	00	16R,23R 21R,24R	AP
CMBUS TERMINATOR PADDLEBRD	NT9X21AA		4	00	19R,22R	AP
CM EXTENSION CABLE ASSY	NT9X0167		2			AP
CM BUS EXTENSION CA ASSY	NT9X0757		6			AP
DESIGN STRIP NT9X07AA-REAR	P0687763		1	00		AP
DESIGN STRIP FT SLM-9X01PA	P0703649		1	00		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NT9X01PA is ordered, these items are provided.

1M-WORD CONNECTORIZED DATA STORE SHELF

PEC CODE: NT3X32AC

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: DS

ENGINEERING DESCRIPTION: The Data Store provides data storage memory for DMS-100 Family Central Processing Unit. This unit provides back-panel connectors for connectorized cabling to the CPU.

REFERENCE DOCUMENTATION: MS3X32AC 01 01

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X32AC EMR4-06-DS-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The 1M-Word Connectorized Data Store Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
P/D Store Shelf Conn	NT3X3204		1			AP
Filler Face Plate .875	NT0X50AA		1		01	AP
Diff. Mem Bus I/F & Term	NT3X36AC		1		02	RUL2
Differential Mem Bus I/F CP	NT3X36AB				02	RUL2
Filler Face Plate .875	NT0X50AA		1		03	AP
1M-Word Memory Controller	NT3X42AA		1		04	AP
64K MOS Memory CP for Spare	NT3X40AA		1		05	AP
64K MOS Memory CP	NT3X40AA				06-21	RUL1
Filler Face Plate .875	NT0X50AA				06-21	RUL3
1M-Word Backplane Term	NT3X4302		1		21R	AP
Filler Face Plate 2.62	NT0X50AE		1		22	AP
Pwr Converter +/-5V +/-12V	NT2X70AA		1		25	AP
Desig. Label for NT3X36AB	P0586905				02	RUL5
Desig. Label for NT3X36AC	P0591369				02	RUL5
WRG: Address for DS:01	NT3X32AE					RUL4
WRG: Address for DS:02	NT3X32AF					RUL4
WRG: Address for DS:03	NT3X32AG					RUL4
WRG: Address for DS:04	NT3X32AH					RUL4

RULES:

AP 1) When PEC NT3X32AC is ordered, these items are provided.

RUL1 1) Provide one (1) card per 64K words of DS memory up to a maximum of 16.

2) Always provide at least one memory CP.

3) NOTE: Due to CPU design limitations, 64K MOS Memory cards must not be equipped in slots 20 and 21 of DS:15.

RUL2 1) Provide one Differential Mem Bus I/F & Terminator (NT3X36AC) if this DS is the last one in the CPU data bus daisy chain, else provide one Differential Memory Bus I/F (NT3X36AB). See also MS3X32AB on Section EMR4-05-DS-1.

NOTE: The DS contained in the CPM shelf is ignored in determining the last DS shelf for purposes of this rule. See also MS3X45AA, RUL1, Section EMR4-05-000.

RUL3 1) Provide one (1) Filler Face Plate, NT0X50AA, in each location, 06-21 which is not to be equipped with a NT3X40AA to satisfy the forced air cooling requirements of this shelf.

RUL4 1) Select and provide one (1) only from among these items to furnish the 1M-word block address corresponding to the DS module number assigned. Shelf defaults to DS:00.

RUL5 1) Select and provide one (1) only Designation Label which corresponds to the bus I/F CP provisioned under RUL2.

MEMORY EXTENSION FRAME

PEC CODE: NT3X45AB

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: MEX

ENGINEERING DESCRIPTION:

REFERENCE DOCUMENTATION: MS3X45AB 01 05

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45AB EMR4-06-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The Memory Extension Frame is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
1M-Word Conn Data Store Shf	NT3X32AC	DS	1	65		RUL0
1M-Word Data Store	NT3X32AB	DS		51		RUL1
% Frame Supervisory Panel	NT0X28AB	FSP	1	45		RULB
Frame Supervisory Panel	NT0X28AF	FSP	1	45		RULB
1M-Word Data Store	NT3X32AB	DS		32		RUL1
1M-Word Data Store	NT3X32AB	DS		18		RUL1
# Cooling Unit	NT0X30AD	CU		09		RUL2
Cooling Inverter Unit	NT3X90AA	CU		04		RUL10
Framework	NT0X25AA	FW	1			AP
Basic Assembly Wiring						
Cage Filler Panel	NT0X84AA					RUL3
Data Store Local Cable	NT3X45AF		1	51,18		RUL5
Data Store Local Cable	NT3X45AG		1	32		RUL6
Power Cable	NT0X95BC		1	51		RUL7
Power Cable	NT0X95BB		1	51		RUL7
Power Cable	NT0X95BA		1	32		RUL8
Power Cable	NT0X95BD		1	32		RUL8
Power Cable	NT0X95BF		1	18		RUL9
Power Cable	NT0X95BG		1	18		RUL9
Alarm Interconnect CA Assy	NT0X95AA		1	09		RULA
Alarm Interconnect CA Assy	NT0X9567		2	04		RUL11
Product Change Kits	AR					RUL12
Power Converter PC Kit	NT2X70AZ					RUL13

Rated MD. Replaced by NT3X90AA.

RULES:

AP 1) When PEC NT3X45AB is ordered, these items are provided.

2) For additional rules governing the assignment of DS see MS3X45AA, RUL1, Section EMR4-05-000.

RUL0 1) Provide one 1M-Word Connectorized Data Store shelf (NT3X32AC) to accommodate the first 1M word of data store memory on each MEX frame. Equip per MS3X32AC.

RUL1 1) Provide one 1M-Word Data Store shelf, (DS) NT3X32AB, for each additional 1M words of Data Store memory required.

2) Equip each per MS3X32AB.

3) Assign to positions on frame in the following order:- 51, 32, 18.

RUL2 1) A Cooling Unit NT0X30AD is required for each MEX which is to be equipped with four (4) memory shelves. This unit is manufacture discontinued. Replace by NT3X90AA.

RUL3 1) Provide one Cage Filler Panel in any position, 51, 32, 18, which is not to be equipped with a DS and in position 04 if no CU is to be provided.

RUL4 1) When customer requirements specify that Grilles, Frame Doors and (or) Frame Trim Panels are to be ordered for these frames provide one NT0X08AH, one NT0X71AB and (or) two NT0X72AA per MEX as required.

RUL5 1) Provide one Data Store Local Cable, NT3X45AF, per DS located in positions 51 or 18.

RUL6 1) Provide one Data Store Local Cable, NT3X45AG, per DS located in position 32.

RUL7 1) Provide one of each Power Cable, NT0X95BC & NT0X95BB, per DS located in position 51.

RUL8 1) Provide one of each Power Cable, NT0X95BA & NT0X95BD, per DS located in position 32.

RUL9 1) Provide one of each Power Cable, NT0X95BF & NT0X95BG, per DS located in position 18.

RUL10 1) A Cooling Inverter Unit NT3X90AA is required for each MEX which is to be equipped with four (4) memory shelves.

RUL11 1) Provide two Alarm Interconnect Cable Assemblies, NT0X9567, if a Cooling Inverter Unit NT3X90AA is provided on the frame.

RUL12 1) For product change kit details, refer to section EMA4-99-000 Provisioning Table for Product Change Kits.

RUL13 1) Provide one (1) NT2X70AZ Power Converter PC Kit to modify the existing NT2X70AA to the NT2X70AE. This PC kit contains one (1) NT2X70AE and one (1) designation label.

RULA 1) Provide one Alarm Interconnect Cable Assembly, NT0X95AA, if a Cooling Unit NT0X30AD is provided on the frame.

RULB 1) Provide one Frame Supervisory Panel, NT0X28AF, per MEX.

SUPERNODE SPARE STORAGE CABINET

PEC CODE: NT9X01FA

CPC CODE: B0223587

RATING: MD

REPLACES: Not Applicable.

REPLACED BY: NTRX49AA.

ABBREVIATION NAME: Not Applicable.

ENGINEERING DESCRIPTION: The SuperNode Spare Storage Cabinet houses the spare circuit packs required for a DMS SuperNode office.

REFERENCE DOCUMENTATION: SL9X01FA 00 17
MS0X24 00 28

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA
Carrier
Wireless

ISSUE AUTHOR: NTI: Scott Maggiolo Dept. 3471 (PPK)

MAIN CONTACT: NTI: Scott Maggiolo Dept. 3471 (PPK)

NT9X01FA EMR4-06-001 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 07 11	ECM 626 25	MD section. Refer to ECD 018-41001.

The SuperNode Spare Storage Cabinet is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Enhanced Core Cab Mech Assy	NT0X25AS		1			AP
Power Access Panel	NT9X0114					RUL1
Top Plate	P0714823					RUL1
Spares Storage Shelf Assy	NT0X25AY		1	39		AP
Spares Storage Shelf Assy	NT0X25AY			26		RUL2
Spares Storage Shelf Assy	NT0X25AY			13		RUL2
Spares Storage Shelf Assy	NT0X25AY			00		RUL2

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NT9X01FA is ordered, these items are provided.

RUL1 1) Provide one (1) NT9X0114 Power Access Panel and one (1) P0714823 Top Plate when a SuperNode Spare Storage Cabinet is added in a lineup.

RUL2 1) Provision up to three (3) additional NT0X25AY Spares Storage Shelf Assembly per job requirements.

CENTRAL PROCESSOR UNIT & MEMORY NT3X41BA

RATING: MD. Replaced by NT3X41DA. See MS3X45CA.

ABBREVIATION NAME: CPM

ENGINEERING DESCRIPTION: The Central Processor Unit & Memory provides the micro-store and sequencing logic required to execute the program instructions as well as all the arithmetic and logic functions necessary for efficient data manipulation. It also provides the basic system timing for register gating and clocking, emergency timers and the interrupt logic. Additionally it accommodates a limited amount (up to 448K-words) of memory store. Module. This shelf is electrostatic discharge protected.

REFERENCE DOCUMENTATION: MS3X41BA 01 02

The Central Processor Unit & Memory is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Processor Shelf	NT3X4101		1			AP
Filler Face Plate .875	NT0X50BA				01	RUL4
64K MOS Memory CP for Spare	NT3X40BA				01	RUL1
1M-Word Backplane Term	NT3X4302				01R	RUL1
64K MOS Memory CP	NT3X40BA				02-08	RUL2
Filler Face Plate .875	NT0X50BA				02-08	RUL4
1M-Word Memory Controller	NT3X42BA				09	RUL1
Filler Face Plate .875	NT0X50BA				09	RUL4
Unbalanced Data Port Ext	NT1X49BA				10	RUL3
Balanced Data Port Ext CP	NT1X50BB				10	RUL3
Proc Backplane Terminator	NT3X4303		1		10R	AP
CMC Interface CP	NT1X51BA		1		11	AP
4K ROM Extension card	NT1X53BA		1		12	AP
Filler Face Plate .875	NT0X50BA		1		13	AP
Processor ROM DMS-100 CP	NT1X46BA		1		14	AP
Filler Face Plate .875	NT0X50BA		1		15	AP
Processor Maintenance CP	NT1X48BA		1		16	AP
Proc Timing and Control CP	NT1X47BA		1		17	AP
Processor ALF CP	NT1X45BA		1		18	AP
Processor Stack CP	NT1X44BA		1		19	AP
Filler Face Plate .875	NT0X50BA		1		20	AP
Proc Program Store Port CP	NT1X43BC		1		21	AP
Power Converter (5V/40A)	NT2X06BB		1		22	AP
Power Conv (+/-5V,+/-12V)	NT2X70BA				25	RUL1
Filler Face Plate 2.62	NT0X50BE				25	RUL4
Des Label for NT3X40BA	P0613359				01-08	RUL6
Des Label for NT3X42BA	P0613360				09	RUL6
Des Label for NT1X49BA	P0599145				10	RUL6
Des Label for NT1X50BB	P0613365				10	RUL6
Des Label for NT2X70BA	P0613351				25	RUL6
Des Label for NT0X50BA	P0599141				01, 02-08, 09	RUL6
Des Label for NT0X50BE	P0599142				25	RUL6
WRG: for On-Line MEM Spare	NT3X41AC					RUL1
WRG: for Fast DUNIT Option	NT3X41AE					RUL1
WRG: Address for DS:01	NT3X41AF					RUL5
WRG: Address for DS:02	NT3X41AG					RUL5
WRG: Address for DS:03	NT3X41AH					RUL5
WRG: Address for DS:04	NT3X41AJ					RUL5

RULE:

AP 1) When PEC NT3X41BA is ordered, these items are provided.

RUL1 1) Provide one of each of these items if part of this shelf is to be used either for Program Store or for Data Store (up to 448K-words) (see also MS3X45CA, RUL1, Section EMR4-07-000).

RUL2 1) Provide one (1) NT3X40BA for every 64K-words of PS or DS memory up to a maximum of 7 cards (448K-words) if this shelf is to be used per RUL1. Assign cards in descending order by position starting with position 08.

2) Always provide at least one memory CP if this shelf is to be used per RUL1.

RUL3 1) Provide one Unbalance Data Port Extender (NT1X49BA) if for the ultimate size of the office no Data Store shelf is expected to be mounted on a MEX. Otherwise provide one Balanced Data Port Extender (NT1X50BB).

NOTE: The unbalanced option should not be selected.

2) Ensure that Data Store shelves are provided with corresponding single-ended or differential interface or interface terminator cards. (See MS3X32BB, Section EMR4-07-DS-1).

RUL4 1) Provide one (1) Filler Face Plate in each location, 01-09 (NT0X50BA) and 25 (NT0X50BE) which is not to be equipped with a card to satisfy the forced air cooling requirements of this shelf.

RUL5 1) Select and provide one (1) only from among these items to furnish the 1M-word block address corresponding to the DS module number assigned if this shlef is to be used for DS per RUL1.

2) NOTE: (see MS3X45CA RUL1, Section EMR4-07-000).

a) This module cannot be DS:00.
b) This module must always be assigned the highest DS number for the office.

c) DS:00 must be equipped in shelf position 32 on the frame.

RUL6 1) Provide one (1) Designation Label corresponding to each card or filler face plate provisioned per RUL1, RUL2, RUL3 or RUL4.

1M-WORD DATA STORE SHELF

PEC CODE: NT3X32BB

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: DS

ENGINEERING DESCRIPTION: The Data Store provides data storage memory for DMS-100 Family Central Processing Unit. This shelf is electrostatic discharge protected.

REFERENCE DOCUMENTATION: MS3X32BB 01 02

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X32BB EMR4-07-DS-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The 1M-Word Data Store Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
P/D Store Shelf	NT3X3201		1			AP
Filler Face Plate .875	NT0X50BA		1		01	AP
Diff Mem Bus I/F & Term	NT3X36BC				02	RUL2
Sngl-End Mem Bus I/F & Term	NT3X37BC				02	RUL2
Differential Mem Bus I/F	NT3X36BB				02	RUL2
Single-Ended Mem Bus I/F	NT3X37BA				02	RUL2
Filler Face Plate .875	NT0X50BA		1		03	AP
1M-Word Memory Controller	NT3X42BA		1		04	AP
64K MOS Memory CP for Spare	NT3X40BA		1		05	AP
64K MOS Memory CP	NT3X40BA				06-21	RUL1
Filler Face Plate .875	NT0X50BA				06-21	RUL3
1M-Word Backplane Term	NT3X4302		1		21R	AP
Filler Face Plate 2.62	NT0X50BE		1		22	AP
Pwr Conv +/-5V +/-12V	NT2X70BA		1		25	AP
Des Label for NT3X36BB	P0613356				02	RUL5
Des Label for NT3X36BC	P0613365				02	RUL5
Des Label for NT3X37BA	P0613357				02	RUL5
Des Label for NT3X37BC	P0613358				02	RUL5
Des Label for NT3X40BA	P0613359				06-21	RUL5
Des Label for NT0X50BA	P0599141				06-21	RUL5
WRG: Address for DS:01	NT3X32AE					RUL4
WRG: Address for DS:02	NT3X32AF					RUL4
WRG: Address for DS:03	NT3X32AG					RUL4
WRG: Address for DS:04	NT3X32AH					RUL4
WRG: Address for DS:05	NT3X32AJ					RUL4

RULES:

AP 1) When PEC NT3X32BB is ordered, these items are provided.

RUL1 1) Provide one (1) card per 64K words of DS memory up to a maximum of 16.

2) Always provide at least one memory CP.

3) NOTE: Due to CPU design limitations, 64K MOS Memory cards must not be equipped in slots 20 and 21 of DS:15.

RUL2 1) Provide one combined memory bus interface and terminator card if shelf is the last DS in the CPU data bus daisy chain, otherwise provide one memory bus interface. The type of card to be provided will depend on the data bus arrangement selected (see MS3X41BA, Section EMR4-07-CPU-1) as follows:

NOTE: The unbalanced option should not be selected.

DATA BUS ARRANGED FOR:	PROVIDE PEC: IF LAST SHELF	IF NOT LAST SHELF
Unbalanced Operation: (CPM (NT3X41BA) E/W NT1X49BA in slot 10)	NT3X37BC	NT3X37BA
Balanced Operation: (CPM (NT3X41BA) E/W NT1X50BB in slot 10)	NT3X36BC	NT3X36BB

2) NOTE: The DS contained in the CPU shelf is ignored in determining the last DS shelf for purposes of this rule. See also MS3X45CA, AP, Section EMR4-07-000.

RUL3 1) Provide one (1) Filler Face Plate, NT0X50BA, in each location, 06-21 which is not to be equipped with a NT3X40BA to satisfy the forced air cooling requirements of this shelf.

RUL4 1) Select and provide one (1) only from among these items to furnish the 1M-word block address corresponding to the DS module number assigned. Shelf defaults to DS:00.

RUL5 1) Provide one (1) Designation Label corresponding to each card provisioned per RUL1, RUL2 and RUL3.

1M-WORD PROGRAM STORE SHELF

PEC CODE: NT3X32BA

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: PS

ENGINEERING DESCRIPTION: A PS provides memory for DMS-100 Family Central Processing Unit. This shelf is electrostatic discharge protected.

REFERENCE DOCUMENTATION: MS3X32BA 01 02

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X32BA EMR4-07-PS-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The 1M-Word Program Store Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
P/D Store Shelf Assembly	NT3X3201		1			AP
Filler Face Plate .875	NT0X50BA		1		01	AP
Sngl-end Mem Bus I/F & Term	NT3X37BC				02	RUL3
Single Ended Mem Bus I/F	NT3X37BA				02	RUL3
Filler Face Plate .875	NT0X50BA		1		03	AP
1M-Word Memory Controller	NT3X42BA		1		04	AP
64K MOS Memory CP for spare	NT3X40BA		1		05	AP
64K MOS Memory CP	NT3X40BA				06-21	RUL1
Filler Face Plate .875	NT0X50BA				06-21	RUL2
1M-Word Backplane Term	NT3X4302		1		21R	AP
Filler Face Plate 2.62	NT0X50BE		1		22	AP
Pwr Converter +/-5V +/-12V	NT2X70BA		1		25	AP
Des Label for NT3X37BC	P0613358				02	RUL4
Des Label for NT3X37BA	P0613357				02	RUL4
Des Label for NT3X40BA	P0613359				06-21	RUL4
Des Label for NT0X50BA	P0599141				06-21	RUL4

RULE:

AP 1) When PEC NT3X32BA is ordered, these items are provided.

RUL1 1) Provide one (1) card per 64K words of PS memory up to a maximum of 16.

2) Always provide at least one memory CP.

3) NOTE: Due to CPU design limitations, 64K MOS Memory cards must not be equipped in slots 20 and 21 of PS:01.

RUL2 1) Provide one (1) Filler Face Plate, NT0X50BA, in each location, 06-21, which is not to be equipped with a NT3X40BA to satisfy the forced air cooling requirements of this shelf.

RUL3 1) Provide one Single-Ended MEM Bus I/F & TERM. (NT3X37BC) if the PS is the last one in the CPU program store bus daisy chain; else provide one Single-Ended MEM Bus I/F (NT3X37BA).

NOTE: The PS contained in the CPM shelf is ignored in determining the last PS shelf for purposes of this rule. See also MS3X45CA, RUL1, Section EMR4-07-000.

RUL4 1) Provide one (1) Designation Label corresponding to each card provisioned per RUL1, RUL2 and RUL3.

CENTRAL CONTROL FRAME (DOUBLE BAY) NT3X45CA

RATING: MD. On new jobs replace by NT3X45DA.

ABBREVIATION NAME: CCC (See Note AP 2 below)

ENGINEERING DESCRIPTION:

REFERENCE DOCUMENTATION: MS3X45CA 01 13

The Double Bay Central Control Complex Frame is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Cen MSG & I/O Device Ctlr	NT2X76BA	MDC	2	65		AP
Cen Proc & Memory Module	NT3X41BA	CPM	2	51		AP
Frame Supervisory Panel	NT0X28AF	FSP	2	45		AP
1 M-Word Data Store	NT3X32BB	DS	2	32,18		RUL1
1 M-Word Program Store	NT3X32BA	PS	2	32,18		RUL1
Cooling Unit	NT3X90AA	CU	2	04		AP
Framework	NT0X25AA	FW	2			AP
Basic Assembly Wiring						
Local Cable CPM to PS	NT3X45AC		2	18		RUL1
Local Cable DS to DS (CPM)	NT3X45AE		2	32		RUL1
Local Cable CCC to MEX	NT3X45AH	MEX	2			RUL2
Local Cable PS to PS	NT3X45AJ		2	18		RUL1
Local Cable CPM to PS	NT3X45AK		2	32		RUL1
Local Cable CPM to DS	NT3X45AL		2	32		RUL1
Local Cable PS to PS (CPM)	NT3X45AM		2	32		RUL1
Local Cable DPM to DS	NT3X45AN		2	18		RUL1
DOC Certification Label	P0663265			45		RUL3
Product Change Kits	AR					RUL4
Power Converter PC Kit	NT2X70AZ					RUL5

RULE:

AP 1) When PEC NT3X45CA is ordered, these items are provided.

2) NT3X45DA is a double bay frame consisting of 2 identical Central Control Complex Frames (CCC).

3) The NT2X76BA and NT3X41BA shelves provided with this frame are to be equipped per MS2X76BA and MS3X41BA respectively.

4) The duplicated MDC provided here is capable of interfacing all CPU peripherals (NET & IOC) as CMC0:00 & CMC1:00. It

can additionally interface directly to a limited number of I/O devices while functioning as IOC:00 & IOC:01 (see MS2X76BA, Section EMR4-10-MDC-1)

Caution: if used to interface Magnetic Tape Drives (MTD) as IOC:00 or IOC:01 then the CCC and MTC/IOE frames must be located adjacent to each other (see also NT0X43AB, Section EMR5-01-001 and NT0X43AC, Section EMR5-01-002, NT0X43AD, Section EMA5-01-000).

5) The duplicated CPM can accommodate up to 448K-Words of either PS or DS (normal n + 1-spare format). In order to gain access to this block of memory, shelf position 32 must be equipped with corresponding duplicated PS or DS memory shelves. These shelves, designated either PS:00 or DS:00, must be fully equipped with memory cards (1M-Word) before memory cards can be assigned on the CPM.

6) CPM design also allows the spare memory card to be assigned as normal memory so as to increase store capacity (512K-Words). However, since this degrades CCC reliability, is not supported by existing or planned S/W and is not considered a DMS offering it will not be considered here.

7) Duplicated DS ordered in position 18 or 32 will accommodate the first 1M-Word of DS memory. Additional memory may be accommodated on the CPM shelf and (or) on new DS shelves equipped on Memory Extension Frames (MEX) (See MS3X45CB, Section EMR4-08-000).

8) In order to maintain contiguous memory assignment then:

   a) Program store or data store on the CPM must always be assigned as the highest numbered PS or DS.

   b) All other PS or DS shelves must be fully equipped with memory cards before this shelf is equipped.

   c) These conditions must be maintained during extensions by re-assignment of cards and address strapping as required. However, note that a maximum of two (2) shelves per plane may be designated as PS.

RUL1 1) The provisioning of Program Store and Data Store Memory on the CCC is determined based on the office program store requirements. Three different configurations are possible. The configuration which will most economically accommodate the anticipated ultimate program store requirements of the office should be selected:

NOTE: Due to its limited application, greater probability of expensive field conversion and in order to assist the manufacturing process, Configuration I must not be selected.

		FOR PROGRAM STORE ULTIMATE SIZE OF: (in K-Words)		
		0000-1024	1024-1472	1472-1920
PROVISION:		CONFIG I	CONFIG II	CONFIG III
Provision PS:00	PEC	NT3X32BA	NT3X32BA	NT3X32BA
	POS	18	32	32
Provision PS:01*	PEC	Do not	Use CPM*	NT3X32BA*
	POS	provide		18
Provision DS:00	PEC	NT3X32BB	NT3X32BB	NT3X32BC
	POS	32	18	MEX 00 65
Provision CPM for:		DS* (as req'd)	PS:01* (as req'd)	Not used as memory
Provide Local Cables:		NT3X45AC NT3X45AE* NT3X45AL	NT3X45AK NT3X45AM* NT3X45AN	NT3X45AJ* NT3X45AK NT3X45AH

* These items need not be provided initially. They can be furnished as and when required.

2) Equip NT3X32BA and NT3X32BB per MS3X32BA and MS3X32BB respectively.

RUL2 1) Provide two (2) NT3X45AH per CCC pair (NT3X45CA) if Memory Extension Frames (MEX) are also being provided initially. Corresponding switchboard cables are not to be ordered on the cable spec if these cables are provisioned.

RUL3 1) Provide one (1) label per NT3X45CA for Canadian offices equipped with IBN software.

2) Put label on FSP Bay 0 only.

RUL4 1) For product change kit details, refer to section EMA4-99-000 Provisioning Table for Product Change Kits.

RUL5 1) Provide one (1) NT2X70AZ Power Converter PC Kit to modify the existing NT2X70__ to the NT2X70AE. This PC kit contains one (1) NT2X70AE and one (1) designation label.

1M-WORD CONNEXTORIZED DATA STORE SHELF

PEC CODE: NT3X32BC

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: DS

ENGINEERING DESCRIPTION: The Data Store provides data storage memory for DMS-100 Family Central Processing Unit. This unit provides back-panel connectors for connectorized cabling to the CPU. This shelf is electrostatic discharge protected.

REFERENCE DOCUMENTATION: MS3X32BC 01 02

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X32BC EMR4-08-DS-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The 1M-Word Connextorized Data Store Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
P/D Store Shelf Connector	NT3X3204		1			AP
Filler Face Plate .875	NT0X50BA		1		01	AP
Diff Mem Bus I/F & Term	NT3X36BC		1		02	RUL2
Diff Mem Bus I/F CP	NT3X36BB				02	RUL2
Filler Face Plate .875	NT0X50BA		1		03	AP
1M-Word Memory Controller	NT3X42BA		1		04	AP
64K MOS Memory CP for Spare	NT3X40BA		1		05	AP
64K MOS Memory CP	NT3X40BA				06-21	RUL1
Filler Face Plate .875	NT0X50BA				06-21	RUL3
1M-Word Backplane Term	NT3X4302		1		21R	AP
Filler Face Plate 2.62	NT0X50BE		1		22	AP
Pwr Conv +/-5V +/-12V	NT2X70BA		1		25	AP
Des Label for NT3X36BB	P0613356				02	RUL5
Des Label for NT3X36BC	P0613365				02	RUL5
Des Label for NT3X40BA	P0613359				06-21	RUL5
Des Label for NT0X50BA	P0599141				06-21	RUL5
WRG: Address for DS:01	NT3X32AE					RUL4
WRG: Address for DS:02	NT3X32AF					RUL4
WRG: Address for DS:03	NT3X32AG					RUL4
WRG: Address for DS:04	NT3X32AH					RUL4

RULES:

AP 1) When PEC NT3X32BC is ordered, these items are provided.

RUL1 1) Provide one (1) card per 64K words of DS memory up to a maximum of 16.

2) Always provide at least one memory CP.

3) NOTE: Due to CPU design limitations, 64K MOS Memory cards must not be equipped in slots 20 and 21 of DS:15.

RUL2 1) Provide one Differential Mem Bus I/F & Terminator (NT3X36BC) if this DS is the last one in the CPU data bus daisy chain, else provide one Differential Memory Bus I/F (NT3X36BB). See also MS3X32BB in Section EMR4-07-DS-1.

NOTE:- The DS contained in the CPM shelf is ignored in determining the last DS shelf for purposes of this rule. See also MS3X45CA, RUL1, Section EMR4-07-000.

RUL3 1) Provide one (1) Filler Face Plate, NT0X50BA, in each location, 06-21 which is not to be equipped with a NT3X40BA to satisfy the forced air cooling requirements of this shelf.

RUL4 1) Select and provide one (1) only from among these items to furnish the 1M-word block address corresponding to the DS module number assigned. Shelf defaults to DS:00.

RUL5 1) Provide one (1) Designation Label corresponding to each card provisioned per RUL1, RUL2 and RUL3.

MEMORY EXTENSION FRAME

PEC CODE: NT3X45CB

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: MEX

ENGINEERING DESCRIPTION:

REFERENCE DOCUMENTATION: MS3X45CB 01 06

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45CB EMR4-08-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The Memory Extension Frame is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
1M-Word Conn Data Store Shf	NT3X32BC	DS	1	65		AP
1M-Word Data Store	NT3X32BB	DS		51		RUL1
Frame Supervisory Panel	NT0X28AF	FSP	1	45		AP
1M-Word Data Store	NT3X32BB	DS		32		RUL1
1M-Word Data Store	NT3X32BB	DS		18		RUL1
Cooling Inverter Unit	NT3X90AA	CU		04		RUL2
Cage Filler Panel	NT0X84AA					RUL3
Data Store Local Cable	NT3X45AF		1	51,18		RUL7
Data Store Local Cable	NT3X45AG		1	32		RUL8
Power Cable	NT0X95BC		1	51		RUL9
Power Cable	NT0X95BB		1	51		RUL9
Power Cable	NT0X95BA		1	32		RUL10
Power Cable	NT0X95BD		1	32		RUL10
Power Cable	NT0X95BF		1	18		RUL11
Power Cable	NT0X95BG		1	18		RUL11
Alarm Interconnect Cbl Assy	NT0X9567		2	04		RUL4
Product Change Kits	AR					RUL5
Power Converter PC Kit	NT2X70AZ					RUL6

RULES:

AP 1) When PEC NT3X45CB is ordered, these items are provided.

2) For additional rules governing the assignment of DS see MS3X45CA, RUL1, Section EMR4-07-000.

3) The 1M-Word Connectorized Data Store shelf (NT3X32BC) provided with the MEX frame will accommodate the first 1M word of data store memory. Equip this shelf per MS3X32BC.

RUL1 1) Provide one 1M-Word Data Store shelf, (DS) NT3X32BB, for each additional 1M words of Data Store memory required.

2) Equip each per MS3X32BB.

3) Assign to positions on frame in the following order:- 51, 32, 18.

RUL2 1) A Cooling Inverter Unit NT3X90AA is required for each MEX which is to be equipped with four (4) memory shelves.

RUL3 1) Provide one Cage Filler Panel in any position, 51, 32, 18, which is not to be equipped with a DS and in position 04 if no CU is to be provided.

RUL4 1) Provide two Alarm Interconnect Cable Assemblies, NT0X9567, if a Cooling Inverter Unit is provided on the frame.

RUL5 1) For product change kit details, refer to section EMA4-99-000 Provisioning Table for Product Change Kits.

RUL6 1) Provide one (1) NT2X70AZ Power Converter PC Kit to modify the existing NT2X70__ to the NT2X70AE. This PC kit contains one (1) NT2X70AE and one (1) designation label.

RUL7 1) Provide one Data Store Local Cable, NT3X45AF, per DS located in positions 51 or 18.

RUL8 1) Provide one Data Store Local Cable, NT3X45AG, per DS located in position 32.

RUL9 1) Provide one of each Power Cable, NT0X95BC & NT0X95BB, per DS located in position 51.

RUL10 1) Provide one of each Power Cable, NT0X95BA & NT0X95BD, per DS located in position 32.

RUL11 1) Provide one of each Power Cable, NT0X95BF & NT0X95BG, per DS located in position 18.

CENTRAL CONTROL FRAME (DOUBLE BAY)

PEC CODE: NT3X45DA

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: CCC

ENGINEERING DESCRIPTION: NT3X45DA is a double bay frame consisting of two identical Central Control Complex Frames (CCC). The Memory Extension Frame (MEX), NT3X45DB may be provided with the NT3X45DA for memory extension.

REFERENCE DOCUMENTATION: MS3X45DA 01 14

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45DA EMR4-09-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The Central Control Frame (Double Bay) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Central MSG & I/O Dev Ctlr	NT2X76BA	MDC	2	65		AP
Central Proc & Mem Mod	NT3X41DA	CPM	2	51		AP
Frame Supervisory Panel	NT0X28AF	FSP	2	45		AP
4 M-Word Data Store	NT3X32DA	DS	2	32		AP
4 M-Word Data Store	NT3X32DA	DS	2	18		RUL1
Cage Filler Panel	NT0X84AA		2	18		RUL1
Cooling Inverter Unit	NT3X90AA	CU	2	04		AP
Dept. of Comm. Cert. Label	P0663265		1	45		RUL6
Loc Mem Bus Cable CCC to MEX	NT3X45AH	MEX	2			RUL3
Local Cable DS to DS	NT3X45AD		2	18		RUL4
Power Cable	NT0X95BF		2	18		RUL4
Power Cable	NT0X95BG		2	18		RUL4
Logic Return Cable Assembly	NT0X0008					RUL2
Logic Return Cable Assembly	NT0X0012					RUL2
Product Change Kits	AR					RUL7
Power Converter PC Kit	NT2X70AZ					RUL5

NOTE: 1) When the processor shelf (shelf position 51) is equipped with the 40 MHz Processor Enhancement feature, the length of the differential bus from the CPU shelf to the last data store shelf is restricted to 20 feet (6 meters). This effectively restricts MEX frames to being adjacent to the CCC frame or directly behind the CCC frame. Without the 40 MHz Processor, the restriction is 40 feet (12 meters).

RULES:

AP 1) When PEC NT3X45DA is ordered, these items are provided.

2) The NT2X76BA and NT3X41DA shelves provided with this frame are to be equipped per MS2X76BA and MS3X41DA respectively.

3) The duplicated MDC provided here is capable of interfacing all CPU peripherals (NET & IOC) as CMC0:00 & CMC1:00. It

can additionally interface directly to a limited number of I/O devices while functioning as IOC:00 & IOC:01 (see MS2X76BA, Section EMR4-10-MDC-1).

Caution: if used to interface Magnetic Tape Drives (MTD) as IOC:00 or IOC:01 then the CCC and MTC/IOE frames must be located adjacent to each other (see also NT0X43AB, Section EMR5-01-001 and NT0X43AC, Section EMR5-01-002, NT0X43AD, Section EMA5-01-000).

4) The duplicated CPM accommodates up to 2 M-Word of PS memory. No memory card is required for spare as a spare row of memory devices on the controller will serve as the "HOT" spare.

5) The duplicated DS in position 32 will provide the first 4M-Word of DS memory. This shelf must be fully equipped before going to the next DS shelf.

RUL1 1) Provide two NT3X32DA, DS shelves per CCC frame when second DS shelf is required (DS memory from 4 to 8 M-Word capacity). Otherwise provide two (2) NT0X84AA Cage Filler Panels (one per frame). DS shelf in position 18 requires Local Cable DS to DS, NT3X45AD.

RUL2 1) Provide one (1) NT0X0008 and one (1) NT0X0012 Logic Return Cable Assemblies per frame when extending existing offices not equipped with enhanced grounding per IS0X00.

RUL3 1) Provide two (2) NT3X45AH per CCC pair (NT3X45DA) if Memory Extension Frames (MEX) are also being provided initially. Corresponding switchboard cables are not to be ordered on the cable spec if these cables are provisioned. (See note 1)

RUL4 1) Provide two (2) of each cable NT3X45AD, NT0X95BF and NT0X95BG when NT3X32DA DS shelves are provided on shelf position 18. Wire per WD3X45DA.

RUL5 1) Provide one (1) NT2X70AZ Power Converter PC Kit to modify the existing NT2X70__ to the NT2X70AE. This PC kit contains one (1) NT2X70AE and one (1) designation label.

RUL6 1) Provide one (1) label per NT3X45DA for Canadian office equipped with IBN software. Put label on FSP bay 0 only.

RUL7 1) For product change kit details, refer to section EMA4-99-000 Provisioning Table for Product Change Kits.

CENTRAL PROCESSOR UNIT AND MEMORY

PEC CODE: NT3X41DA

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: CPM

ENGINEERING DESCRIPTION: The Central Processor Unit and Memory provides the micro-store and sequencing logic required to execute the program instructions as well as all the arithmetic and logic functions necessary for efficient data manipulation. It also provides the basic system timing for register gating and clocking, emergency timers and the interrupt logic. Additionally it accommodates up to 2 M-Word of Program Store. This shelf is electrostatic discharge protected.

REFERENCE DOCUMENTATION: MS3X41DA 01 01

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X41DA EMR4-10-CPM-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The Central Processor Unit and Memory is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Processor Shelf	NT3X4104		1	51		AP
1M-Word Backplane Terminator	NT3X4302		1	51	01R	AP
256K MOS Memory CP	NT3X93AA			51	01-08	RUL1
Filler Face Plate .875	NT0X50BA			51	01-08	RUL3
4M-Word Memory Controller	NT3X94AA		1	51	09	AP
PS Cont Backpanel Terminator	NT3X4307		1	51	09R	AP
Unbalanced Data Port Ext	NT1X49BA			51	10	RUL2
Balanced Data Port Ext CP	NT1X50BB			51	10	RUL2
Proc Backplane Terminator	NT3X4303		1	51	10R	AP
CMC Interface CP	NT1X51BA		1	51	11	AP
Processor ROM DMS-100 CP	NT1X46CB		1	51	14	AP
Processor Maintenance CP	NT1X48BA		1	51	16	AP
Proc Timing & Control CP	NT1X47BB		1	51	17	AP
Processor ALF CP	NT1X45BB		1	51	18	AP
Processor Stack CP	NT1X44BB		1	51	19	AP
Filler Face Plate .875	NT0X50BA		4	51	12-13, 15,20	AP
Proc Program Store Port CP	NT1X43BD		1	51	21	AP
Power Converter (5V/40A)	NT2X06BB		1	51	22	AP
Power Conv (+/-5V,+/-12V)	NT2X70BA		1	51	25	AP
Desig. Label for NT1X49BA	P0599145			51	10	RUL4
Desig. Label for NT1X50BB	P0613366			51	10	RUL4
Desig. Label for NT0X50BA	P0599141			51	01-08	RUL4
Desig. Label for NT1X46CB	P0643558			51	14	AP

RULES:

AP 1) When PEC NT3X41DA is ordered, these items are provided.

RUL1 1) Provide one (1) NT3X93AA for every 256K-words of PS memory up to a maximum of 8 cards (2M-words). If all 8 cards are provided, the last half of the last memory card cannot be used since the Program Store is limited to 1,996,080 words/CPU. Assign cards in descending order by position starting with position 08.

2) Always provide at least one NT3X93AA CP.

3) The "HOT" spare for Program Store memory is provided by a row of memory devices on the NT3X94AA, Memory Controller CP (64K words capacity).

RUL2 1) Provide one Unbalanced Data Port Extender (NT1X49BA) if for the ultimate size of the office no Data Store shelf is expected to be mounted on a MEX. Otherwise provide one Balanced Data Port Extender (NT1X50BB).

2) Ensure that Data Store shelves are provided with corresponding single-ended or differential interface or interface terminator cards. See MS3X32DA, Section EMR4-10-DS-1.

RUL3 1) Provide one (1) Filler Face Plate in each location, 01-08 (NT0X50BA) which is not to be equipped with a card to satisfy the forced air cooling requirements of this shelf.

RUL4 1) Provide one (1) Designation Label corresponding to each card or filler face plate provisioned per RUL2 or RUL3.

4M-WORD DATA STORE SHELF

PEC CODE: NT3X32DA

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: DS

ENGINEERING DESCRIPTION: The Data Store provides data storage memory for DMS-100 Family Central Processing Unit. This shelf is electrostatic discharge protected.

REFERENCE DOCUMENTATION: MS3X32DA 01 02

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X32DA EMR4-10-DS-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The 4M-Word Data Store Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
P/D Store Shelf Assy	NT3X3207		1	X		AP
Different Mem Bus I/F & Term	NT3X36BC			X	02	RUL2
Single-End Mem Bus I/F & Trm	NT3X37BC			X	02	RUL2
Differential Mem Bus I/F	NT3X36BB			X	02	RUL2
Single-Ended Mem Bus I/F	NT3X37BA			X	02	RUL2
4M-Word Memory Controller	NT3X94AA		1	X	04	RUL5
4M-Word Memory Controller	NT3X94AB		1	X	04	RUL5
Filler Face Plate	NT0X50BA		3	X	01,03, 05	AP
256K MOS Memory CP	NT3X93AA			X	06-21	RUL1
Filler Face Plate .875	NT0X50BA			X	06-21	RUL3
1M-Word Backplane Terminator	NT3X4302		1	X	21R	AP
Filler Face Plate 2.62	NT0X50BE		1	X	22	AP
Power Conv +/-5V +/-12V	NT2X70BA		1	X	25	AP
Desig. Label for NT3X36BB	P0613356			X	02	RUL4
Desig. Label for NT3X36BC	P0613365			X	02	RUL4
Desig. Label for NT3X37BA	P0613357			X	02	RUL4
Desig. Label for NT3X37BC	P0613358			X	02	RUL4
Desig. Label for NT3X94AB	P0665188			X	04	RUL4
Desig. Label for NT0X50BA	P0599141			X	06-21	RUL4

NOTE: 1) "X" can be one of 32, 18.

RULES:

AP 1) When PEC NT3X32DA is ordered, these items are provided.

RUL1 1) Provide one (1) card per 256K words of DS memory up to a maximum of 16. Assign NT3X93AA from pos 06 in ascending order. The "HOT" spare for each Data Store shelf is provided by a row of memory devices on the NT3X94AA memory controller CP (64K words capacity).

2) Always provide at least one NT3X93AA CP per DS shelf provided.

RUL2 1) Provide one combined memory bus interface and terminator card if shelf is the last DS in the CPU data bus daisy

chain, otherwise provide one memory bus interface. The type of card to be provided will depend on the data bus arrangement selected (see MS3X41DA, Section EMR4-10-CPM-1, as follows:

DATA BUS ARRANGED FOR:	PROVIDE PEC: IF LAST SHELF	PROVIDE PEC: IF NOT LAST SHELF
Unbalanced Operation: (CPM (NT3X41DA) E/W NT1X49BA in slot 10) i.e. DS is confined to CCC frame	NT3X37BC (shf pos 18, CCC)	NT3X37BA
Balanced Operation: (CPM (NT3X41DA) E/W NT1X50BB in slot 10) i.e. DS provided on MEX frame	NT3X36BC (shf pos 51, MEX)	NT3X36BB

RUL3 1) Provide one (1) Filler Face Plate, NT0X50BA, in each location, 06-21 which is not to be equipped with a NT3X93AA to satisfy the forced air cooling requirements of this shelf.

RUL4 1) Provide one (1) Designation Label corresponding to each card or filler face plate provisioned per RUL2, RUL3, or RUL5.

RUL5 1) Provide one (1) NT3X94AA 4MW Memory Controller for Data Store with starting address 00 to 11 MW (DS 0, 1, 2).

2) Provide one (1) NT3X94AB 4MW Memory Controller for Data Store with starting address 12MW to 15MW (DS 3).

CENTRAL MESSAGE AND I/O DEVICE CONTROLLER

PEC CODE: NT2X76BA

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: MDC

ENGINEERING DESCRIPTION: The MDC provides a communication path between a plane's central processing unit and the other DMS-100 Family functional units. For applications in small and intermediate sized offices it can additionally function as an I/O Controller Module. This shelf is electrostatic discharge protected.

REFERENCE DOCUMENTATION: MS2X76BA 01 07

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT2X76BA EMR4-10-MDC-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The Central Message and I/O Device Controller is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
MDC Shelf Assembly	NT2X7601		1	65		AP
Synch Clock Master OSC	NT3X15BB			65	01	RUL1
Stratum 3 Sync Master Clock	NT3X15CA			65	01	RUL1
Filler Face Plate .875	NT0X50BA			65	01,03	RUL11
Master Clock Generator	NT3X13BA			65	03	RUL2
Sync Master Clock Cont	NT3X14BA			65	04	RUL1
Sync Master Clock Cont	NT3X14BB			65	04	RUL1
Sync Clock Controller	NT3X14BC			65	04	RUL1
CMC Processor Interface CP	NT1X33BA		1	65	05	AP
CMC Common Control CP	NT1X37BA		1	65	06	AP
CMC Outgoing Control CP	NT1X34BA		1	65	07	AP
CMC Incoming Control CP	NT1X35BA		1	65	08	AP
CMC Peripheral Interface CP	NT1X36BB		1	65	09	AP
CMC Peripheral Interface CP	NT1X36BB		1	65	10	AP
CMC Peripheral Interface CP	NT1X36BB			65	11-22	RUL3
Filler Face Plate .875	NT0X50BA			65	11-22	RUL11
I/O Device Control CP	AR			65	15,17, 19,21	RUL5
I/O Message Controller CP	NT1X62BB			65	23	RUL4
Filler Face Plate 1.72	NT0X50BF			65	23	RUL11
CMC/IOC Backplane Terminator	NT3X4304		1	65	23R	AP
Power Converter +/-5V +/-12V	NT2X70BA		1	65	25	AP
Desig. Label for NT3X15BB	P0613355			65	01	RUL10
Desig. Label for NT3X15CA	P0654973			65	01	RUL10
Desig. Label for NT3X13BA	P0613352			65	03	RUL10
Desig. Label for NT3X14BA	P0613353			65	04	RUL10
Desig. Label for NT3X14BB	P0634801			65	04	RUL10
Desig. Label for NT3X14BC	P0645683			65	04	RUL10
Desig. Label for NT1X36BB	P0599144			65	11-22	RUL10
Desig. Label for NT1X55AB	P0631796			65	15,17, 19,21	RUL10
Desig. Label for NT1X67CB	P0599147			65	15,17, 19	RUL10
Desig. Label for NT1X67BC	P0623517			65	15,17, 19	RUL10
Desig. Label for NT1X67DB	P0599148			65	15,17, 19	RUL10

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Desig. Label for NT1X67BD	P0657675			65	15,17, 19,	RUL10
Desig. Label for NT1X68BC	P0616642			65	15,19, 21	RUL10
Desig. Label for NT1X68BD	P0623525			65	15,19, 21	RUL10
Desig. Label for NT1X89AA	P0664841			65	15,17, 19	RUL10
Desig. Label for NT0X50BA	P0599141			65	01,02, 03, 11-22	RUL10
WRG: MA OFF W EXT 10.24 MHz MASTER ATOMIC CLOCK	NT2X76AD					RUL9
WRG: EXT MA FREQ REF, 10.24 MHz	NT2X76AM					RUL8
WRG: EXT MA FREQ REF, 10.00 MHz	NT2X76AN					RUL8
WRG: EXT MA FREQ REF, 5.00 MHz	NT2X76AP					RUL8
WRG: EXT MA FREQ REF, 2.56 MHz	NT2X76AR					RUL8
WRG: EXT MA FREQ REF, 2.048 MHz	NT2X76AS					RUL8
WRG: EXT MA FREQ REF, 1.024 MHz	NT2X76AT					RUL8
WRG: EXT MA FREQ REF, 1.0 MHz	NT2X76AW					RUL8
WRG: SYNC OFF W/O EXT MA FREQ REF	NT2X76BB					RUL6
WRG: SYNC MA OFF W EXT MA FREQ REF	NT2X76BC					RUL7

NOTE: 1) The Central Message & I/O Device Controller Module is capable of functioning both as a conventional CMC and optionally as an I/O Controller. Since these functions overlap with respect to card slot assignment the capacity of each is reduced by the other.

2) By equipping the I/O Controller function on the MDC separate IOC shelves can be eliminated or reduced in number for a net saving in hardware. Subject to the following conditions this option should always be selected:

a) This option should not be selected if the ultimate network size is expected to exceed 19 NET per plane. Separate IOC shelves should be provided instead.

Note:

(i) The above limit allows for a maximum of 3 I/O Device Controller cards per MDC. The user may wish to set the limit to 14 NET to allow for the maximum of 4 cards.

(ii) The above limits are decreased by one (1) for each additional 2 IOC shelves required.

b) This option should not be selected if the number of I/O Device Controller cards provisioned exceeds 15 (17, if the NET cutoff is 14).

c) Maximum cabling distances (15 feet) to the MTD must not be exceeded. Maximum cabling distance to the DDU is 18 feet.

d) CCC and MTC/IOE frames equipped with MTD must be co-located.

e) If selected the function must be provided on both shelves (planes 0 & 1). The controller on plane 0 shall be designated IOC:00 and on plane 1, IOC:01 (see Table B, Section EMA14-02-000, for fixed assignments affecting I/O modules.).

f) Additional IOC shelves can be provisioned on MTC/IOE frames as required.

g) This option should not be selected if for the ultimate office size an MEX frame will be required.

RULE:

AP 1) When PEC NT2X76BA is ordered, these items are provided.

2) Two CMC Peripheral Interface cards provided with this shelf will interface up to ten Network Modules and I/O Controller Modules subject to the conditions provided under RUL3.

RUL1 1) Provide one (1) Synchronizable Master Clock Controller (NT3X14BA) and one (1) Synchronizable Master Clock Oscillator (NT3X15BB) for a slave or master synchronizable office with internal clock or for a master synchronizable

office with external reference atomic clock and programmable frequency input. A switch with an internal clock having a drift rate of less than 1 x 10 - 10 per day (Canadian 'C' node category) should have the NT3X14BA and NT3X15BB. If the drift rate is less than 1 x 10 - 9 per day (Canadian 'D' node category), use NT3X14BA and NT3X15CA (Stratum 3 configuration).

2) For office synchronization purposes, offices having NT3X14BA and NT3X15BB cannot be slaved off of any office with NT3X14BA and NT3X15CA. Offices having NT3X14BA and NT3X15CA can be slaved off of offices with NT3X14BA and NT3X05CA or offices with NT3X14BA and NT3X15BB.

3) Provide one Synchronizable Master Clock Controller (NT3X14BA) and wiring (NT2X76AD) if the office is to be a master synchronizable office with external 10.24 MHz Master Atomic Clock. This feature (NT3X14BA alone) is not supported by software and should not be used at this time.

4) Provide one (1) NT3X14BB if office is to be a master office with external reference atomic clock and programmable frequency input and equipped with Master Reference Frequency Frame (or equivalent).

   NT3X14BB is downward compatible with NT3X14BA.

5) Provide one (1) Synchronizable Clock Controller (NT3X14BC) for synchronizable offices equipped with TOPS positions and/or IBN consoles. NT3X14BC is not compatible with NT3X14AA or NT3X14BA.

6) In the event of a conflict between the use of NT3X14BB and the use of NT3X14BC, the NT3X14BB function takes priority. All other synchronizable offices can use NT3X14BA.

RUL2 1) Provide one (1) Master Clock Generator (NT3X13BA) for non synchronizable offices with internal clock.

RUL3 1) Provide two (2) NT1X36BB CMC Peripheral Interface cards for each additional combinations of ten Network Modules and/or I/O Device Controller modules. Please note that one network ordered contains two Network Modules; one module for plane 0 and one module for plane 1. Each NT1X36BB provides a maximum of five ports. Two NT1X36BB are always provided and are used for the first ten Network Modules and/or IOC module. Provide each additional pair as per the table below:

Additional Pair	Network Modules IOC Modules Assigned to CP	Position
1	11 - 20	11, 12
2	21 - 30	13, 14
3	31 - 40	15, 16
4	41 - 50	17, 18
5	51 - 60	19, 20
6	61 - 70	21, 22

2) Port assignments are as follows:

a. Module IOC:00 shall be assigned to port 00, card pos 09, terminal 0.

b. Module IOC:01 shall be assigned to port 05, card pos 10, terminal 0.

c. Plane 0 Network Modules shall be assigned to ports on cards in odd numbered slots.

d. Plane 1 Network Modules shall be assigned to ports on cards in even numbered slots.

e. Network Module duplicates of the two planes shall be assigned to like terminals on cards located in adjacent slots subject to c and d above.

RUL4 1) Provide one (1) I/O Message Controller card (NT1X62BB) if shelf is to function as an I/O Controller (see Note 2 above).

RUL5 1) The Central Message & I/O Device Controller shelf provides space to mount up to four (4) I/0 device control cards if the slots are not required for CMC Peripheral I/F cards (see AP 4 above). Refer to Table B, Section EMA14-02-000, for the types of control cards which can mount on NT2X76BA and related assignment restrictions.

RUL6 1) Provide one (1) (NT2X76BB) if office is a synchronizable slave or master office with internal clock.

RUL7 1) Provide one (1) (NT2X76BC) if office is a synchronizable master with an external atomic clock and programmable frequency input.

RUL8 1) Select and provide one (1) (NT2X76AM-AW) which corresponds to the operating frequency of the external master reference for an office equipped per RUL7.

RUL9 1) Provide NT2X76AD for master office with external 10.24 Mz clock. See RUL1 2).

RUL10 1) Provide one (1) Designation Label corresponding to each card provisioned per RUL1, RUL5, RUL11 and RUL12.

RUL11 1) Provide one (1) Filler Face Plate .875, NT0X50BA, in each position, 01-03 and 11-22 which is not to be equipped with a card and one (1) Filler Face Plate 1.72 (NT0X50BF) in position 23 if not to be equipped with a NT1X62BB to satisfy the forced air cooling requirements of this shelf.

CENTRAL CONTROL COMPLEX FRAME (DOUBLE BAY)

PEC CODE: NT3X45EA

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: CCC

ENGINEERING DESCRIPTION: NT3X45EA is a double bay frame consisting of two identical Central Control Complex bays. No Memory Extension (MEX) frames are associated with the NT3X45EA frame.

REFERENCE DOCUMENTATION: MS3X45EA 01 07

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45EA EMR4-10-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The Central Control Complex Frame (Double Bay) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
# CCC Common Circuit Packs	NT3X45ED			65,51, 32		RUL2
CCC Common Circuit Packs	NT3X45EJ			65,51, 32		RUL2
Power Converter Kit	NT2X70AZ			65,51, 32	25	RUL17
CM & I/O Device CTL SH ASS	NT2X7606	MDC	2	65		AP
Sync Clock Master Osc	NT3X15BB			65	01	RUL3
Stratum 3 Sync Clk Mstr Osc	NT3X15CA			65	01	RUL3
Stratum 2 Sync Mstr Clk CP	NT3X15DA			65	01	RUL3
Filler Face Plate .875	NT0X50BA			65	01-03	RUL7
Master Clock Generator	NT3X13BA			65	03	RUL3
Sync Master Clock Cont	NT3X14BC			65	04	RUL3
CMC Peripheral I/F CP	NT1X36BB			65	11-22	RUL4
Filler Face Plate .875	NT0X50BA			65	11-22	RUL7
I/O Device Control CP	AR			65	15,17, 19,21	RUL6
I/O Message Controller CP	NT1X62BB			65	23	RUL5
Filler Face Plate 1.72	NT0X50BF			65	23	RUL7
Desig Label for NT3X15BB	P0613355			65	01	RUL11
Desig Label for NT3X15CA	P0654973			65	01	RUL11
Desig Label for NT3X15DA	P0661434			65	01	RUL11
Desig Label for NT3X13BA	P0613352			65	03	RUL11
Desig Label for NT3X14BC	P0645683			65	04	RUL11
Desig Label for NT1X68BD	P0623525			65	15,17 19,21	RUL11
Desig Label for NT1X68BC	P0616642			65	15,17 19,21	RUL11
Desig Label for NT1X55AB	P0631796			65	15,17 19,21	RUL11
Desig Label for NT1X67BC	P0623517			65	15,17 19,21	RUL11
Desig Label for NT1X67BD	P0657675			65	15,17 19,21	RUL11
Desig Label for NT1X67DB	P0599148			65	15,17 19,21	RUL11

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Central Proc & Mem Shf Assy	NT3X4106	CPM	2	51		AP
*	Enhanced CPU Cap Common CP	NT3X45EF			51		RUL2
	Enhanced CPU Cap Common CP	NT3X45EH			51		RUL2
	Enh Loadroute/CPU Cap CPF	NT3X45EK			51		RUL2
	Processor 8KW ROM CP	NT1X46EA			51	14	RUL2
	Desig Label for NT1X46EA	P0728435			51	14	RUL11
	1MW Memory CP	NT4X80AA			51	01-08	RUL12
	E2A Telemetry Serial I/F CP	NT1X42AA			51	13	RUL2
	Filler Face Plate .875	NT0X50BA			51	01-08, 13	RUL13
	Rem Cont Processor Maint CP	NT1X48CA			51	16	RUL2
	Processor Maintenance CP	NT1X48DA			51	16	RUL2
	Desig Label for NT1X42AA	P0649153			51	13	RUL11
	Desig Label for NT1X48CA	P0649154			51	16	RUL11
	Desig Label for NT1X48DA	P0661433			51	16	RUL11
	Frame Supervisory Panel	NT0X28AF	FSP	2	45		AP
	Dept.of Comm.Cert. Label	P0663265			45		RUL18
	16MW Data Store Shf Assy	NT3X3209	DS	2	32		AP
	1MW Memory CP	NT4X80AA			32	06-21	RUL16
	Filler Face Plate .875	NT0X50BA			32	06-21	RUL13
	Cage Filler Panel Assy	NT0X84AA	FILL	2	18		AP
	Cooling Inverter Unit	NT3X90AA	CU	2	09		AP
	WRG: SYNC OFF W/O EXT MA FREQ REF	NT2X76CB					RUL8
	WRG: SYNC MA OFF W EXT MA ATOM CLK & PRG FREQ I/P	NT2X76CC					RUL9
	WRG: EXT PROG FREQ I/P, 10.24 MHZ	NT2X76AM					RUL10
	WRG: EXT PROG FREQ I/P, 10.00 MHZ	NT2X76AN					RUL10
	WRG: EXT PROG FREQ I/P, 5.00 MHZ	NT2X76AP					RUL10
	WRG: EXT PROG FREQ I/P, 2.56 MHZ	NT2X76AR					RUL10

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
WRG: EXT PROG FREQ I/P, 2.048 MHZ	NT2X76AS					RUL10
WRG: EXT PROG FREQ I/P, 1.024 MHZ	NT2X76AT					RUL10
WRG: EXT PROG FREQ I/P, 1.00 MHZ	NT2X76AW					RUL10
Logic Return Cable Assembly	NT0X0008					RUL19
Logic Return Cable Assembly	NT0X0012					RUL19

\# MD. Replaced by NT3X45EJ.
* MD. Replaced by NT3X45EH.

RULES:

AP 1) When PEC NT3X45EA is ordered, these items are provided.

2) The duplicated MDC provided here is capable of interfacing all CPU peripherals (NET & IOC) as CMC0:00 & CMC1:00. It can additionally interface directly to a limited number of I/O devices while functioning as IOC:00 & IOC:01.

Caution: If used to interface Magnetic Tape Drive (MTD) as IOC:00 or IOC:01 then the CCC and MTC/IOE frames must be located adjacent to each other (see also NT0X43AB, Section EMR5-01-001 and NT0X43AC, Section EMR5-01-002, NT0X43AD, Section EMA5-01-000).

3) The duplicated CPM accommodates up to 8 M-Word of PS memory. No memory card is required for spare as a spare row of memory devices on the controller will serve as the "HOT" spare.

4) The duplicated DS in position 32 can provide up to 15.75 M-Word of DS memory.

5) Two CMC Peripheral Interface cards provided with the MDC shelf will interface up to ten Network Modules and I/O Controller Modules subject to the conditions provided under RUL4.

6) The Central Message & I/O Device Controller Module is capable of functioning both as a conventional CMC and op-

tionally as an I/O Controller. Since these functions overlap with respect to card slot assignment the capacity of each is reduced by the other.

7) By equipping the I/O Controller function on the MDC separate IOC shelves can be eliminated or reduced in number for a net saving in hardware. Subject to the following conditions this option should always be selected:

   a) This option should not be selected if the ultimate network size is expected to exceed 19 NET per plane. Separate IOC shelves should be provided instead.

      Note:

      (i) The above limit allows for a maximum of 3 I/O Device Controller cards per MDC. The user may wish to set the limit to 14 NET to allow for the maximum of 4 cards.

      (ii) The above limits are decreased by one (1) for each additional 2 IOC shelves required.

   b) This option should not be selected if the number of I/O Device Controller cards provisioned exceeds 15 (17, if the NET cutoff is 14).

   c) Maximum cabling distances (15 feet) to the MTD must not be exceeded. Maximum cabling distance to the DDU is 18 feet.

   d) CCC and MTC/IOE frames equipped with MTD must be co-located.

   e) If selected the function must be provided on both shelves (planes 0 & 1). The controller on plane 0 shall be designated IOC:00 and on plane 1, IOC:01 (see Table B, Section EMA14-02-000, for fixed assignments affecting I/O modules.).

   f) Additional IOC shelves can be provisioned on MTC/IOE frames as required.

8) a) The Central Message & I/O Device Controller, MDC module is located on shelf mounting position 65. The bare shelf assembly does not become an MDC until the CCC is equipped with one (1) NT3X45ED/EJ, CCC Common CP. There are two (2) MDC per CCC frame.

b) The Central Processor & Memory, CPM module is located on shelf mounting position 51. The bare shelf assembly does not become a CPM until the CCC is equipped with one (1) NT3X45ED/EJ, CCC Common CP. There are two (2) CPM per CCC frame.

c) The Data Store, DS module is located on shelf mounting position 32. The bare shelf assembly does not become a DS until the CCC is equipped with one (1) NT3X45EJ or NT3X45ED, CCC Common CP. There are two (2) DS per CCC frame.

RUL1 1) (Reserved for future use.)

RUL2 1) When ordering processor maintenance circuit packs, the following combinations are available:
a) For enhanced CPU capacity and (local) processor maintenance, provide two (2) (one per plane) NT1X48DA, one (1) NT3X45EJ CP kit and one (1) NT3X45EH CP kit.
b) For enhanced CPU capacity with remote processor maintenance, provide two (2) (one per plane) NT1X48CA, two (2) (one per plane) NT1X42AA, one (1) NT3X45EJ CP kit and one (1) NT3X45EH CP kit.

2) When the Autoload Route Enhancement feature is required, provide one (1) NT3X45EK circuit pack fill and two (2) NT1X46EA circuit packs instead of the one (1) NT3X45EH circuit pack fill.

RUL3 1) Provide two (2) (one per plane) of the circuit packs as per Table A.

TABLE A

OPTION SELECTED	3X15BB	3X15CA	3X14BC	3X13BA	3X15DA
Synchronizable Master Office with External Reference Atomic Clock and Programmable Frequency Input	*		*		
Synchronizable Slave or Master Office with Internal Clock	*		*		
Stratum III Synchronizable Slave or Master Office with Internal Clock		*	*		
Stratum II Synchronizable Slave or Master Office with Internal Clock			*		*
Non Synchronizable Office with Internal Clock				*	
Stratum I Master Office with External Reference Atomic Clock and Programmable Frequency Input	*		*		

NT3X13BA occupies two slots. NT3X15CA occupies two slots.
NT3X15BB occupies three slots. NT3X15DA occupies two slots.
NT3X14BC occupies one slot.

2) When Stratum II clock feature is specified, NT3X15DA circuit pack must be provided and located remote from NT3X45EA frame. The dedicated location shall be the Stratum II Oscillator Shelf (NT3X95AA) on the I.O.E. frame (NT0X43AD). See MS0X43AD (Section EMA5-01-000) for provisioning information.

3) When NT3X15CA circuit pack is provided for Stratum III Synchronizable Master Clock Oscillator feature, key slots must be changed on shelf 65 slot 4 to 3, 6, 8 and 10.

RUL4 1) Provide four (two per plane) NT1X36BB CMC Peripheral Interface cards for each additional combination of ten Network Modules and I/O Device Controller modules. Please note that one network contains two Network Modules; one module for plane 0, and one module for plane 1. Each NT1X36BB provides a maximum of five ports. Two NT1X36BB are always provided in positions 09 and 10 and are used for the first ten Network Modules and/or I/O Device Controller modules. Provide each additional pair as per the table below:

Additional Pair	Network Modules IOC Modules	Position
1	11 - 20	11, 12
2	21 - 30	13, 14
3	31 - 40	15, 16
4	41 - 50	17, 18
5	51 - 60	19, 20
6	61 - 70	21, 22

2) Port assignments are as follows:

a. Module IOC:00 shall be assigned to port 00, card pos 09, terminal 0.

b. Module IOC:01 shall be assigned to port 05, card pos 10, terminal 0.

NT3X13BA occupies two slots. NT3X15CA occupies two slots.
NT3X15BB occupies three slots. NT3X15DA occupies two slots.
NT3X14BC occupies one slot.

c. Plane 0 Network Modules shall be assigned to ports on cards in odd numbered slots.

d. Plane 1 Network Modules shall be assigned to ports on cards in even numbered slots.

e. Network Module duplicates of the two planes shall be assigned to like terminals on cards located in adjacent slots subject to c. and d. above.

RUL5 1) Provide two (2) (one per plane) I/O Message Controller card (NT1X62BB) if shelf is to function as an I/O Controller (see AP 7 above).

RUL6 1) Each Central Message & I/O Device Controller (MDC) - (one per plane) shelf provides space to mount up to four (4) I/O device control cards if the slots are not required for CMC Peripheral I/F cards (see AP 7 above). Refer to Table B, Section EMA14-02-000 for the types of control cards which can mount on this MDC (same rules as for NT2X76BA) and related assignment restrictions. Each MDC shelf is to be provisioned identically.

RUL7 1) For each MDC module (one per plane) provide one (1) Filler Face Plate .875, NT0X50BA, in each position, 01-03 and 11-22 which is not to be equipped with a card and one (1) Filler Face Plate 1.72 (NT0X50BF) in position 23 if not to be equipped with a NT1X62BB to satisfy the forced air coooling requirements of this shelf.

RUL8 1) Provide two (2) (one per plane) (NT2X76CB) if office is a synchronizable slave or master office with internal clock.

RUL9 1) Provide two (2) (one per plane) (NT2X76CC) if office is a synchronizable master which is driven from an external reference atomic clock and programmable reference frequency.

RUL10 1) Select and provide two (2) (one per plane) (NT2X76AM-AW) which corresponds to the operating frequency of the external master reference for an office equipped per RUL9.

RUL11 1) For the MDC module provide one (1) Designation Label corresponding to each Filler Face Plate card provisioned.

RUL12 1) Provide two (2) (one per plane) NT4X80AA for every 1 Mega Words of PS memory. Assign cards in descending order starting at slot 8. The top 256K words of program store is reserved. Therefore, up to 7.75 M words are available for program store application.

2) Always provide at least two (2) NT4X80AA per shelf.

RUL13 1) For each CPM and DS module provide one Filler Face Plate (NT0X50BA) in each location which is not equipped with a card to satisfy the forced air cooling requirements of this shelf.

RUL14 1) Provide two (2) (one per plane) of each of NT1X48CA CP and NT1X42AA CP when Switching Control Centre System (SCCS)

interface is required. This also provides increased CPU capacity.

RUL15 1) Provide two (2) NT1X48DA for local maintenance and control and increased CPU capacity.

RUL16 1) Provide two (2) (one per plane) NT4X80AA for every 1 Mega Words of DS memory. Assign cards in ascending order starting at slot 6. The top 256K words of data store memory are reserved. Therefore, up to 15.75 M words are presently available for Data Store applications.

2) Always provide at least three (3) NT4X80AA per shelf.

RUL17 1) Provide two (2) (one per plane) NT2X70AZ Power Converter Kits to field upgrade the NT2X70BA to a NT2X70AE CP (upon Telco request). When upgrading Power Converters, the entire frame must be changed. Thus six (6) NT2X70AZ Kits must be ordered per CCC Frame.

RUL18 1) Provide one (1) label per NT3X45EA for Canadian offices equipped with IBN software. Put Label on FSP Bay 0 only.

RUL19 1) Provide one (1) NT0X0008 and one (1) NT0X0012 Logic Return Cable Assemblies per frame when extending existing offices not equipped with enhanced grounding per IS0X00.

CENTRAL CONTROL FRAME (DOUBLE BAY)

PEC CODE: NT3X45DW

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: CCC

ENGINEERING DESCRIPTION: NT3X45DW is a double bay frame consisting of two identical Central Control Complex Frames (CCC). The Memory Extension Frame (MEX), NT3X45DB may be provided with the NT3X45DW for memory extension.

REFERENCE DOCUMENTATION: MS3X45DW 00 05

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NT3X45DW EMR4-10-001 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The Central Control Frame (Double Bay) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Central MSG & I/O Dev Ctlr	NT2X76BA	MDC	2	65		AP
Central Proc & Mem Mod	NT3X41DA	CPM	2	51		AP
Frame Supervisory Panel	NT0X28AF	FSP	2	45		AP
4 M-Word Data Store	NT3X32DA	DS	2	32		AP
4 M-Word Data Store	NT3X32DA	DS		18		RUL1
Cage Filler Panel	NT0X84AA			18		RUL1
DC Fan Cooling Unit	NT3X90AC	CU	2	04		AP
Dept. of Comm. Cert. Label	P0663265			45		RUL6
Loc Mem Bus Cable CCC to MEX	NT3X45AH	MEX				RUL3
Local Cable DS to DS	NT3X45AD			18		RUL4
Power Cable	NT0X95BF			18		RUL4
Power Cable	NT0X95BG			18		RUL4
Logic Return Cable Assembly	NT0X0008					RUL5
Logic Return Cable Assembly	NT0X0012					RUL5
Power Converter PC Kit	NT2X70AZ					RUL2

NOTE: 1) When the processor shelf (shelf position 51) is equipped with the 40 MHz Processor Enhancement feature, the length of the differential bus from the CPU shelf to the last data store shelf is restricted to 20 feet (6 meters). This effectively restricts MEX frames to being adjacent to the CCC frame or directly behind the CCC frame. Without the 40 MHz Processor, the restriction is 40 feet (12 meters).

RULES:

AP 1) When PEC NT3X45DW is ordered, these items are provided.

2) The NT2X76BA and NT3X41DA shelves provided with this frame are to be equipped per MS2X76BA and MS3X41DA respectively.

3) The duplicated MDC provided here is capable of interfacing all CPU peripherals (NET & IOC) as CMC0:00 & CMC1:00. It can additionally interface directly to a limited number of I/O devices while functioning as IOC:00 & IOC:01 (see MS2X76BA, Section EMR4-10-MDC-1).

   Caution: if used to interface Magnetic Tape Drives (MTD) as IOC:00 or IOC:01 then the CCC and MTC/IOE frames must be located adjacent to each other (see also NT0X43AB, Section EMR5-01-001 and NT0X43AC, Section EMR5-01-002, NT0X43AD, Section EMA5-01-000).

4) The duplicated CPM accommodates up to 2 M-Word of PS memory. No memory card is required for spare as a spare row of memory devices on the controller will serve as the "HOT" spare.

5) The duplicated DS in position 32 will provide the first 4M-Word of DS memory. This shelf must be fully equipped before going to the next DS shelf.

RUL1 1) Provide two NT3X32DA, DS shelves per CCC frame when second DS shelf is required (DS memory from 4 to 8 M-Word capacity). Otherwise provide two (2) NT0X84AA Cage Filler Panels (one per frame). DS shelf in position 18 requires Local Cable DS to DS, NT3X45AD.

RUL2 1) Provide one (1) NT2X70AZ Power Converter PC Kit to modify the existing NT2X70__ to the NT2X70AE. This PC kit contains one (1) NT2X70AE and one (1) designation label.

RUL3 1) Provide two (2) NT3X45AH per CCC pair (NT3X45DW) if Memory Extension Frames (MEX) are also being provided initially. Corresponding switchboard cables are not to be ordered on the cable spec if these cables are provisioned. (See note 1)

RUL4 1) Provide two (2) of each cable NT3X45AD, NT0X95BF and NT0X95BG when NT3X32DA DS shelves are provided on shelf position 18. Wire per WD3X45DW.

RUL5 1) Provide one (1) NT0X0008 and one (1) NT0X0012 Logic Return Cable Assemblies per frame when extending existing offices not equipped with enhanced grounding per IS0X00.

RUL6 1) Provide one (1) label per NT3X45DW for Canadian office equipped with IBN software. Put label on FSP bay 0 only.

CCC COMMON CIRCUIT PACKS NT3X45ED

RATING: MD. Replaced by NT3X45EJ.

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: NT3X45ED provides circuit pack fill required for the CPU message and device controllers and memory of the CCC frame. One NT3X45ED provides enough circuit packs for both bays of the NT3X45EW CCC Double Bay Frame.

REFERENCE DOCUMENTATION: N/A

The CCC Common Circuit Packs is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
CMC Processor Interface CP	NT1X33BA		2	65	05	AP
CMC Common Control CP	NT1X37BA		2	65	06	AP
CMC Outgoing Controller CP	NT1X34BA		2	65	07	AP
CMC Incoming Controller CP	NT1X35BA		2	65	08	AP
CMC Peripheral I/F CP	NT1X36BB		2	65	09	AP
CMC Peripheral I/F CP	NT1X36BB		2	65	10	AP
CMC/IOC BP Terminator CP	NT3X4304		2	65	23R	AP
Pwr Converter (5V/12A)	NT2X70BA		2	65	25	AP
Designation Strip (NT2X7606)	P0656345		2	65		AP
16MW Memory BP Terminator	NT3X4309		2	51	01R	AP
16MW Memory Control CP	NT4X79AA		2	51	09	AP
PS Controller BP Terminator	NT3X4307		2	51	09R	AP
Unbal. Data Port Extender	NT1X49BA		2	51	10	AP
Processor BP Terminator	NT3X4303		2	51	10R	AP
CMC Interface CP	NT1X51BA		2	51	11	AP
Filler Face Plate .875	NT0X50BA		2	51	12	AP
Filler Face Plate .875	NT0X50BA		2	51	15	AP
Filler Face Plate .875	NT0X50BA		2	51	20	AP
Power Converter (5V/40A)	NT2X06BB		2	51	22	AP
Power Converter (5V/12A)	NT2X70BA		2	51	25	AP
Designation Strip (NT3X4106)	P0656304		2	51		AP
Filler Face Plate .875	NT0X50BA		2	32	01	AP
Single Ended Mem Bus I/F CP	NT3X37BC		2	32	02	AP
Filler Face Plate .875	NT0X50BA		2	32	03	AP
16MW Memory Control CP	NT4X79AA		2	32	04	AP
Filler Face Plate .875	NT0X50BA		2	32	05	AP
16MW Memory BP Terminator	NT3X4309		2	32	21R	AP
Filler Face Plate 2.62	NT0X50BE		2	32	22	AP
Power Converter (5V/12A)	NT2X70BA		2	32	25	AP
Designation Strip (NT3X3209)	P0656303		2	32		AP

RULE:

AP 1) When PEC NT3X45ED is ordered, these items are provided.

2) This PEC provides all of the always provided packs for both planes of the CCC Double Bay Frame (one plane takes up on bay).

CCC COMMON CIRCUIT PACKS NT3X45EJ

RATING: MD. Replaced by NT3X45EV.

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: NT3X45EJ provides circuit pack fill required for the CPU message and device controllers and memory of the CCC frame.

REFERENCE DOCUMENTATION: N/A

The CCC Common Circuit Packs is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
CMC Processor Interface CP	NT1X33BA		2	65	05	AP
CMC Common Control CP	NT1X37BA		2	65	06	AP
CMC Outgoing Controller CP	NT1X34BA		2	65	07	AP
CMC Incoming Controller CP	NT1X35BA		2	65	08	AP
CMC Peripheral I/F CP	NT1X36BB		2	65	09	AP
CMC Peripheral I/F CP	NT1X36BB		2	65	10	AP
CMC/IOC BP Terminator CP	NT3X4304		2	65	23R	AP
PWR Converter (5V/12A)	NT2X70BA		2	65	25	AP
Designation Strip (NT2X7606)	P0656345		2	65		AP
16MW Memory BP Terminator	NT3X4309		2	51	01R	AP
16MW Memory Control CP	NT4X79AA		2	51	09	AP
PS Controller BP Terminator	NT3X4307		2	51	09R	AP
Processor BP Terminator	NT3X4303		2	51	10R	AP
Filler Face Plate .875	NT0X50BA		2	51	12	AP
Filler Face Plate .875	NT0X50BA		2	51	15	AP
Filler Face Plate .875	NT0X50BA		2	51	20	AP
Power Converter (5V/40A)	NT2X06BB		2	51	22	AP
Power Converter (5V/12A)	NT2X70BA		2	51	25	AP
Filler Face Plate .875	NT0X50BA		2	32	01	AP
Single Ended Mem Bus I/F CP	NT3X37BC		2	32	02	AP
Filler Face Plate .875	NT0X50BA		2	32	03	AP
16MW Memory Control CP	NT4X79AA		2	32	04	AP
Filler Face Plate .875	NT0X50BA		2	32	05	AP
16MW Memory BP Terminator	NT3X4309		2	32	21R	AP
Filler Face Plate 2.62	NT0X50BE		2	32	22	AP
Power Converter (5V/12A)	NT2X70BA		2	32	25	AP
Designation Strip (NT3X3209)	P0656303		2	32		AP

RULE:

AP 1) When PEC NT3X45EJ is ordered, these items are provided.

2) This PEC provides all of the always provided packs for both planes (one plane takes up one bay).

ENHANCED CPU CAPACITY COMMON CP NT3X45EF

RATING: MD. Replaced by NT3X45EH.

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: NT3X45EF provides circuit packs required for enhanced CPU capacity for the CCC frame. One (1) NT3X45EF provides enough circuit packs for both bays of the NT3X45EW CCC Double Bay Frame.

REFERENCE DOCUMENTATION: N/A

The Enhanced CPU Capacity Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Processor 8KW ROM CP	NT1X46DA		2	51	14	AP
Proc Timing and Control CP	NT1X47DA		2	51	17	AP
Processor ALF CP	NT1X45DA		2	51	18	AP
Processor Stack 4KW CP	NT1X44DA		2	51	19	AP
Proc Prog Store Port CP	NT1X43DA		2	51	21	AP
Desig Label for NT1X46DA	P0661431		2	51	14	AP
Desig Label for NT1X47DA	P0661432		2	51	17	AP
Desig Label for NT1X45DA	P0661430		2	51	18	AP
Desig Label for NT1X44DA	P0661429		2	51	19	AP
Desig Label for NT1X43DA	P0661428		2	51	21	AP

RULE:

AP 1) When PEC NT3X45EF is ordered, these items are provided.

2) This PEC provides all of the always provided packs for both planes of the CCC Double Bay Frame (one plane takes up one bay).

BASIC CPU CAPACITY COMMON CP NT3X45EE

RATING: MD

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: NT3X45EE provides circuit packs required for the basic CPU capacity for the CCC frame.

REFERENCE DOCUMENTATION: N/A

The Basic CPU Capacity Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Proc Prog Store Port CP	NT1X43CA		2	51	21	AP
Processor Stack CP	NT1X44BB		2	51	19	AP
Processor ALF CP	NT1X45BB		2	51	18	AP
Proc Timing and Control CP	NT1X47BB		2	51	17	AP
Processor 8KW ROM CP	NT1X46CD		2	51	14	AP

RULE:

AP 1) When PEC NT3X45EE is ordered, these items are provided.

2) This PEC provides all of the always provided packs for both planes (one plane takes up one bay).

4M-WORD CONNECTORIZED DATA STORE SHELF

PEC CODE: NT3X32DB

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: DS

ENGINEERING DESCRIPTION: The Data Store provides data storage memory for DMS-100 family Central Processing Unit. This unit provides back-panel connectors for connectorized cabling to the CPU. This shelf is electrostatic discharge protected.

REFERENCE DOCUMENTATION: MS3X32DB 00 01

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X32DB EMR4-12-DS-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The 4M-Word Connectorized Data Store Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Conn Data Stor Shf Assy 4MW	NT3X3208		1	65		AP
Differential Mem Bus I/F CP	NT3X36BB		1	65	02	RUL1
Diff Mem Bus I/F & Term	NT3X36BC		1	65	02	RUL1
4 M-Word Memory Controller	NT3X94AA		1	65	04	AP
Filler Face Plate 0.875	NT0X50BA		3	65	01,03, 05	AP
256K MOS Memory CP	NT3X93AA			65	06-21	RUL2
Filler Face Plate 0.875	NT0X50BA			65	06-21	RUL3
1 M-Word Backplane Term.	NT3X4302		1	65	21R	AP
Filler Face Plate 2.62	NT0X50BE		1	65	22	AP
Power Converter +/- 5V & 12V	NT2X70BA		1	65	25	AP
Desig. Label for NT3X36BB	P0613356			65	02	RUL4
Desig. Label for NT3X36BC	P0613365			65	02	RUL4

RULES:

AP 1) When PEC NT3X32DB is ordered, these items are provided.

RUL1 1) Provide one (1) Differential Mem Bus I/F & Terminator (NT3X36BC) if this DS is the last one in the CPU data bus daisy chain, else provide one (1) Differential Memory Bus I/F (NT3X36BB). See also MS3X32DA in Section EMR4-10-DS-1.

RUL2 1) Provide one (1) card per 256K words of DS memory up to a maximum of sixteen.

2) Always provide at least one (1) memory CP.

3) Start in position 06 and fill as required.

RUL3 1) Provide one (1) Filler Face Plate, NT0X50BA, in each location, 06-21 which is not to be equipped with an NT3X93AA to satisfy the forced air cooling requirements of this shelf.

RUL4 1) Provide one (1) Designation Label corresponding to each card provisioned per RUL1, RUL2 and RUL3.

MEMORY EXTENSION FRAME

PEC CODE: NT3X45DB

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: MEX

ENGINEERING DESCRIPTION: The Memory Extension Frame, NT3X45DB is associated with the CCC frame NT3X45DA. The MEX frame houses Data Store shelves which are used to extend the memory on the CCC frame.

REFERENCE DOCUMENTATION: MS3X45DB 00 05

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45DB EMR4-12-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The Memory Extension Frame is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
4 M-Word Con Data Store Shf	NT3X32DB	DS	1	65		AP
4 M-Word Data Store Shelf	NT3X32DA	DS		51		RUL2
Cage Filler Panel	NT0X84AA			51		RUL2
Frame Supervisory Panel	NT0X28AF	FSP	1	45		AP
Cage Filler Panel	NT0X84AA		1	32		AP
Cage Filler Panel	NT0X84AA		1	18		AP
Cage Filler Panel	NT0X84AA		1	04		AP
Power Cable Assembly	NT0X95BA		2			AP
Data Store Local Cable	NT3X45AF		1	51		RUL3
Power Cable	NT0X95BB		1	51		RUL4
Power Cable	NT0X95BC		1	51		RUL4
Logic Return Cable Assembly	NT0X0011					RUL5
Power Converter PC Kit	NT2X70AZ					RUL1

NOTE 1) When the processor shelf (shelf position 51) of the CCC frame is equipped with the 40 MHz Processor Enhancement feature, the length of the differential bus from the CPU shelf to the last data store shelf is restricted to twenty feet (6 meters). This effectively restricts MEX frames to being adjacent to the CCC frame or directly behind the CCC frame. Without the 40 MHz processor, the restriction is forty feet (12 meters).

RULES:

AP 1) When PEC NT3X45DB is ordered, these items are provided.

2) For additional rules governing the assignment of DS, see MS3X45DA, Section EMR4-11-000.

3) The 4 M-Word Connectorized Data Shelf shelf (NT3X32DB) provided with the MEX frame will accommodate the first 4 M

words of data store memory on the MEX frame. Equip this shelf per MS3X32DB (Section EMR4-12-DS-1).

RUL1 1) Provide one (1) NT2X70AZ Power Converter PC Kit to modify the existing NT2X70__ to the NT2X70AE. This PC kit contains one (1) NT2X70AE and one (1) designation label.

RUL2 1) Provide one 4 M-Word Data Store (DS) shelf, NT3X32DA, for an additional 4 M words of Data Store memory required. Otherwise, provide one Cage Filler Panel, NT0X84AA.

2) Equip each per MS3X32DA. See Section EMR4-10-DS-1.

RUL3 1) Provide one Data Store Local Cable, NT3X45AF, if DS shelf is equipped in position 51.

RUL4 1) Provide one of each Power Cable, NT0X95BB and NT0X95BC if DS shelf is equipped in position 51.

RUL5 1) Provide one (1) NT0X0011 Logic Return Cable Assembly per frame when extending existing offices not equipped with enhanced grounding per IS0X00.

COMPUTING MODULE PROCESSOR SHELF COMMON CP NT9X06AA

RATING: Rating change pending. Replaced by NT9X06AB.

ABBREVIATION NAME: CM

ENGINEERING DESCRIPTION: The Computing Module Processor Shelf Common CP fill provides always provided equipment for the computing module processor shelf. The CMPS provides duplicated processors, reset controls and provisionable memory circuit packs.

REFERENCE DOCUMENTATION: N/A

The Computing Module Processor Shelf Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
-5V 20A Power Conv.	NT9X31AA		1		1F	AP
+5V 80A Power Conv.	NT9X30AA		1		4F	AP
CPU Port CP	NT9X12AA		2		17F-18F	AP
CPU CP - Processor	NT9X13BA		2		19F-20F	AP
CPU Port CP	NT9X12AA		2		21F-22F	AP
-5V 20A Power Conv.	NT9X31AA		1		33F	AP
+5V 80A Power Conv.	NT9X30AA		1		36F	AP
CM Bus Terminator	NT9X21AA		1		7R	AP
Subsystem Clock	NT9X22CA		1		16R	AP
DS512 PB	NT9X20AA		2		17R-18R	AP
Remote Terminal I/F CP	NT9X26AA		2		19R-20R	AP
DS512 PB	NT9X20AA		2		21R-22R	AP
Subsystem Clock	NT9X22CA		1		23R	AP
CM Bus Terminator	NT9X21AA		1		32R	AP
Shelf CP Fill Front Label	P0678437		1			AP
Shelf CP Fill Rear Label	P0678438		1			AP

RULE:

AP 1) When PEC NT9X06AA is ordered, these items are provided.

COMPUTING MODULE PROCESSOR SHELF COMMON CP NT9X06AB

RATING: Standard

ABBREVIATION NAME: CM

ENGINEERING DESCRIPTION: The Computing Module Processor Shelf Common CP fill provides always provided equipment for the computing module processor shelf. The CM provides duplicated processors, reset controls and provisionable memory circuit packs.

REFERENCE DOCUMENTATION: N/A

The Computing Module Processor Shelf Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
-5V 20A Power Conv.	NT9X31AA		1		1F	AP
+5V 80A Power Conv.	NT9X30AA		1		4F	AP
CPU Port CP	NT9X12AA		2		17F-18F	AP
CPU Port CP	NT9X12AA		2		21F-22F	AP
-5V 20A Power Conv.	NT9X31AA		1		33F	AP
+5V 80A Power Conv.	NT9X30AA		1		36F	AP
CM Bus Terminator	NT9X21AA		1		7R	AP
Subsystem Clock	NT9X22CA		1		16R	AP
DS512 PB	NT9X20AA		2		17R-18R	AP
Remote Terminal I/F CP	NT9X26AA		2		19R-20R	AP
DS512 PB	NT9X20AA		2		21R-22R	AP
Subsystem Clock	NT9X22CA		1		23R	AP
CM Bus Terminator	NT9X21AA		1		32R	AP
Shelf CP Fill Front Label	P0697922		1			AP
Shelf CP Fill Rear Label	P0678438		1			AP

RULE:

AP 1) When PEC NT9X06AB is ordered, these items are provided.

COMPUTING MODULE DUPLEX CABINET

PEC CODE: NT9X01AA

CPC CODE: B0221822

RATING: MD

REPLACES: Not Applicable.

REPLACED BY: NT9X01BA

ABBREVIATION NAME: CMDC

ENGINEERING DESCRIPTION: The Computing Module Duplex Cabinet houses a Computing Module Processor Shelf (CM) and one provisionable SLM shelf to house System Load Modules (SLM).

REFERENCE DOCUMENTATION: MS9X01AA 01 05

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA
Carrier
Wireless

ISSUE AUTHOR: NTI: Scott Maggiolo Dept. 3471 (PPK)

MAIN CONTACT: NTI: Scott Maggiolo Dept. 3471 (PPK)

NT9X01AA EMR4-13-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 07 11	ECM 626 25	MD Section. Refer to ECD 018-41001.

The Dual Plane Combined Core Cabinet is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Filler Packfill	NT9X01FB			00		RUL1
	Blank Shelf Assy	NT0X24BD			26,39		RUL1
	CM SLM Ext Shelf	NT9X0701		1	00		AP
@	CM SLM Common CP	NT9X07AA			00		RUL1
	CM SLM Common CP	NT9X07AB			00		RUL1
	System Load Module	NT9X44AA			00	8F,24F	RUL1
!	CPU Port CP	NT9X12AA			00	18F,21F	RUL1
	CPU Port CP	NT9X12AB			00	18F,21F	RUL1
#	Computing Mod Processor Shelf Common CP	NT9X06AA	CM		13		RUL5
#	Computing Mod Processor Shelf Common CP	NT9X06AB			13		RUL5
	Computing Mod Processor Shelf Common CP	NT9X06AC			13		RUL5
$	CM Processor Upgrade Kit	NT9X06CA			13		RUL9
	CM Processor Upgrade Kit	NT9X06CC			13		RUL9
	Computing Module Duplex Shelf Assembly	NT9X0601		1	13		AP
	Cable Bulkhead (right)	NT9X6507		1	13		AP
	Cable Bulkhead (left)	NT9X6508		1	13		AP
┌	4Mb Memory CP	NT9X14AA			13	7F-16F	RUL2
	6Mb Memory CP	NT9X14BB			13	7F-16F	RUL2
+	24Mb Memory CP	NT9X14DA			13	7F-16F	RUL2
	24Mb Memory CP	NT9X14DB			13	7F-16F	RUL2
	Filler Face Plate	NT9X19AA			13	7F-16F	RUL3
!	CPU Port CP	NT9X12AA			13	17F-18F	RUL9
	CPU Port CP	NT9X12AB			13	17F-18F	RUL9
	CPU Processor CP	NT9X13BA			13	19F-20F	RUL9
	CPU Processor CP	NT9X13BB			13	19F-20F	RUL9
	CPU Processor CP	NT9X13BC			13	19F-20F	RUL9
*	CPU Processor CP	NT9X13EA			13	19F-20F	RUL9
!	CPU Port CP	NT9X12AA			13	21F-22F	RUL9
	CPU Port CP	NT9X12AB			13	21F-22F	RUL9
┌	4Mb Memory CP	NT9X14AA			13	23F-32F	RUL2
	6Mb Memory CP	NT9X14BB			13	23F-32F	RUL2
+	24Mb Memory CP	NT9X14DA			13	23F-32F	RUL2
	24Mb Memory CP	NT9X14DB			13	23F-32F	RUL2
	Filler Face Plate	NT9X19AA			13	23F-32F	RUL3

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Pddle Brd Fller Face Plt	NT9X19BA			13	9R-15R 24R-30R	RUL4

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Pddle Brd Fller Face Plt	NT9X19BA			13	8R,31R	RUL6
CM BUS Extender	NT9X27AA			13	8R,31R	RUL6
Common Cabinet Equipment	NT9X0101	FW	1			AP
Light Fixture Assy	NT0X24CA					RUL8
End of Aisle Lamp Cable	NT9X0146					RUL10
End of Aisle Lamp Cable	NT9X0172					RUL10
Kick Plate Assy (Brown)	NT0X2430					RUL12
Kick Plate Assy (Grey)	NT0X2516					RUL13
Des Label (NT9X12AB)	P0700801					RUL7
Des Label (NT9X13BB)	P0696234					RUL7
Des Label (NT9X13BC)	P0696235					RUL7
Des Label (NT9X14AA)	P0678447					RUL7
Des Label (NT9X14BB)	P0679475					RUL7
Des Label (NT9X14DA)	P0697526					RUL7
Des Label (NT9X14DB)	P0700802					RUL7
Des Label (NT9X27AA)	P0678448					RUL7

* Check availability date before provisioning.
\# Rating Change Pending, Replaced by NT9X06AC.
$ Rating Change Pending, Replaced by NT9X06CC.
@ Rating Change Pending, Replaced by NT9X07AB.
! Rating Change Pending, Replaced by NT9X12AB.
\+ Rating Change Pending, Replaced by NT9X14DB.
┌ Rated MD.

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NT9X01AA is ordered, these items are provided.

2) The NT9X0101 is comprised of the following:

- NT0X24AA Cabinet Framework
- NT9X03AA Frame Supervisory Panel
- A0323984 Core Cooling Unit
- Cabinet Common Cabling & FSP Cabling

The NT0X24AA framework provides earthquake and EMI protection. The framework is 72" high, 28" deep and 42" wide.

The NT9X03AA FSP is mounted at position 52.
The A0323984 Cooling Unit is located immediately below position 0.

RUL1 1) When the System Load Module (SLM) is a requirement, provide one (1) NT9X07AB CM SLM Common CP fill, two (2) NT9X12AB CPU Port CP, and two (2) NT9X44AA System Load Modules.

2) When the SLM is not a requirement, provide one (1) Filler Packfill NT9X01FB to satisfy the forced air cooling requirements of the frame.

3) provision one (1) NT0X24BD Shelf Filler Panel in shelf position 26 and 39 to satisfy the forced air cooling requirements of the frame. RUL2 1) The 4Mb Memory Circuit Pack, NT9X14AA, was provisioned in pairs. It is now rated MD.
2) Provision two (2) 6Mb Memory Circuit Packs, NT9X14BB, for each additional 6Mb increment of memory required. A reminder that in addition to the operational memory provisioned, one extra memory CP must be provided per plane to be assigned as a "hot" spare.

3) All offices must equip the Memory CP to the following algorithm. Starting with 24 MByte CP for mixed offices, 1st. Slots 16F and 23F, 2nd. 15F and 24F, 3rd. 14F and 25F, 4th. 13F and 26F, 5th. 12F and 27F, 6th. 11F and 28F, 7th. 10F

and 29F, 8th. 9F and 30F, 9th. 8F and 31F, 10th. 7F and 32F.

4) The NT9X14DB 24 Mb Memory Circuit Pack will eventually replace the 6 Mb Memory Circuit Pack. (Note - The NT9X14DA 24 MByte CP has been rated Manufactured Discontinued and replaced by the NT9X14DB)

5) All offices must replace existing NT9X14DA 24 MByte Memory CP with NT9X14DB CP when inserting BCS 26.

RUL3 Provision one (1) Filler Face Plate in each card slot (7F - 16F and 23F - 32F) not equipped with a memory circuit pack to satisfy the forced air cooling requirements of the frame.

RUL4 1) One (1) Paddle Board Filler Face Plate (NT9X19BA) must be provided in each card slot POS 9R-15R and 24R-30R in shelf position 13 to satisfy forced air cooling requirements.

RUL5 1) Provide one (1) NT9X06AC Common CP.

RUL6 1) When the SLM is a requirement, provide two (2) NT9X27AA CM BUS Extender PB. Otherwise provide two (2) NT9X19BA Paddle Board Filler Face Plate to satisfy forced air cooling requirements.

RUL7 1) Provide one (1) Designation Label corresponding to each card provisioned.

RUL8 1) For Canadian offices only, Provide 2 DMS-Core light fixture assemblies per NT9X01AA cabinet.

This lighting assembly will not be offered for U.S. offices.

RUL9 1) Offices provisioned prior to general availability of the DMSCore will have a NT9X06AA CM Common Packfill. This packfill contains an NT9X13BA CPU Processor CP and NT9X12AA CPU Port CP. Refer to the following Software Release matrix for appropriate provisioning of the CPU Processor CP, and CPU Port CP.

2) Provide one (1) NT9X06CC CM Processor Upgrade Kit to field modify a NT9X06AA or NT9X06AB CM Common Packfill to a NT9X06AC Common Packfill.

3) Provide two (2) NT9X13BB, NT9X13BC or NT9X13EA CPU Processor CP, in card slots 19F and 20F, and four (4)

NT9X12AB CPU Port CP in card slots 17F,18F,21F and 22F for each NT9X06AC CM Common Packfill. Selection of the NT9X13__ CP is based on availability date of the CP and Hardware - Software Coordination of the CPU Processor to the Memory CP Provisioned per the following matrix;

NOTE: CONTACT MARKETING FOR APPROVAL BEFORE PROVISIONING THE NT9X13EA CPU PROCESSOR CP.

	SOFTWARE RELEASE					
	BCS24	BCS25		BCS26		
PROCESSORS NT9X13——	BA	BA	BB	BA	BB	BC
MEMORY CP NT9X14——	BB	BB	BB or BB/DA mix or BB/DB mix	BB	BB or BB/DA mix or BB/DB mix	BB or BB/DB mix or DB
PORT CP NT9X12——	AA	AA	AA or AB	AA	AA or AB	AB

	SOFTWARE RELEASE			
	BCS27			
PROCESSORS NT9X13——	BA	BB	BC	EA
MEMORY CP NT9X14——	BB	BB or BB/DA mix or BB/DB mix	BB or BB/DB mix or DB	BB or BB/DB mix or DB
PORT CP NT9X12——	AA	AA or AB	AB	AB

RUL10 1) Provide one (1) End of Aisle Lamp cable assembly (NT9X0146) if this is the last cabinet in the line-up.

2) Provide one (1) End of Aisle Lamp cable assembly (NT9X0172) if the spares cabinet (NT9X01FA) is located between the CMDC and the end of the line-up.

RUL11 1) Provide CPU Port CP (NT9X12AB) in card slots POS 17F,18F,21F and 22F in shelf position 13. RUL12 1) Provide only when brown coloured Supernode cabinet hardware is required. RUL13 1) Provide only when grey coloured Supernode cabinet hardware is required.

MESSAGE SWITCH PROCESSOR SHELF COMMON CP NT9X04AA

RATING: Rating change pending. Replaced by NT9X04AB.

ABBREVIATION NAME: MS

ENGINEERING DESCRIPTION: The Message Switch Processor Shelf Common CP fill contains the power, processor, and port circuit packs that are always provided for an MS processor shelf.

REFERENCE DOCUMENTATION: N/A

The Message Switch Processor Shelf Common CP is comprised of the fol-lowing:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
+5V 80A Converter	NT9X30AA		1		36F	AP
-5V 20A Converter	NT9X31AA		1		33F	AP
MS P-Bus Terminator CP	NT9X49CA		1		32F	AP
MS 4-Port CP	NT9X17AA		2		30F-31F	AP
Mapper CP	NT9X15AA		1		11F	AP
4 MB Memory CP	NT9X14AA		1		10F	AP
CPU 16MHZ CP	NT9X13DA		1		9F	AP
System Clock CP	NT9X53AA		1		8F	AP
MS T-Bus Terminator CP	NT9X52AA		1		7F	AP
+5V 80A Converter	NT9X30AA		1		4F	AP
-5V 20A Converter	NT9X31AA		1		1F	AP
DS-512 PB	NT9X20AA		2		30R-31R	AP
PB Filler Face Plate	NT9X19BA		1		11R	AP
MS Loading Paddle Board	NT9X32AA		1		10R	AP
Terminal Interface PB	NT9X26AA		1		9R	AP
Subsystem Clock PB	NT9X54AA		1		8R	AP
Shelf CP Fill Front Label	P0678433		1			AP
Shelf CP Fill Rear Label	P0690632		1			AP

RULE:

AP 1) When PEC NT9X04AA is ordered, these items are provided.

MESSAGE SWITCH PROCESSOR SHELF COMMON CP NT9X04AB

RATING: Rating Change Pending. Replaced by NT9X04AE.

ABBREVIATION NAME: MSPS

ENGINEERING DESCRIPTION: The Message Switch Processor Shelf Common CP fill contains the power, processor, and port circuit packs that are always provided for an MS processor shelf.

REFERENCE DOCUMENTATION: N/A

The Message Switch Processor Shelf Common CP is comprised of the fol-lowing:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
+5V 80A Converter	NT9X30AA		1		36F	AP
-5V 20A Converter	NT9X31AA		1		33F	AP
MS P-Bus Terminator CP	NT9X49CA		1		32F	AP
MS 4-Port CP	NT9X17AA		2		30F-31F	AP
Mapper CP	NT9X15AA		1		11F	AP
6 MB Memory CP	NT9X14BB		1		10F	AP
CPU 16MHZ CP	NT9X13DA		1		9F	AP
System Clock CP	NT9X53AA		1		8F	AP
MS T-Bus Terminator CP	NT9X52AA		1		7F	AP
+5V 80A Converter	NT9X30AA		1		4F	AP
-5V 20A Converter	NT9X31AA		1		1F	AP
DS-512 PB	NT9X20AA		2		30R-31R	AP
PB Filler Face Plate	NT9X19BA		1		11R	AP
MS Loading Paddle Board	NT9X32AA		1		10R	AP
Terminal Interface PB	NT9X26AA		1		9R	AP
Subsystem Clock PB	NT9X54AA		1		8R	AP
Shelf CP Fill Front Label	P0690597		1			AP
Shelf CP Fill Rear Label	P0690632		1			AP

RULE:

AP 1) When PEC NT9X04AB is ordered, these items are provided.

SLM Common CP NT9X07AA

RATING: Rating Change Pending. Replaced by NT9X07AB.

ABBREVIATION NAME: SLM

ENGINEERING DESCRIPTION: The System Load Module (SLM) Common CP fill contains the power processor and port circuit packs that are always provided for a SLM.

REFERENCE DOCUMENTATION: N/A

The System Load Module Shelf Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
+12V Power Converter	NT9X47AA		2		1F,33F	AP
+5V 80A Converter	NT9X30AA		2		4F,36F	AP
CPU Port CP	NT9X12AA		2		18F,21F	AP
Filler Face Plate	NT9X19AA		8		7F,16F, 17F,19F, 20F,22F, 23F,32F	AP
CM BUS Extension PB	NT9X27BA		2		7R,32R	AP
Parallel Port I/F PB	NT9X46AA		4		8R,18R 21R,24R	AP
CM Subys Clock PB	NT9X22CA		2		16R,23R	AP
CM BUS Terminator PB	NT9X21AA		2		19R,22R	AP
Pddle Brd Fllr Face Plt	NT9X19BA		16		9R-15R, 17R,20R, 25R-31R	AP
CM P-Bus EXTN Cable	NT9X0167		2			AP
CM P-Bus EXTN Cable	NT9X0757		6			AP
Des Strip Rear	P0687763					
Des Strip Front	P0687762					

RULE:

AP 1) When PEC NT9X07AA is ordered, these items are provided.

SYSTEM LOAD MODULE SHELF COMMON CP

PEC CODE: NT9X07AB

CPC CODE:

RATING: MD

REPLACES:

REPLACED BY: NT9X07AC

ABBREVIATION NAME: SLM

ENGINEERING DESCRIPTION: The System Load Module (SLM) Common CP fill contains the power processor and port circuit packs that are always provided for a SLM.

REFERENCE DOCUMENTATION:

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA
Carrier
Wireless

ISSUE AUTHOR: NTI: Jerry Palmer Dept. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT9X07AB EMR4-02-SLM-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
97 01 21	ECM 626 35	MD Power converter and MD this missing section.
97 09 29	ECM 626 39	MD the + 12 Volt converter per EC 018-51494.

The System Load Module Shelf Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
+12V Power Converter	NT9X47AA		2		1F,33F	AP
+5V 80A Converter	NT9X30AA		2		4F,36F	AP
Filler Face Plate	NT9X19AA		8		7F,16F, 17F,19F, 20F,22F, 23F,32F	AP
CM BUS Extension PB	NT9X27BA		2		7R,32R	AP
Parallel Port I/F PB	NT9X46AA		4		8R,18R 21R,24R	AP
CM Subys Clock PB	NT9X22CA		2		16R,23R	AP
CM BUS Terminator PB	NT9X21AA		2		19R,22R	AP
Pddle Brd Fllr Face Plt	NT9X19BA		16		9R-15R, 17R,20R, 25R-31R	AP
CM P-Bus EXTN Cable	NT9X0167		2			AP
CM P-Bus EXTN Cable	NT9X0757		6			AP
Des Strip Rear	P0687763					
Des Strip Front	P0700720					

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT9X30AA	MD	NT9X30AB
NT9X47AA	MD	NT9X47AB

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NT9X07AB is ordered, these items are provided.

MESSAGE SWITCH SIMPLEX CABINET NT9X01CA

RATING: Manufacture Discontinued.

ABBREVIATION NAME: MSSC

ENGINEERING DESCRIPTION: The Message Switch Simplex Cabinet contains a Message Switch Processor Shelf.

REFERENCE DOCUMENTATION: MS9X01CA 01 01

The Message Switch Simplex Cabinet is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Msg Sw Memory Upgrade Kit	NT9X04AD					RUL11
	Msg Sw Memory Upgrade Kit	NT9X04AF					RUL11
%	Msg Sw Proc Shf Comm CP	NT9X04AA	MS		39		RUL8
$	Msg Sw Proc Shf Comm CP	NT9X04AB	MS		39		RUL8
*	Msg Sw Proc Shf Comm CP	NT9X04AE	MS		26,39		RUL8
	Msg Sw Simplex Shf Assy	NT9X0401		1	39		AP
	Cable Bulkhead	NT9X6501		1	39		AP
	Cable Bulkhead	NT9X6502		1	39		AP
&	CPU 16 MHZ CP	NT9X13DA			26,39	9F	RUL13
*	CPU 16 MHZ CP	NT9X13DB			26,39	9F	RUL13
	6 MB Memory CP	NT9X14BB			26,39	10F	RUL12
	MS 4-Port CP	NT9X17AA			39	12F-29F	RUL3
	Filler Face Plate	NT9X19AA			39	12F-29F	RUL4
	MS Loading Paddle Board	NT9X32AA			39	7R	RUL2
0	Subsystem Clock PB	NT9X54AA			26,39	8R	RUL14
	Subsystem Clock PB	NT9X54AB			26,39	8R	RUL14
	PB Filler Face Plate	NT9X19BA			39	11R	RUL2
	4xDS-30 PB	NT9X23AA			39	12R-29R	RUL5
*	4xDS-30 PB	NT9X23BA			39	12R-29R	RUL5
*	MS Loading Paddle Board	NT9X32AA			39	12R-29R	RUL6
	PB Filler Face Plate	NT9X19BA			39	32R	RUL2
	DS-30 Cable	NT9X0145			39		RUL7
	Common Cabinet Equipment	NT9X0101	FW	1			AP
	Blank Shelf Assy	NT0X24BD			00,13 26		RUL1
	End of Aisle Lamp Cable	NT9X0146					RUL15
	End of Aisle Lamp Cable	NT9X0172					RUL15
	Light Fixture Assy	NT0X24CA					RUL10
	Des Label (NT9X17AA)	P0678439					RUL9
	Des Label (NT9X23AA)	P0678443					RUL9
	Des Label (NT9X13EA)	P0697524					RUL9
	Des Label (NT9X23BA)	P0697530					RUL9
	Des Label (NT9X54AB)	P0699266					RUL9
	Des Label (NT9X14BB)	P0679475					RUL9
	Des Label (NT9X13DA)	P0685359					RUL9
	Des Label (NT9X13DB)	P0696239					RUL9

* Check availability date before provisioning.
% Rating Change Pending, Replaced by NT9X04AB.
$ Rating Change Pending, Replaced by NT9X04AE.

[0] Rating Change Pending, Replaced by NT9X54AB.

RULE:

AP 1) When PEC NT9X01CA is ordered, these items are provided.

2) The NT9X0101 is comprised of the following:

- NT0X24AA Cabinet Framework
- NT9X03AA Frame Supervisory Panel
- A0323984 Core Cooling Unit
- Cabinet Common Cabling & FSP Cabling

The NT0X24AA framework provides earthquake and EMI protection. The framework is 72" high, 28" deep and 42" wide.

The NT9X03AA FSP is mounted at position 52.

The A0323984 Cooling Unit is located immediately below position 0.

RUL1 1) Provision one (1) NT0X24BD Shelf Filler Panel in shelf position 00,13 and 26 to satisfy the forced air cooling requirements of the frame.

RUL2 1) One (1) MS Loading Paddle Board (NT9X32AA) must be provided in card slot POS 7R in shelf position 39 to provide impedance matching on the backplane

2) One (1) Paddle Board Filler Face Plate (NT9X19BA) must be provided in card slot Pos 11R and 32R in shelf position 39 to satisfy forced air cooling requirements.

RUL3 1) Provide up to eighteen (18) (from position 29F through 12F) MS 4-Port CPs, NT9X17AA, per each MS shelf, as needed. Assign cards in descending order.

2) MS 4-Port CPs are provisioned identically in each of the MS shelves.

3) The number of MS 4-Port CPs, NT9X17AA, required per MS is given by the following:

$$\#\text{ 4-Port CPs per MS} = \frac{(\#NM + \#IOC)}{4}$$

rounded up to the next even integer as the NT9X17AA circuit packs are assigned in pairs per MS. 'NM' is a single plane.

4) The MS 4-Port CP, NT9X17AA is the universal port card providing four (4) independent port appearances. These CPs support the standard DS-30 link to existing Network Modules (NMs) and I/O Controllers (IOCs).

5) IOC:00 and IOC:01 are fixed assigned to MS CP position 29 port 0 and MS CP position 28 port 0 respectively. In addition it is recommended that port assignments proceed from higher number slots toward lower number slots.

Each IOC has two (2) messaging ports, one port connecting to each plane of the MS. Thus the number of IOC MS ports per MS plane = the number of IOC's.

RUL4 Provide one (1) NT9X19AA, Filler Face Plate in each card slot (12F-29F) not equipped with a CP to satisfy the forced air cooling requirements of the frame.

RUL5 The number of NT9X23BA 4xDS-30 PBs to be provided is equal to the number of NT9X17AA MS 4-Port CPs provided in RUL3. Assign cards in descending order per RUL3.

RUL6 Provide one (1) NT9X32AA, MS Loading Paddle Board in each slot (29R-12R) not equipped with a PB (NT9X23__ or NT9X20AA) to provide impedance matching on the backplane.

RUL7 Provide one (1) NT9X0145 cable for each DS-30 Paddle Board, NT9X23__. These cables go from the NT9X23__ PBs to the bulkheads.

RUL8 1) Provide one (1) NT9X04AE Common CP.

RUL9 1) Provide 1 Designation Label corresponding to each card provisioned.

2) The NT9X32AA Designation Labels are always provided on Shelf 39 at Card Slots 12R-29R.

RUL10 1) For Canadian offices only, Provide 2 DMS-Core light fixture assemblies per NT9X01CA cabinet.

This lighting assembly will not be offered for U.S. offices.

RUL11 1) Provide one (1) NT9X04AD Message Switch Memory Upgrade Kit to field upgrade the NT9X04AA MS Common CP to the NT9X04AB Common CP.

2) Provide two (2) NT9X04AF Message Switch Upgrade to field upgrade the NT9X04AB MS Common CP to the NT9X04AE Common CP. When applying this change kit, provision the processor CP according to the latest BCS Compatability.

RUL12 1) Provide one (1) 6 MB Memory CP (NT9X14BB) in card slot POS 10F in shelf position 26,39.

RUL13 1) Provide one (1) CPU 16MHZ CP (NT9X13DB) in card slot POS 9F in shelf position 26,39.

RUL14 1) Provide one (1) Subsystem Clock PB (NT9X54AB) in card slot POS 8R in shelf position 26,39 for Stratum II, Stratum 2.5 or Stratum III applications.

2) Provide one (1) Subsystem Clock PB (NT9X54AB) in card slot POS 8R in shelf position 26,39 for Stratum II or Stratum 2.5 applications.

RUL15 1) Provide one (1) End of Aisle Lamp cable assembly (NT9X0146) if this is the last cabinet in the line-up.

2) Provide one (1) End of Aisle Lamp cable assembly (NT9X0172) if the spares cabinet (NT9X01FA) is located between the MSSC and the end of the line-up.

MESSAGE SWITCH DUPLEX CABINET NT9X01GA

RATING: Manufacture Discontinued

ABBREVIATION NAME: MSDC

ENGINEERING DESCRIPTION: The Message Switch Duplex Cabinet, NT9X01GA houses two (2) Message Switch Processor Shelves (MS), one for each of the two logical MS's.

REFERENCE DOCUMENTATION: MS9X01GA 01 06

The Message Switch Duplex Cabinet is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
@	Msg Switch Proc Shf Comm CP	NT9X04AA			13,39		RUL2
%	Msg Switch Proc Shf Comm CP	NT9X04AB			13,39		RUL2
*	Msg Sw Proc Shf Comm CP	NT9X04AE	MS		13,39		RUL2
*	Msg Sw Memory Upgrade Kit	NT9X04AF					RUL11
	Msg Switch Simplex Shf Assy	NT9X0401		2	13,39		AP
	Cable Bulkhead	NT9X6501		2	13,39		AP
	Cable Bulkhead	NT9X6502		2	13,39		AP
&	CPU 16 MHZ CP	NT9X13DA			13,39	9F	RUL13
*	CPU 16 MHZ CP	NT9X13DB			13,39	9F	RUL13
	6 MB Memory CP	NT9X14BB			13,39	10F	RUL12
	MS 4-Port CP	NT9X17AA			13,39	12F-29F	RUL3
	Mother Brd Filler Face Plate	NT9X19AA			13,39	12F-29F	RUL4
	MS Loading Paddle Board	NT9X32AA			13,39	7R	RUL5
0	Subsystem Clock PB	NT9X54AA			13,39	8R	RUL14
	Subsystem Clock PB	NT9X54AB			13,39	8R	RUL14
	PB Filler Face Plate	NT9X19BA			13,39	11R	RUL5
	4xDS-30 PB	NT9X23AA			13,39	12R-29R	RUL6
*	4xDS-30 PB	NT9X23BA			13,39	12R-29R	RUL6
	MS Loading Paddle Board	NT9X32AA			13,39	12R-29R	RUL7
	Paddle Brd Filer Face Plate	NT9X19BA			13,39	32R	RUL5
	DS-30 Cable	NT9X0145			13,39		RUL8
	Common Cabinet Equipment	NT9X0101	FW	1			AP
	Blank Shelf Assy	NT0X24BD			00,26		RUL1
	Msg Sw Memory Upgrade Kit	NT9X04AD					RUL11
	End of Aisle Lamp Cable	NT9X0146					RUL15
	End of Aisle Lamp Cable	NT9X0172					RUL15
	Light Fixture Assy	NT0X24CA					RUL10
	Kick Plate Assy (Brown)	NT0X2430					RUL16
	Kick Plate Assy (Grey)	NT0X2516					RUL17
	Des Label (NT9X17AA)	P0678439			13,39		RUL9
	Des Label (NT9X23AA)	P0678443					RUL9
	Des Label (NT9X27AA)	P0678448					RUL9
	Des Label (NT9X13DA)	P0685359					RUL9
	Des Label (NT9X13DB)	P0696239					RUL9
	Des Label (NT9X14BB)	P0678475					RUL9
	Des Label (NT9X54AB)	P0699266					RUL9

* Check availability date before provisioning.

@ Rating Change Pending, Replaced by NT9X04AB.
% Rating Change Pending, Replaced by NT9X04AE.
& Rating Change Pending, Replaced by NT9X13DB.
0 Rating Change Pending, Replaced by NT9X54AB.

RULE:

AP 1) When PEC NT9X01GA is ordered, these items are provided.

2) The NT9X0101 is comprised of the following:

- NT0X24AA Cabinet Framework
- NT9X03AA Frame Supervisory Panel
- A0323984 Core Cooling Unit
- Cabinet Common Cabling & FSP Cabling

The NT0X24AA framework provides earthquake and EMI protection. The framework is 72" high, 28" deep and 42.25" wide.

The NT9X03AA FSP is mounted at position 52.

The NT9X02AA Cooling Unit is located immediately below position 0.

RUL1 1) Provision one (1) NT0X24BD Shelf Filler Panel in shelf position 00 and 26 to satisfy the forced air cooling requirements of the frame.

RUL2 1) Provide two (2) NT9X04AE Common CP.

RUL3 1) Provide up to eighteen (18) (from position 29F through 12F) MS 4-Port CPs, NT9X17AA, per each MS shelf, as needed. Assign cards in descending order.

2) MS 4-Port CPs are provisioned identically in each of the MS shelves.

3) The number of MS 4-Port CPs, NT9X17AA, required per MS is given by the following:

$$\#\text{ 4-Port CPs per MS} = \frac{(\#NM + \#IOC)}{4}$$

rounded up to the next even integer as the NT9X17AA circuit packs are assigned in pairs per MS. 'NM' is a single plane.

4) The MS 4-Port CP, NT9X17AA is the universal port card providing four (4) independent port appearances. These CPs support the standard DS-30 link to existing Network Modules (NMs) and I/O Controllers (IOCs).

5) IOC:00 and IOC:01 are fixed assigned to MS CP position 29 port 0 and MS CP position 28 port 0 respectively. In addition it is recommended that port assignments proceed from higher number slots toward lower number slots.

Each IOC has two (2) messaging ports, one port connecting to each plane of the MS. Thus the number of IOC MS ports per MS plane = the number of IOC's.

RUL4 1) Provide one (1) NT9X19AA, Filler Face Plate in each card slot (12F-29F) not equipped with a CP to satisfy the forced air cooling requirements of the frame.

RUL5 1) One (1) MS Loading Paddle Board (NT9X32AA) must be provided in card slot POS 7R in shelf position 13 and 39 to provide impedance matching on the backplane.

2) One (1) Paddle Board Filler Face Plate (NT9X19BA) must be provided in card slot POS 11R and 32R in shelf position 13 and 39 to satisfy forced air cooling requirements.

RUL6 1) The number of NT9X23AA 4xDS-30 PBs to be provided is equal to the number of NT9X17AA MS 4-Port CPs provided in RUL3. Assign cards in descending order per RUL3.

2) Provision NT9X23BA 4xDS-30 PBs in place of NT9X23AA PBs for Signalling Transfer Point (STP) applications.

RUL7 1) Provide one (1) NT9X32AA, MS Loading Paddle Board in each slot (12R-29R) not equipped with a PB (NT9X23__ or NT9X20AA) to provide impedance matching on the backplane.

RUL8 1) Provide one (1) NT9X0145 cable for each DS-30 Paddle Board, NT9X23__. These cables go from the NT9X23__ PBs to the bulkheads.

RUL9 1) Provide 1 Designation Label corresponding to each card provisioned.

2) The NT9X32AA Designation Labels are always provided on Shelves 13 & 39 at Card Slots 12R-29R.

RUL10 1) For Canadian offices only, Provide 2 DMS-Core light fixture assemblies per NT9X01GA cabinet. This lighting assembly will not be offered for U.S. offices.

RUL11 1) Provide one (1) NT9X04AD Message Switch Memory Upgrade Kit to field upgrade the NT9X04AA MS Common CP to the NT9X04AB Common CP.

2) Provide two (2) NT9X04AF Message Switch Upgrade to field upgrade the NT9X04AB MS Common CP to the NT9X04AE Common CP. When applying this change kit, provision the processor CP according to the latest BCS Compatability.

RUL12 1) Provide one (1) 6 MB Memory CP (NT9X14BB) in card slot POS 10F in shelf position 26,39.

RUL13 1) Provide one (1) CPU 16MHZ CP (NT9X13DA) in card slot POS 9F in shelf position 26,39 for applications in BCS-25 and lower.

2) The NT9X13DA is functional in BCS-26; however, all new applications should be provisioned with NT9X13DB.

3) Provide one (1) CPU 16MHZ CP (NT9X13DB) in card slot POS 9F in shelf position 26,39 for applications in BCS-26 and higher.

RUL14 1) Provide one (1) Subsystem Clock PB (NT9X54AA) in card slot POS 8R in shelf position 26,39 for Stratum II, Stratum 2.5 or Stratum III applications.

2) Provide one (1) Subsystem Clock PB (NT9X54AB) in card slot POS 8R in shelf position 26,39 for Stratum II or Stratum 2.5 applications.

RUL15 1) Provide one (1) End of Aisle Lamp cable assembly (NT9X0146) if this is the last cabinet in the line-up.

2) Provide one (1) End of Aisle Lamp cable assembly (NT9X0172) if the spares cabinet (NT9X01FA) is located between the MSDC and the end of the line-up.

RUL16 1) Provide only when brown coloured Supernode cabinet hardware is required.

RUL17 1) Provide only when grey coloured Supernode cabinet hardware is required.

MECHANICAL H/W FOR C42(S/DMS) CABINET

PEC CODE: NT9X95AA

CPC CODE: B0232874

RATING: Manufacture Discontinued

REPLACES:

REPLACED BY: NT9X95BA

ABBREVIATION NAME: FW

ENGINEERING DESCRIPTION: This Engineering Manual Section describes the provisionable mechanical hardware for the S/DMS Cabinet.

REFERENCE DOCUMENTATION: MS9X95AA 00 06
SL9X95AA 01 05

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA
Carrier
Wireless

ISSUE AUTHOR: NTI: Scott Maggiolo Dept. 3471 (PPK)

MAIN CONTACT: NTI: Scott Maggiolo Dept. 3471 (PPK)

NT9X95AA EMR4-17-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
92 07 27	ECM 626 05	Changes due to the iss. 06 of MS9X95AA
92 09 23	ECM 635 02	Correction in the note section
93 06 04	ECM 620 12	Referenced by NTZZ44CM/KM/FM/GM.
94 03 10	ECM 626 15	Retire Section

The MECHANICAL H/W FOR C42(S/DMS) CABINET is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Cable Trough Junction	NT0X24BJ					RUL2
Cabinet Isolator	P0729947					RUL4
Cabinet Levelling Equipment	NTRX2523					RUL5
Front & Rear X-Aisle Assy (3 shield) (Grey)	NT0X24CX					RUL6, RUL14
Rear X-Aisle Assembly (3 shield) (Grey)	NT0X24CY					RUL6, RUL14
Front & Rear X-Aisle Assy (3 shield) (Brown)	NT0X24CR					RUL7, RUL13
Rear X-Aisle Assembly (3 shield) (Brown)	NT0X24CS					RUL7, RUL13
Lighting Kit Equipment	NT0X24CA					RUL8
Single Hotslide Junction kit	NT0X24CV					RUL9
Double Hotslide Junction kit	NT0X24CW					RUL10
C42 Frame Junct.Material						
EMI Contact strip Upright	P0714698		2			RUL15
Thread forming Screw	P097F839					RUL15
Flat washer	P0483753					RUL15
M12 Anchor Assembly	NT0X21AV					RUL19
Floor Shim (.031)	P0735434					RUL20
Floor Shim (.062)	P0735435					RUL20
Floor Shim (.125)	P0735436					RUL20
Cable Trough Assy.(Grey) for C28 Office	NTEX70AA					RUL21

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES: 1) Refer to Upper Level Cabinets (e.g. NT9X01JB, NT9X05AC, NTEX01AB, NT9X05AD, etc...) section for NT0X24BH and NT0X25AX cable trough, provisioning rules.

RULES:

RUL1 1) Deleted.

RUL2 1) NT0X24BJ provides all mechanical hardware necessary to join two Cable Troughs together. Quantity one is required whenever two Cable Troughs are side by side in a lineup or N-1 kits for N frames. (Eg. 5 kits for 6 Frames)

RUL3 1) Deleted

RUL4 1) Provide one (1) P0729947 Isolator pad when anchors are provided.

RUL5 1) Provide one NTRX2523 Levelling Kits per cabinet except in earthquake zone application.

RUL6 1) NT0X24CX (Grey) provides all hardware for one front & rear X-Aisle Junction for a C42 cabinet.

2) NT0X24CY (Grey) provides all hardware for rear X-Aisle Junction for a C42 Cabinet.

RUL7 1) NT0X24CR (Brown) provides all hardware for one front & rear X-Aisle Junction from a C42 Cabinet to a DMS-100 lineup.

2) NT0X24CS (Brown) provides all hardware for rear X-Aisle Junction from a C42 cabinet to a DMS-100 lineup.

RUL8 1) Provideone (1) NT0X24CA Cabinet Lighting assembly per C42 cabinet per job spec.

RUL9 1) NT0X24CV provides the mechanical hadrware necessary to interface a single cabinet at the begining or middle or end of a DMS Lineup.

RUL10 1) NT0X24CW provides the mechanical hadrware necessary to interface a double cabinet at the begining or middle or end of a DMS Lineup.

RUL11 1) Deleted

RUL12 1) Deleted

RUL13 1) This is for a cabinet with brown exterior parts.

RUL14 1) This is for a cabinet with Grey exterior parts.

RUL15 1) Provide two (2) P0714698 EMI contact strip upright, along with eight (8) P097F839 screws and eight (8) Flat washers P0483753 for each C28 or C42 cabinets (front & rear). This is not required for standalone application.

RUL16) 1) Deleted

RUL17) 1) Deleted

RUL18) 1) Deleted

RUL19) 1) Provide four (4) NT0X21AV anchor assemblies per C42 cabinet for earthquake zone application or on customer request in non earthquake zone.

RUL20) 1) Provide two (2) of each P0735434 & P0735435 & P0735436 floor shims or per customer requirements per C42 cabinet, when anchors are provided.

RUL21) 1) Provide one (1) Cable Trough Assembly (grey) per C42 Cabinet in a Cabinetized DMS office, except in raised floor application.

CM PROCESSOR UPGRADE KIT

PEC CODE: NT9X06CA

CPC CODE: B0228280

RATING: Rating Change Pending

REPLACES: N/A

REPLACED BY: NT9X06CC

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides an upgrade of the Common Circuit Pack fill (NT9X06AA) to make the CPU Processor card slots (19F,20F) provisionable. This PC Kit is required for all offices receiving BCS 24 or higher software load.

REFERENCE DOCUMENTATION: Not Applicable

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA
Carrier
Wireless

ISSUE AUTHOR: NTI: Scott Maggiolo Dept. 3471 (PPK)

MAIN CONTACT: NTI: Scott Maggiolo Dept. 3471 (PPK)

NT9X06CA EMR4-98-CMPS-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 07 11	ECM 626 25	Reformat section.
95 08 28	ECM 626 26	Minor corrections.

The CM Processor Upgrade Kit is comprised of the following:

The codes of the Frames to which this change is applicable are as follows: NT9X01AA, NT9X01BA, and NT9X01JA.

The NT9X06CA Product Change Kit is comprised of the following removals and additions per NT9X06AA Shelf.

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	(NT9X06AA) Des Strip	P0678437		1	13		
ADD	(NT9X06AB) Des Strip	P0697922		1	13		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

NOTES:

1) Description of circuit pack changes is given for one shelf only.

2) Stocklist for the PC Kit contains equipment to modify one (1) CM shelf.

3) Refer to the Engineering Manual Section on the effected frame (i.e. NT9X01BA,NT9X01AA, or NT9X01JA) for provisioning criteria on the CPU Processor CP (NT9X13--).

RULES:

AP 1) When PEC NT9X06CA is ordered, these items are provided.

CM PROCESSOR UPGRADE KIT

PEC CODE: NT9X06CC

CPC CODE:

RATING: MD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides an upgrade to the CM & SLM pack fills, (CM - NT9X06AA & AB, SLM - NT9X07AA). The PC Kit provides designation labels to convert the CM to the NT9X06AC and the SLM to the NT9X07AB level. At this level of modular packfill the NT9X12AD CPU Port CP is provisionable and must be ordered when field upgrading an office with BCS 26.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA
Carrier
Wireless

ISSUE AUTHOR: NTI: Jerry Palmer Dept. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT9X06CC EMR4-98-CMPS-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-------- 96 11 22	---------- ECM 626 34	Previous history not available MD the following circuit packs per ECD 018-46903: NT9X13DA, NT9X13DB, NT9X13DC, NT9X17AA, NT9X20BB, NT9X54AA, NT9X54AB, NT9X49CA, NT9X30AA, NT9X31AA MD the following circuit packs per ECD 018-45348: NT9X14BB, NT9X26AA, NT9X26CA MD the following circuit pack per ECD 018-43648: NT9X26DA MD the following circuit pack per ECD 006-17002: NT9X12AB Also clear SR RR6A684 on NT9X13DC.

The CM Processor Upgrade Kit is comprised of the following:

The codes of the Frames to which this change is applicable are as follows: NT9X01AA, NT9X01BA, and NT9X01JA.

The NT9X06CC Product Change Kit is comprised of the following removals and additions.

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	(NT9X06AA) Des Strip	P0678437		1	13		
or							
REMOVE	(NT9X06AB) Des Strip	P0697922		1	13		
ADD	(NT9X06AC) Des Strip	P0700719		1	13		AP
REMOVE	(NT9X07AA) Des Strip	P0687763		1	00		
ADD	(NT9X07AB) Des Strip	P0700720		1	00		AP
ADD	Packfill Des Label	P0678431		1			AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

NOTES:

1) Stocklist for the PC Kit contains equipment to modify one (1) CM and one (1) SLM shelf.

2) Refer to the Engineering Manual Section on the effected frame (i.e. NT9X01BA,NT9X01AA, or NT9X01JA) for provisioning criteria.

RULES:

AP 1) When PEC NT9X06CC is ordered, these items are provided.

MS MEMORY UPGRADE KIT

PEC CODE: NT9X04AD

CPC CODE: B0228212

RATING: MD

REPLACES: N/A

REPLACED BY: NT9X04AF

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides a six (6) MByte Memory CP in place of the four (4) MByte CP that is always provided on the NT9X04AA Common CP. This PC Kit is required for all BCS26 offices. The codes of the Frames to which this change is applicable are the NT9X01BA, NT9X01GA, and the NT9X01CA.

REFERENCE DOCUMENTATION:

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA
Carrier
Wireless

ISSUE AUTHOR: NTI: Jerry Palmer Dept. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT9X04AD EMR4-98-MSPS-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 07 11	ECM 626 25	Reformat section.
95 08 28	ECM 626 26	Minor corrections.
96 11 22	ECM 626 34	MD the following circuit packs per ECD 018-46903: NT9X13DA, NT9X13DB, NT9X13DC, NT9X17AA, NT9X20BB, NT9X54AA, NT9X54AB, NT9X49CA, NT9X30AA, NT9X31AA MD the following circuit packs per ECD 018-45348: NT9X14BB, NT9X26AA, NT9X26CA MD the following circuit pack per ECD 018-43648: NT9X26DA MD the following circuit pack per ECD 006-17002: NT9X12AB Also clear SR RR6A684 on NT9X13DC.

The MS Memory Upgrade Kit is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE

The NT9X04AD Product Change Kit is comprised of the following removals and additions per NT9X04AA Shelf.

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Four (4) MB Mem CP	NT9X14AA		1	XX	10F	
ADD	Six (6) MB Mem CP	NT9X14BB		1	XX	10F	AP
ADD	Front Packfill Label	P0690597		1	XX		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

NOTES:

1) Description of circuit pack changes is given for one shelf only. Operations must be repeated for both MS shelves that are equipped.

2) Stocklist for the PC Kit contains equipment to modify one MS shelf, thus two (2) PC Kits must be ordered to modify both MS shelves.

3) Shelf position XX can be 26 or 39.

RULES:

AP 1) When PEC NT9X04AD is ordered, these items are provided.

MESSAGE SWITCH PROCESSOR UPGRADE KIT

PEC CODE:	NT9X04AF
CPC CODE:	B0228541
RATING:	MD
REPLACES:	NT9X04AE
REPLACED BY:	NT9X04AG
ABBREVIATION NAME:	N/A
ENGINEERING DESCRIPTION:	This change kit provide an upgrade of the Common Circuit Pack fill (NT9X04AA) or (NT9X04AB) to make the Memory CP card slot (10F), CPU Clock CP card slot (9F) and Sub-system Clock PB card slot (11R) provisionable. This PC Kit is required for all offices receiving BCS26 or higher soft-ware load.
REFERENCE DOCUMENTATION:	Not Applicable
MARKETS:	Applicable markets: US Canada Europe Asia/Pacific CALA Carrier Wireless

ISSUE AUTHOR: NTI: Jerry Palmer Dept. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT9X04AF EMR4-98-MSPS-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
95 07 11	ECM 626 25	Reformat section.
95 08 28	ECM 626 26	Minor corrections.
96 11 22	ECM 626 34	MD the following circuit packs per ECD 018-46903: NT9X13DA, NT9X13DB, NT9X13DC, NT9X17AA, NT9X20BB, NT9X54AA, NT9X54AB, NT9X49CA, NT9X30AA, NT9X31AA MD the following circuit packs per ECD 018-45348: NT9X14BB, NT9X26AA, NT9X26CA MD the following circuit pack per ECD 018-43648: NT9X26DA MD the following circuit pack per ECD 006-17002: NT9X12AB Also clear SR RR6A684 on NT9X13DC.

The Message Switch Processor Upgrade Kit is comprised of the following:

The codes of the Frames to which this change is applicable are as follows: NT9X01BA, NT9X01AA, and NT9X01JA.

The NT9X04AF Product Change Kit is comprised of the following removals and additions per NT9X04AA or NT9X04AB Shelf.

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
ADD	(NT9X04AF) Des Strip	P0698334		1	XX		AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

NOTES:

1) Description of circuit pack changes is given for one shelf only. Operations must be repeated for both MS shelves that are equipped.

2) Stocklist for the PC Kit contains equipment to modify both MS shelves

3) Shelf position XX can be 26 or 39.

RULES:

AP 1) When PEC NT9X04AF is ordered, these items are provided.

FIRMWARE CHANGES FOR BCS-10 SOFTWARE

PEC CODE: NT3X45DC

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides new firmware (on NT1X46BB and NT1X53BB circuit packs) necessary for operation with BCS-10 software. These circuit packs are inserted in the processor shelf.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45DC EMR4-99-DC CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT0X41AC	NT1X41AA
NT0X41AJ	NT1X41AB
NT3X45AA	NT3X41AA
NT3X45CA	NT3X41BA

The NT3X45DC product change kit is comprised of the following removals and additions:

ACTION		EQUIPMENT	PEC	SHF ABBR	CP QTY	POS
POS	RULE					
REMOVE	4K ROM Extender	NT1X53AA/BA	2	51	12	
REMOVE	Processor ROM	NT1X46AA/BA	2	51	14	
ADD	NT1X53BB Des Label	P0623512	2	51	12	AP
ADD	NT1X46BB Des Label	P0623509	2	51	14	AP
ADD	4K ROM Extender	NT1X53BB	2	51	12	AP
ADD	Processor ROM	NT1X46BB	2	51	14	AP

NOTES:

1) Description of circuit pack changes is given for both bays of a CCC. Sufficient circuit packs (two NT1X53BB, two NT1X46BB) are provided for both bays but spares must be provisioned by the Job Engineer.

RULES:

AP 1) When PEC NT3X45DC is ordered, these items are provided.

CENTRAL PROCESSOR ENHANCEMENT

PEC CODE: NT3X45DD

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides circuit packs and wiring information required for central processor real time enhancement (pipeline speed up and 4K RAM stack). Circuit packs are inserted in the processor shelf.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45DD EMR4-99-DD CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT0X41AC	NT1X41AA
NT0X41AJ	NT1X41AB
NT3X45AA	NT3X41AA
NT3X45CA	NT3X41BA

The NT3X45DD product change kit is comprised of the following removals and additions:

ACTION	EQUIPMENT	PEC	SHF ABBR	CP QTY	POS	POS RULE
REMOVE	Processor PS Port CP	NT1X43AA/AC/BC	2	51	21	
REMOVE	Processor Stack CP	NT1X44AA/BA	2	51	19	
REMOVE	Processor A.L.F. CP	NT1X45AA/BA	2	51	18	
REMOVE	Proc Time & Ctrl CP	NT1X47AA/BA	2	51	17	
ADD	Processor PS Port CP	NT1X43BD	2	51	21	AP
ADD	Des Label (NT1X43BD)	P0623506	2	51	21	AP
ADD	Proc Stack (4KW) CP	NT1X44BB	2	51	19	AP
ADD	Des Label (NT1X44BB)	P0623507	2	51	19	AP
ADD	Processor A.L.F. CP	NT1X45BB	2	51	18	AP
ADD	Des Label (NT1X45BB)	P0623508	2	51	18	AP
ADD	Proc Time & Ctrl CP	NT1X47BB	2	51	17	AP
ADD	Des Label (NT1X47BB)	P0623511	2	51	17	AP

NOTES:

1) Office must be equipped with BCS-10 software and NT3X45DC firmware change kit.

2) Description of circuit pack changes is given for both bays of the Central Control Complex (CCC). Sufficient circuit packs (two each of NT1X43BD, NT1X44BB, NT1X45BB, NT1X47BB) are provided for both bays but spares must be provisioned by the Job Engineer.

RULES:

AP 1) When PEC NT3X45DD is ordered, these items are provided.

PROGRAM STORE MIXED MEMORY (TWO SHELF PS)
PRODUCT CHANGE KIT

PEC CODE: NT3X45DE

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides 4 megaword memory controller circuit packs and necessary modification information for use at mixed memory (64K word circuit packs and 256K word circuit packs) on the second shelf (PS01) of Central Control Complex frames equipped with two shelves (per plane) of program store.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45DE EMR4-99-DE CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT0X41AC	NT3X31AA,AB
NT0X41AJ	NT3X31AD,AE
NT3X45AA	NT3X32AA,AB
NT3X45CA	NT3X32BA

The NT3X45DE product change kit is comprised of the following removals and additions:

ACTION		EQUIPMENT	PEC	SHF ABBR	CP QTY	POS	POS RULE
REMOVE	1 MW Memory Cont	NT3X42AA/BA	2	XX	04		
REMOVE	64 KW Memory CP	NT3X40AA/BA	2	XX	05		
REMOVE	64 KW Memory CP	NT3X40AA/BA		XX	AR		
ADD	4 MW Memory Ctrl	NT3X94AA	2	XX	04	AP	
ADD	256 KW Memory CP	NT3X93AA		XX	AR	RUL1	
ADD	Des Label (NT0X50BA)	P0599141	2	XX	05	AP	
ADD	Des Label (NT3X94AA)	P0623516	2	XX	04	AP	
ADD	Des Label (NT3X93AA)	P0625515		XX	AR	RUL2	
ADD	Fill Face Plate .875	NT0X50BA	2	XX	05	AP	
ADD	Fill Face Plate .875	NT0X50BA		XX	AR	RUL3	

NOTES:

1) "XX" in shelf position can be one of 32, 18.

2) Mixed memory can be used on second shelf (PS01) only. First shelf (PS00) must be fully equipped with NT3X40AA/BA 64 KW circuit packs. PS01 should be modified at the same time, in the same combination, on both planes at the central control complex. Office must be equipped with BCS-10 or later software and NT3X45DC firmware change kit prior to application of mixed memory. The table below indicates allowable mixed memory configurations.

PROGRAM STORE CAPACITY - TWO SHELVES/PLANE

TOTAL PS CAPACITY	NT3X93AA IN POSITION	NT3X40__ IN POSITION	REMARKS	TOTAL PS CAPACITY	NT3X93AA IN POSITION	NT3X40__ IN POSITION	REMARKS
2.5 MW	06-11	NONE	b,c	5.0 MW	06-21	NONE	b,c,d
2.5 MW	10-14	06-09	b,c	4.75 MW	06-20	NONE	b,c
2.5 MW	14-17	06-13	b,c,e	4.50 MW	06-19	NONE	b,c
2.5 MW	18,19,20	06-17	b,c,e	4.25 MW	06-18	NONE	b,c
2.25 MW	06-10	NONE	b,c	4.0 MW	06-17	NONE	b,c
2.25 MW	10-12	06-09	b,c,e	4.0 MW	10-20	06-09	b,c,e
2.25 MW	14,15,16	06-13	b,c,e	3.75 MW	06-16	NONE	b,c
2.25 MW	18,19	06-17	b,c,e	3.75 MW	10-19	06-09	b,c,e
2 MW	NONE	05,06-21	a,d	3.50 MW	06-15	NONE	b,c
2 MW	18	06-17	b,e	3.50 MW	10-18	06-09	b,c,e
2 MW	14,15	06-13	b,e	3.25 MW	06-14	NONE	b,c
2 MW	10,11,12	06-09	b,e	3.25 MW	10-17	06-09	b,c,e
2 MW	06-09	NONE	b	3.25 MW	14-20	06-13	b,c,e
1.75 MW	14	06-13	b,e	3.0 MW	06-13	NONE	b,c
1.75 MW	10,11	06,07, 08,09	b,e	3.0 MW	10-16	06-09	b,c,e
1.75 MW	06,07,08	NONE	b	3.0 MW	14-19	06-13	b,c,e
1.5 MW	10	06-09,	b,e	2.75 MW	06-12	NONE	b,c
1.5 MW	06,07	NONE	b	2.75 MW	10-15	06-09	b,c,e
1.25 MW	06	NONE	b	2.75 MW	14-18	06-13	b,c,e

Note that total PS capacity shown is that with PS00 previously equipped with 1 M word of NT3X40AA/BA circuit packs. The circuit pack positions given are those on PS01.

Remarks:

a) 2 MW configuration with NT3X40AA/BA is shown for reference only. For other sizes of PS using NT3X40AA/BA only see appropriate MS document.

b) Spare position 05 is not used with Mixed Memory since NT3X84AA controller is equipped with 64 KW of hot spare memory.

c) For program store exceeding 2 MW, change kit NT3X45DQ must be applied to frame prior to P.S. expansion beyond 2 MW.

d) Position 21 can only be used when shelf is either all NT3X93AA or all NT3X40AA/BA.

e) NT3X40AA/BA circuit packs on a mixed memory shelf must be in multiples of four (4, 8, 12). NT3X93AA packs can be added one at a time. Remaining NT3X40AA/BA packs must be in lower numered positions, no gaps allowed.

RULES:

AP 1) When PEC NT3X45DE is ordered, these items are provided.

RUL1 1) Provide one (1) NT3X93AA for each 256K words of memory required (See note 2).

RUL2 1) Provide one (1) label for each position equipped with NT3X93AA.

RUL3 1) Provide one (1) NT0X50BA for each circuit pack position not equipped with memory circuit pack and not previously equipped with a filler face plate. Two (2) NT0X50BA filler face plates are provided with the change kit.

PROGRAM STORE MIXED MEMORY (SINGLE SHELF PS) PRODUCT CHANGE KIT

PEC CODE: NT3X45DF

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides 4 megaword memory controller circuit packs and necessary modification information for use at mixed memory (64K word circuit packs and 256K word circuit packs) on control complex frames equipped with one shelf (per plane) of program store.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45DF EMR4-99-DF CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT0X41AC	NT3X31AA
NT0X41AJ	NT3X31AD
NT3X45AA	NT3X32AA
NT3X45CA	NT3X32BA

The NT3X45DF product change kit is comprised of the following removals and additions:

ACTION	EQUIPMENT	PEC	SHF ABBR	CP QTY	POS	POS RULE
REMOVE 1 MW Memory Cont	NT3X42AA/BA	2	XX	04		
REMOVE 64 KW Memory CP	NT3X40AA/BA	2	XX	05		
REMOVE 64 KW Memory CP	NT3X40AA/BA		XX	AR		
REMOVE Proc PS Port CP	NT1X43AA	2	51	21		
ADD 4 MW Memory Ctrl	NT3X94AA	2	XX	04	AP	
ADD 256 KW Memory CP	NT3X93AA		XX	AR	RUL1	
ADD Fill Face Plate .875	NT0X50BA		XX	AR	RUL5	
ADD Fill Face Plate .875	NT0X50BA	2	XX	05	AP	
ADD Des Label (NT0X50BA)	P0599141	2	XX	05	AP	
ADD Des Label (NT3X94AA)	P0623516	2	XX	04	AP	
ADD Des Label (NT3X93AA)	P0623515		XX	AR	RUL2	
ADD Proc PS Port CP	NT1X43AC	2	51	21	RUL3	
ADD Des Label (NT1X43AC)	P0596592	2	51	21	RUL4	

NOTES:

1) Amount of material and circuit packs provided by NT3X45DF is sufficient to modify one central control complex frame (both bays/planes).

2) Variable items such as memory circuit packs must be specified by the job engineer.

3) "XX" in shelf position can be one of 32, 18.

4) Office must be equipped with BCS-10 or later software and NT3X45DC firmware change kit prior to application of mixed memory. The table below indicates allowable mixed memory configuration. Program stores on both planes should be modified at the same time, in the same configuration.

PROGRAM STORE CAPACITY - SINGLE SHELF

TOTAL PS CAPACITY	NT3X93AA IN POSITION	NT3X40__ IN POSITION	REMARKS	TOTAL PS CAPACITY	NT3X93AA IN POSITION	NT3X40__ IN POSITION	REMARKS
2 MW	14-19	06-13	b,e	4.0 MW	06-21	NONE	b,c,d
1.75 MW	06-12	NONE	b	3.75 MW	06-20	NONE	b,c
1.75 MW	10-15	06-09	b,e	3.50 MW	06-19	NONE	b,c
1.75 MW	14-18	06-13	b,e	3.25 MW	06-18	NONE	b,c
1.5 MW	14-17	06-13	b,e	3.0 MW	06-17	NONE	b,c
1.5 MW	18,19,20	06-17	b,e	2.75 MW	06-16	NONE	b,c
1.25 MW	10-13	06-09	b,e	2.75 MW	10-19	06-09	b,c,e
1.25 MW	14,15,16	06-13	b,e	2.50 MW	06-15	NONE	b,c
1.25 MW	18,19	06-17	b,e	2.50 MW	10-18	06-09	b,c,e
1 MW	06-09	NONE	b	2.25 MW	06-14	NONE	b,c
1 MW	10,11,12	06-09	b,e	2.25 MW	14-20	06-13	b,c,e
1 MW	14,15	06-13	b,e	2.25 MW	10-17	06-09	b,c,e
1 MW	18	06-17	b,e	2 MW	06-13	NONE	b
1 MW	NONE	05,06-21	a,d	2 MW	10-16	06-09	b,e

Remarks:

a) 1 MW configuration with NT3X40AA/BA only is shown for reference only.

b) Spare position 05 is not used with Mixed Memory since NT3X94AA 4 MW memory controller is equipped with 64 KW of hot spare memory.

c) For program store exceeding 2 MW, change kit NT3X45DQ must be applied to frame prior to P.S. expansion beyond 2 MW.

d) Position 21 can only be used when shelf is either all NT3X93AA or all NT3X40AA/BA.

e) NT3X40AA/BA circuit packs on a mixed memory shelf must be in multiples of four (4, 8, 12). NT3X93AA packs can be added one at a time. Remaining NT3X40AA/BA packs must be in lower positions, no gaps allowed.

RULES:

AP 1) When PEC NT3X45DF is ordered, these items are provided.

RUL1 1) Provide one (1) NT3X93AA for each 256K words of memory required (See note 4).

RUL2 1) Provide one (1) label for each position equipped with NT3X93AA.

RUL3 1) Provide two (one per processor) for NT0X41AC and NT0X41AJ frames when program store capacity is to be extended beyond 1 MW. These circuit packs do not need to be ordered if:

a) frame has been equipped with NT3X45BD processor enhancement kit
b) frame has been equipped with NT3X41CA kit.

RUL4 1) Provide one label for each NT1X43AC provided.

RUL5 1) Provide one (1) NT0X50BA for each circuit pack position not equipped with memory circuit pack and not previously equipped with a filler face plate. Two are provided with the change kit.

PROGRAM STORE MIXED MEMORY (CPM SHELF)
PRODUCT CHANGE KIT

PEC CODE: NT3X45DG

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides 4 megaword memory controller circuit packs and necessary modification information for use at mixed memory (64K word circuit packs and 256K word circuit packs) on central control complex frames equipped with program store memory in the processor (CPM) shelf.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45DG EMR4-99-DG CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT3X45AA	NT3X41AA
NT3X45CA	NT3X41BA

The NT3X45DG product change kit is comprised of the following removals and additions:

ACTION		EQUIPMENT	PEC	SHF ABBR	CP QTY	POS	RULE
REMOVE	1 MW Memory Cont	NT3X42AA/BA	2	51	09		
REMOVE	64 KW Memory CP	NT3X40AA/BA	2	51	01		
REMOVE	64 KW Memory CP	NT3X40AA/BA		51	AR		
ADD	4 MW Memory Ctrl	NT3X94AA	2	51	09	AP	
ADD	Fill Face Plate .875	NT0X50BA	2	51	01	AP	
ADD	Des Label (NT0X50BA)	P0599141	2	51	01	AP	
ADD	Des Label (NT3X94AA)	P0623516	2	51	09	AP	
ADD	256 KW Memory CP	NT3X93AA		51	AR	RUL1	
ADD	Des Label (NT3X93AA)	P0623515		51	AR	RUL2	
ADD	Fill Face Plate .875	NT0X50BA		51	AR	RUL3	

NOTES:

1) Office must be equipped with BCS-10 or later software and NT3X45DC firmware change kit prior to application of mixed memory. The table below indicates allowable mixed memory configuration.

PROGRAM STORE CAPACITY - CPM SHELF

TOTAL PS CAPACITY	NT3X93AA IN POSITION	NT3X40__ IN POSITION	REMARKS	TOTAL PS CAPACITY	NT3X93AA IN POSITION	NT3X40__ IN POSITION	REMARKS
1.25 MW	NONE	08,07, 06,05,01	a	2.0 MW	08,07, 06,05	NONE	b
1.25 MW	08	NONE	b	2.0 MW	04,03,02	08,07, 06,05	b,c
1.50 MW	08,07	NONE	b	2.25 MW	08-04	NONE	b,d
1.50 MW	04	08,07, 06,05	b,c	2.50 MW	08-03	NONE	b,d
1.75 MW	04,03	08,07, 06,05,	b,c	2.75 MW	08-02	NONE	b,d
1.75 MW	08,07,06	NONE	b	3.0 MW	08-01	NONE	b

Note that total PS capacity shown is that with PS00 (Shelf Pos 32) previously equipped with 1M word of NT3X40AA/BA circuit packs. The circuit pack positions given are those on the processor (CPM) shelf.

Remarks:

a) The 1.25 MW configuration with NT3X40AA is given for reference only. For other sizes of PS using NT3X40AA/BA only, see appropriate MS document (MS3X41AA/MS3X41BA).

b) Spare position 01 is not used with Mixed Memory since NT3X94AA controller is equipped with 64 KW of hot spare memory.

c) For mixed memory, the CPM shelf must be equipped with four (4) NT3X40AA/BA circuit packs as per table.

d) For program store exceeding 2 MW, change kit NT3X45DR must be applied to frame prior to PS expansion beyond 2 MW, expansion beyond 2 MW should be done with NT3X93AA only (no mixing of NT3X93AA and NT3X40AA/BA on CPM shelf).

2) Variable items such as memory circuit packs must be specified by the job engineer.

3) Modifications described apply to program store memory mounted in processor (CPM) shelf, both bays.

4) Amount of material and circuit packs provided by NT3X45DG is sufficient to modify one central control complex frame (both bays/planes).

5) This change to be applied only when CPM shelf is already equipped with program store. All changes contained in this document apply to the CPM shelf only and PS00 in frame position 32 is not touched.

RULES:

AP 1) When PEC NT3X45DG is ordered, these items are provided.

RUL1 1) Provide one (1) NT3X93AA for each 256K words of memory required.

RUL2 1) Provide one (1) label for each position equipped with NT3X93AA.

RUL3 1) Provide one (1) NT0X50BA for each circuit pack position not equipped with memory circuit pack and not previously equipped with a filler face plate. Two are provided with the change kit.

DATA STORE MIXED MEMORY LAST SHELF PRODUCT CHANGE KIT

PEC CODE: NT3X45DH

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides for the use of mixed memory (NT3X40AA and NT3X93AA) on the last data store shelf of a CCC or MEX frame. With this kit, data store memory may be extended up to 16 Mwords.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45DH EMR4-99-DH CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT0X41AB	NT3X31AB/AC
NT0X41AC	NT3X31AB
NT0X41AJ	NT3X31AE
NT0X41AK	NT3X31AE/AF
NT3X45AA	NT3X32AB
NT3X45AB	NT3X32AB/AC
NT3X45CA	NT3X32BB
NT3X45CB	NT3X32BB/BC

The NT3X45DH product change kit is comprised of the following removals and additions:

ACTION	EQUIPMENT	PEC	SHF ABBR	CP QTY	POS
REMOVE 1 MW Memory Cont	NT3X42AA/BA	2	XX	04	
REMOVE 64 KW Memory CP	NT3X40AA/BA	2	XX	05	
REMOVE 64 KW Memory CP	NT3X40AA/BA		XX	AR	RUL1
ADD 4 MW Memory Ctrl	NT3X94AA		XX	04	RUL2
ADD 4 MW Memory Ctrl	NT3X94AB		XX	04	RUL2
ADD Filler Face Plate	NT0X50BA	2	XX	05	AP
ADD Des Label (NT0X50BA)	P0599141	2	XX	05	AP
ADD 256 KW Memory CP	NT3X93AA		XX	06-21	RUL1
ADD Filler Face Plate	NT0X50BA		XX	06-21	RUL3
ADD Des Label (NT3X94AA)	P0623516		XX	04	RUL4
ADD Des Label (NT3X94AB)	P0665188		XX	04	RUL4
ADD Des Label (NT3X93AA)	P0623515		XX	AR	RUL4

NOTES:

1) XX in position column refers to position of shelf being modified. XX can be one of 18, 32, 51 or 65.

2) Mixed memory can be used on last shelf of data store only. Previous shelves must be fully equipped with NT3X40AA/BA 64KW circuit packs. The last data store shelf on both

planes should be modified at the same time, in the same combination. Office must be equipped with BCS-10 or later software and NT3X45DC firmware change kit prior to application of mixed memory. The table below indicates allowable mixed memory configurations.

3) The NT3X94AB Memory Controller was intended to be used only until the NT4X79AA 16 MWord controller was available. For future data store expansion, the NT4X79AA 16 MWord controller should be applied with the appropriate product change kit rather than applying the NT3X45DH Product Change Kit.

DATA STORE CAPACITY - LAST SHELF

DS CAPACITY LAST SHF	NT3X93AA IN POSITION	NT3X40__ IN POSITION	REMARKS	DS CAPACITY LAST SHF	NT3X93AA IN POSITION	NT3X40__ IN POSITION	REMARKS
0.5 MW	10	06-09		1.75 MW	10-15	06-09	
0.75 MW	14	06-13		2 MW	14-19	06-13	
0.75 MW	10,11	06-09		2 MW	10-16	06-09	
1.0 MW	14,15	06-13		2.25 MW	14-20	06-13	
1.0 MW	10,11,12	06-09		2.25 MW	10-17	06-09	
1.0 MW	18	06-17		2.50 MW	10-18	06-09	
1.25 MW	14,15,16	06-13		2.75 MW	10-19	06-09	
1.25 MW	10-13	06-09		3.0 MW	10-20	06-09	
1.25 MW	18,19	06-17		0.75 MW	06,07,08	NONE	b
1.5 MW	14-17	06-13		1.0 MW	06-09	NONE	b
1.5 MW	10-14	06-09		1.50 MW	06-11	NONE	b
1.5 MW	18,19,20	06-17		1.75 MW	06-12	NONE	b
1.75 MW	14-18	06,13		4.0 MW	06-21	NONE	a

TABLE 1

Remarks:

a) Position 21 can only be used when shelf is either all NT3X40AA/BA or all NT3X93AA.

b) For additional capacity for shelves equipped with NT3X93AA only, add one additional NT3X93AA in ascending position order for each additional 0.25 MW required. (0.25 to 4.0 MW)

RULES:

AP 1) When PEC NT3X45DH is ordered, these items are provided.

RUL1 1) Remove 64K memory NT3X40AA from DS shelf and replace with 256KW memory CP, NT3X93AA as per allowable mixed memory configurations in Table 1.

RUL2 1) Provide one (1) NT3X94AA 4 MW Memory Controller Card when memory shelf starting address is less than 12 Mwords. If it is 12 MW to 15 MW, then provide one (1) NT3X94AB.

RUL3 1) Provide one (1) NT0X50BA Filler Face Plate for each circuit pack position not equipped with memory circuit pack.

RUL4 1) Provide designation label for each of NT3X94AA, NT3X94AB and NT3X93AA circuit packs provided.

DATA STORE EXPANSION MULTIPLE SHELF

PEC CODE: NT3X45DJ

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides for the conversion of one pair of Data Store shelves from 64K memory CP (NT6X40AA) to 256K memory CP (NT3X93AA). It is applied to the second last shelf first, (PC kit NT3X45DH is used for application to the last shelf) and then to the third last shelf if more memory is required and so on till all of the shelves are converted.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45DJ EMR4-99-DJ CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT0X41AB	NT3X31AB/AC
NT0X41AC	NT3X31AB
NT0X41AJ	NT3X31AE
NT0X41AK	NT3X31AE/AF
NT3X45AA	NT3X32AB
NT3X45AB	NT3X32AB/AC
NT3X45CA	NT3X32BB
NT3X45CB	NT3X32BB/BC

The NT3X45DJ product change kit is comprised of the following removals and additions:

ACTION	EQUIPMENT	PEC	SHF ABBR	CP QTY	POS	POS RULE
REMOVE	1 MW Memory Cont	NT3X42AA/BA	2	XX	04	
REMOVE	64 KW Memory CP	NT3X40AA/BA		XX	AR	RUL1
REMOVE	64 KW Memory CP	NT3X40AA/BA	2	XX	05	
REMOVE	64 KW Memory CP	NT3X40AA/BA	2	XX	06-21	
ADD	256 KW Memory CP	NT3X93AA		XX	AR	RUL1
ADD	Des Label (NT3X93AA)	P0623515		XX	AR	RUL1
ADD	Filler Face Plate	NT0X50BA		XX	AR	RUL3
ADD	4 MW Memory Ctrl	NT3X94AA	2	XX	04	AP
ADD	Filler Face Plate	NT0X50BA	2	XX	05	AP
ADD	256 KW Memory CP	NT3X93AA		XX	06-21	RUL4
ADD	Des Label (NT0X50BA)	P0599141	2	XX	05	AP
ADD	Des Label (NT3X93AA)	P0623515		XX	06-21	RUL5
ADD	Des Label (NT3X94AA)	P0623516	2	XX	04	AP

NOTES:

1) Office must be equipped with BCS-10 or later software and N3X45DC firmware change kit.

2) Last (highest memory address) data store shelves must be updated with NT3X45DH kit. Before applying NT3X45DJ change

kit ensure that all NT3X40AA/BA 64 KW circuit packs are removed from the last pair of data store shelves and replaced with NT3X93AA 256 KW circuit packs per MS3X45DH.

3) "XX" in shelf position refers to the shelf being modified. "XX" can be 18, 32, 51 or 65.

RULES:

AP 1) When PEC NT3X45DJ is ordered, these items are provided.

RUL1 1) All memory cards on the last shelf must be changed to 256 KW Memory CP NT3X93AA before converting the second last shelf. Provide 256 KW Memory CP NT3X93AA as required for last shelf when applying this kit to second last DS shelf.

RUL2 1) Povide one (1) designation label P0623515 for each NT3X93AA CP provided.

RUL3 1) All memory circuit pack positions 06-21 on last data store shelf not equipped with NT3X93AA circuit packs must be equipped with filler face plate NT0X50BA.

RUL4 1) Provide 256 KW memory CP NT3X93AA for all positions 06-21 on shelf that is being converted.

RUL5 1) Provide one (1) designation label P0623515 for each NT3X93AA CP provided.

FIRMWARE CHANGES FOR BCS-15/16 SOFTWARE AND 8 MEGAWORD + DATA STORE PRODUCT CHANGE KIT

PEC CODE: NT3X45DK

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides new firmware (on NT1X46CB CP) necessary for operation with BCS15 or BCS16 software. The new firmware also allows data store larger than eight megawords to initialize correctly.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45DK EMR4-99-DK CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT3X45DA	NT3X41DA

The NT3X45DK product change kit is comprised of the following removals and additions:

ACTION	EQUIPMENT	PEC	SHF ABBR	CP QTY	POS	POS RULE
REMOVE Proc 8K ROM CP	NT1X46CA	2	51	14		
ADD Proc 8K ROM CP	NT1X46CB	2	51	14	AP	
ADD Des Label (NT1X46CB)	P0643558	2	51	14	AP	

NOTES:

1) When this kit is applied to allow office data store to exceed 8 megawords (per plane) software must be updated to BCS-14 or later.

2) The product change kit provides sufficient material to modify both planes at the CCC frame. Spares must be provisioned by the job engineer.

RULES:

AP 1) When PEC NT3X45DK is ordered, these items are provided.

FIRMWARE CHANGES FOR BCS-15/16 SOFTWARE PRODUCT CHANGE KIT

PEC CODE: NT3X45DL

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides new firmware (on NT1X46CB CP) necessary for operation with BCS15 or BCS16 software.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45DL EMR4-99-DL CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT0X41AC	NT1X41AA
NT0X41AJ	NT1X41AB
NT3X45AA	NT3X41AA
NT3X45CA	NT3X41BA

The NT3X45DL product change kit is comprised of the following removals and additions:

ACTION	EQUIPMENT	PEC	SHF ABBR	CP QTY	POS	POS RULE
REMOVE Proc ROM CP	NT1X46AA/BA/BB	2	51	14		
ADD Proc ROM CP	NT1X46BC	2	51	14	AP	
ADD Des Label (NT1X46BC)	P0643557	2	51	14	AP	

NOTES:

1) The product change kit provides sufficient material to modify both planes at the CCC frame. Spares must be provisioned by the job engineer.

2) NT1X46BC circuit pack has ESD protected faceplate.

RULES:

AP 1) When PEC NT3X45DL is ordered, these items are provided.

FIRMWARE CHANGES FOR 8 MEGAWORDS + DATA STORE PRODUCT CHANGE KIT

PEC CODE: NT3X45DM

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides new firmware (for NT1X53BC CP) necessary for office data store memory in excess of eight megawords (per plane). The new firmare allows data store larger than eight megawords to initialize correctly.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45DM EMR4-99-DM CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT0X41AC	NT1X41AA
NT0X41AJ	NT1X41AB
NT3X45AA	NT3X41AA
NT3X45CA	NT3X41BA

The NT3X45DM product change kit is comprised of the following removals and additions:

ACTION	EQUIPMENT	PEC	SHF ABBR	CP QTY	POS	POS RULE
REMOVE	4K ROM Extender	NT1X53AA/BA/BB	2	51	12	
ADD	4K ROM Extender	NT1X53BC	2	51	12	AP
ADD	Des Label (NT1X53BC)	P0647807	2	51	12	AP

NOTES:

1) Software must be updated to BCS-14 or later.

2) The product change kit provides sufficient material to modify both planes at the CCC frame. Spares must be provisioned by the job engineer

RULES:

AP 1) When PEC NT3X45DM is ordered, these items are provided.

CPM PROGRAM STORE INCREASE FROM 1.92 TO 2.0 MEGAWORDS (KIT)

PEC CODE: NT3X45DN

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides for the increase of Program Store Memory in the Central Processor and Memory Shelf from 1.92 megawords to 2.0 megawords.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45DN EMR4-99-DN CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT3X45DA	NT3X41DA

The NT3X45DN product change kit is comprised of the following removals and additions:

ACTION	EQUIPMENT	PEC	SHF ABBR	CP QTY	POS	POS RULE
REMOVE	Proc 8K ROM CP	NT1X46CA/CB	2	51	14	
REMOVE	Proc Prog. Store Port CP	NT1X43BD	2	51	21	
ADD	Proc 8K ROM CP	NT1X46CC	2	51	14	AP
ADD	Proc. Prog. Store Port CP	NT1X43CA	2	51	21	AP
ADD	Des. Label(NT1X46CC)	P0643559	2	51	14	AP
ADD	Des. Label(NT1X43CA)	P0647819	2	51	21	AP

NOTES:

1) This change kit allows the Program Store Memory in the Central Processor and Memory (CPM) shelf NT3X41DA of CCC frame NT3X45DA to increase from 1.92 megawords to 2.0 megawords.

   It allows the office to have the capability to expand the Data Store beyond 8 megawords and it allows the insertion of BCS-15 or BCS-16 software into the office.

2) Office must be equipped with BCS-13 or later software.

3) Modifications described apply to the Central Processor and Memory Shelf (CPM) both bays.

4) Amount of material and circuit packs provided by NT3X45DN is sufficient to modify one Central Control Complex Frame. (both bays/planes).

5) Provision of spare circuit packs is the responsibility of the job engineer. For sparing purposes, provide NT1X46CC Processor 8K ROM CP and NT1X43CA Processor Program Store port CP as required.

RULES:

AP 1) When PEC NT3X45DN is ordered, these items are provided.

CPM PROGRAM STORE INCREASE FROM 2.00 TO 2.75 MEGAWORDS (KIT)

PEC CODE: NT3X45DP

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides for the increase of Program Store Memory in the Central Processor and Memory Shelf from 2.0 megawords to 2.75 megawords.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45DP EMR4-99-DP CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT3X45DA	NT3X41DA

The NT3X45DP product change kit is comprised of the following removals and additions:

ACTION	EQUIPMENT	PEC	SHF ABBR	CP QTY	POS	POS RULE
REMOVE 256 KW Memory CP	NT3X93AA	2	51	01		
ADD 1 MW Memory CP	NT4X80AA	2	51	01	AP	
ADD Des. Label(NT4X80AA)	P0649156	2	51	01	AP	

NOTES:

1) Office must be equipped with BCS-16 or later software and NT3X45DN change kit.

2) This change kit is applicable to CPM shelf N3X41DA at CCC frame NT3X45DA. The modifications apply to both CPM shelves on the CCC frame.

3) The amount of material and circuit packs provided by NT3X45DP is sufficient to modify one Central Control Complex Frame (both bays/planes).

4) Provision of spare circuit packs is the responsibility of the job engineer. For sparing purposes, provide NT4X80AA 1 MW Memory CP as required.

5) The Product Change Kit, NT3X45DP that increases program store memory to 2.75 MWords from 2.0 MWords, should not be ordered in the future. Instead, the NT3X45EC Product Change Kit should be ordered (allows expansion up to 8 MWords of program store).

6) Offices that are presently equipped with 2.75 MWords of program store (through application of NT3X45DP Product Change Kit) should apply the NT3X45EC Product Change Kit the next time a memory increase is required. Offices that have added a second NT4X80AA, 1 MWord Circuit Pack to increase the program store capacity to 3.5 MWords (reference ECM-224) should apply the NT3X45EC Product Change Kit now.

7) This is due to a problem with the NT4X80AA Memory Card operating with an NT3X94 Memory Controller Card, that may affect the lifetime of the NT4X80AA Circuit Pack.

RULES:

AP 1) When PEC NT3X45DP is ordered, these items are provided.

PROGRAM STORE (PS) MEMORY CAPABILITY INCREASE KIT

PEC CODE: NT3X45DQ

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides for the increase of Program Store (PS) memory capability from 1.92 megawords in offices with one shelf of PS per plane or 5.0 megawords in offices with two shelves of PS per plane.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45DQ EMR4-99-DQ CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT0X41AC	NT3X31AA
NT0X41AJ	NT3X31AD
NT3X45AA	NT3X32AA
NT3X45CA	NT3X32BA

The NT3X45DQ product change kit is comprised of the following removals and additions:

ACTION		EQUIPMENT	PEC	SHF ABBR	CP QTY	POS
POS	RULE					
REMOVE	Proc. ROM CP	NT1X46AA/BB/BA/BC	2	51	14	
REMOVE	4K ROM Extender CP	NT1X53AA/BB/BA/BC	2	51	12	
REMOVE	Prog.Store Port CP	NT1X43AC/BC/BD	2	51	21	
ADD	Proc. ROM (4K) CP	NT1X46CC	2	51	14	AP
ADD	Prog. Store Port 8 MW CP	NT1X43CA	2	51	21	AP
ADD	Filler Faceplate	NT0X50BA	2	51	12	AP
ADD	Des. Label(NT1X46CC)	P0643559	2	51	14	AP
ADD	Des. Label(NT1X43CA)	P0647819	2	51	21	AP
ADD	DEs. Label(NT0X50BA)	P0599141	2	51	12	AP

NOTES:

1) As a prerequisite, the office must be equipped with BCS-13 or later software and NT3X45DD Processor Enhancement Change Kit.

2) The amount of material and circuit packs provided by NT3X45DQ is sufficient to modify both planes of one CCC frame.

3) For sparing purposes, provide NT1X46CC processor 8K ROM CP and NT1X43CA Processor Program Store Port CP as required.

4) Offices Equipped with One Program Store Shelf Per Plane

a)

NT0X41AC/AJ			NT3X45AA/CA		
CCC0	CCC1		CCC0	MDC	
CMC	CMC	65	MDC	MDC	65
CPU	CPU	51	CPM	CPM	51
FSP	FSP	45	FSP	FSP	45
PS00	PS10	32			32
		18	PS00	PS10	18

b) NT3X45DQ provides for an increase in Program Store (PS) memory capability from 1.92 megawords to 4.0 megawords in offices with one shelf at PS per plane.

c) Product change kit NT3X45DF, Program Store Mixed Memory (Single shelf PS), in addition to NT3X45DQ must be applied in order to complete modifications required to expand PS memory from 1.92 megawords to 4.0 megawords maximum.

d) Provisionable memory circuit packs must be specified per MS3X45DF.

5) Offices Equipped with Two Program Store Shelves per Plane

a)

NT0X41AC/AJ			NT3X45AA/CA		
CCC0	CCC1		CCC0	CCC1	
CMC	CMC	65	MDC	MDC	65
CPU	CPU	51	CPM	CPM	51
FSP	FSP	45	FSP	FSP	45
PS00	PS10	32	PS00	PS10	32
PS01	PS11	18	PS01	PS11	18

b) NT3X45DQ provides for an increase in Program Store (PS) memory capability from 1.92 megawords to 5.0 megawords in offices with two shelves of PS per plane.

c) Product change kit NT3X45DE, program store mixed memory (two shelf PS), in addition to NT3X45DQ must be applied in order to complete modifications required to expand PS memory from 1.92 megawords to 5.0 megawords maximum.

d) PS00 of both planes must be fully equipped with NT3X40AA/BA memory circuit packs.

e) Mixed memory is permitted only in PS01 at both planes.

f) Provisionable memory circuit packs must be specified per MS3X45DE.

RULES:

AP 1) When PEC NT3X45DQ is ordered, these items are provided.

INCREASE TO 3.0 MEGAWORDS CPM PROGRAM STORE

PEC CODE: NT3X45DR

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides the information and material necessary to expand program store memory capability from 1.92 MW to 3.0 megawords in offices equipped with program store memory in the processor shelf (CPM).

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45DR EMR4-99-DR CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT3X45AA	NT3X41AA
NT3X45CA	NT3X41BA

The NT3X45DQ product change kit is comprised of the following removals and additions:

ACTION		EQUIPMENT	PEC	SHF ABBR	CP QTY	POS
REMOVE	Proc. ROM CP	NT1X46AA/BA/BB/BC	2	51	14	
REMOVE	4K ROM Extender CP	NT1X53AA/BA/BB/BC	2	51	12	
REMOVE	Prog.Store Port CP	NT1X43AC/BC/BD	2	51	21	
ADD	Proc. ROM (4K) CP	NT1X46CC	2	51	14	AP
ADD	Prog. Store Port 8 MW CP	NT1X43CA	2	51	21	AP
ADD	Filler Faceplate	NT0X50BA	2	51	12	AP
ADD	Des. Label(NT1X46CC)	P0643559	2	51	14	AP
ADD	Des. Label(NT1X43CA)	P0647819	2	51	21	AP
ADD	Des. Label(NT0X50BA)	P0599141	2	51	12	AP

NOTES:

1) As a prerequisite, the office must be equipped with BCS-13 or later software and NT3X45DD Processor Enhancement Change Kit.

2) The amount of material and circuit packs provided by NT3X45DR is sufficient to modify both planes of one CCC frame.

3) For sparing purposes, provide NT1X46CC processor 8K ROM CP and NT1X43CA Processor Program Store Port CP as required.

4) Offices equipped with program store memory in the processor shelf.

NT3X45AA/CA		
CCC0	CCC1	
MDC	MDC	65
CPM PS01	CPM PS11	51
FSP	FSP	45
PS00	PS10	32
		18

5) Product change kit NT3X45DG, program store mixed memory (CPM shelf), in addition to NT3X45DR must be applied in order to complete modifications required to extend PS memory from 1.92 megawords to 3.0.

6) PS00 of both planes must be fully equipped with NT3X40AA/BA memory circuit packs.

7) If an office requires more than 1.92 megawords of PS memory but not more than 2.0 megawords, then mixing of NT3X93AA and NT3X40AA/BA cards on the CPM shelf of both planes is permitted.

8) If an office requires more than 2.0 megawords of PS memory, then no mixing of memory cards on the CPM shelf of both planes is permitted (i.e. only NT3X93AA cards are allowed on the CPM shelf).

9) Provisionable memory circuit packs must be specified per MS3X45DG.

RULES:

AP 1) When PEC NT3X45DR is ordered, these items are provided.

REMOTE SURVEILLANCE & CONTROL VIA WE.
E2A SCANNER KIT PRODUCT CHANGE KIT

PEC CODE: NT3X45DS

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides the remote surveillance and control feature. The processor maintenance CP (NT1X48BA) has been replaced with a new remote control processor maintenance CP (NT1X48CA) and a new circuit card, the E2A telemetry serial interface (NT1X42AA), has been inserted between the NT1X48CA and the Western electric digital alarm scanner unit.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45DS EMR4-99-DS CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT3X45CA	NT2X76BA
	NT3X41BA
NT3X45DA	NT2X76BA
	NT3X41DA

The NT3X45DS product change kit is comprised of the following removals and additions:

ACTION	EQUIPMENT	PEC	SHF ABBR	CP QTY	POS	POS RULE
REMOVE	Proc.Maint. CP	NT1X48BA	2	51	16	RUL1
REMOVE	Filler Fplate .875	NT0X50BA	2	51	13	
ADD	Remote Control Proc Maintenance CP	NT1X48CA	2	51	16	AP
ADD	E2A Telemetry Ser. Interface CP	NT1X42AA	2	51	13	AP
ADD	Des. Label(NT1X48CA)	P0649154	2	51	16	AP
ADD	Des. Label(NT1X42AA)	P0649153	2	51	13	AP

NOTES:

1) As a prerequisite, the office must be equipped with BCS-14 or later software.

2) The amount of material and circuit packs provided by NT3X45DS is sufficient to modify both planes of one CCC frame.

3) For sparing purposes, provide NT1X48CA and NT1X42AA as required. Provisioning of spare circuit packs is the responsibility of the job engineer.

RULES:

AP 1) When PEC NT3X45DS is ordered, these items are provided.

RUL1 1) Keys on shroud in shelf position 51, circuit pack position 16 must be changed to 3, 6, 8 and 9 to accommodate the NT1X48CA.

CPM PROGRAM STORE 8MW MEMORY CAPACITY PRODUCT CHANGE KIT

PEC CODE: NT3X45EC

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides for the increase of program store memory capacity to 8.0 megawords with the introduction of NT4X79AA, NT4X80AA, NT3X4309 and NT1X46CD circuit packs and back panel wiring.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45EC EMR4-99-EC CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT3X45DA	NT3X41DA

The NT3X45EC product change kit is comprised of the following removals and additions:

ACTION	EQUIPMENT	PEC	SHF ABBR	CP QTY	POS	POS RULE
REMOVE	Processor 8K ROM CP	NT1X46CA/CB/CC	2	51	14	
REMOVE	Proc Prog Str Prt CP	NT1X43BD	2	51	21	
REMOVE	1MW Mem BP Term	NT3X4302	2	51	1R	
REMOVE	4MW Mem Ctrl CP	NT3X94AA	2	51	09	
REMOVE	256KW Memory CP	NT3X93AA		51	AR	
ADD	Processor 8K ROM CP	NT1X46CD		51	14	RUL5
ADD	Proc Prog Str Prt CP	NT1X43CA		51	21	RUL2
ADD	16MW Mem BP Term	NT3X4309	2	51	1R	AP
ADD	16MW Mem Ctrl CP	NT4X79AA	2	51	09	AP
ADD	1MW Memory CP	NT4X80AA		51	AR	RUL1
ADD	Des Label (NT1X46CD)	P0664114		51	14	RUL5
ADD	Des Label (NT4X79AA)	P0649155	2	51	09	AP
ADD	Des Label (NT4X80AA)	P0649156		51	AR	RUL3
ADD	Des Label (NT1X43CA)	P0647819		51	21	RUL4

NOTES:

1) Office must be equiped with BCS-18 or later software and NT3X45EC change kit prior to the application of mixed memory. The table below indicates allowable mixed memory configurations.

PROGRAM STORE CAPACITY - CPM SHELF

TOTAL PS CAPACITY	NT3X93AA IN POSITION	NT4X80AA IN POSITION	REMARKS
2.0 MW	08 to 01	NONE	a,b,c,d
2.75 MW	08 to 02	01	a,b,c,d
3.5 MW	08 to 03	01,02	a,b,c,d
4.25 MW	08 to 04	01,02,03	a,b,c,d
5.0 MW	08 to 05	01,02,03,04	a,b,c,d
5.75 MW	08 to 06	01-05	a,b,c,d
6.5 MW	08 to 07	01-06	a,b,c,d
7.25 MW	08	01-07	a,b,c,d
8.0 MW	NONE	01-08	a,b,c,d

Remarks:

a) The circuit pack positions shown in the table are those on the processor (CPM) shelf.

b) The NT4X80AA circuit packs must be added from the next vacant pack position in the existing memory. If the CPM shelf is full, an NT3X93AA pack must be removed from the end (PS01).

c) NT3X93AA memory packs must occupy the address range below that of the NT4X80AA packs.

d) The address range in the CPM shelf starts at pos 08 for MEM0, pos 07 for MEM1, pos 06 for MEM2, pos 05 for MEM3 to pos 01 for MEM7.

2) Variable items such as memory circuit packs must be specified by the job engineer.

3) The amount of material and circuit packs provided is sufficient to modify both planes of the CCC frame.

4) For sparing purposes, provide packs NT1X46CD, NT1X43CA, NT3X4309, NT4X79AA and NT4X80AA as required.

RULES:

AP 1) When PEC NT3X45EC is ordered, these items are provided.

RUL1 1) Provide one (1) NT4X80AA for each 1.0 megaword additional memory required. (See note 1 for mixed memory combinations.)

RUL2 1) Provide one (1) NT1X43CA in NT3X41DA shelves that have not previously had product change kit NT3X45DN applied (CPM program store increase from 1.92 to 2.0 megawords).

RUL3 1) Provide one (1) label for each NT4X80AA provided.

RUL4 1) Provide one (1) label for each NT1X43CA provided.

RUL5 1) Provide one (1) per NT3X41DA shelf if it has not been previously equipped.

2) Provide one (1) Designation Label for each NT1X46CD provisioned.

CPU CAPACITY ENHANCEMENT PRODUCT CHANGE KIT

NT3X45EM

RATING: MD.

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This product change kit provides for a capacity improvement in the CPU by increasing the CPU clock from 36 MHz to 40 MHz.

REFERENCE DOCUMENTATION: N/A

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code	
NT0X41AC	NT1X41AA	CPU
NT0X41AJ	NT1X41AB	CPU
NT3X45AA	NT3X41AA	CPM
NT3X45CA	NT3X41BA	CPM
NT3X45DA	NT3X41DA	CPM

The NT3X45EM product change kit is comprised of the following removals and additions:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Prog Store Port CP	NT1X43__		2	51	21	
REMOVE	Processor Stack CP	NT1X44__		2	51	19	
REMOVE	Processor ALF CP	NT1X45__		2	51	18	
REMOVE	Processor ROM CP	NT1X46__		2	51	14	
REMOVE	4K ROM Extender CP	NT1X53__			51	12	RUL1
REMOVE	Proc Tim & Cont CP	NT1X47__		2	51	17	
REMOVE	Processor Maint	NT1X48AA/BA		2	51	16	
ADD	Proc 8MW Prog Str CP	NT1X43DA		2	51	21	AP
ADD	Proc Stack (4KW) CP	NT1X44DA		2	51	19	AP
ADD	Processor ALF CP	NT1X45DA		2	51	18	AP
ADD	Proc 8KW ROM CP	NT1X46DA		2	51	14	RUL5
ADD	Proc Tim & Ctrl CP	NT1X47DA		2	51	17	AP
ADD	Processor Maint CP	NT1X48DA			51	16	RUL2
ADD	Rem Ctl Proc Main CP	NT1X48CA			51	16	RUL2
ADD	Des Label (NT1X43DA)	P0661428		2	51	21	AP
ADD	Des Label (NT1X44DA)	P0661429		2	51	19	AP
ADD	Des Label (NT1X45DA)	P0661430		2	51	18	AP
ADD	Des Label (NT1X46DA)	P0661431		2	51	14	RUL5
ADD	Des Label (NT1X47DA)	P0661432		2	51	17	AP
ADD	Des Label (NT1X48DA)	P0661433			51	16	RUL3
ADD	Des Label (NT1X48CA)	P0649154			51	16	RUL3
ADD	Filler Face Plate	NT0X50BA			51	12	RUL4

NOTES:

1) The length of the differential bus from the CPU shelf (equipped with 40 MHz processor) of the CCC frame to the last data store shelf is restricted to 20 feet (6 meters). This effectively restricts MEX frames to being adjacent to the CCC frame or directly behind the CCC frame. When applying the NT3X45EM kit and MEX frames are present in the office, the floor layout should be checked by the job engineer to ensure the above restriction is met. If the location of the MEX frame does not comply with the above 20 feet (6 meters) restriction, the memory on the MEX frame must be consolidated on the CCC frame by ordering the necessary change kits. Refer to Section 43C-99-000 for the list of change kits.

2) Office must be equipped with BCS-18 or later software.

3) When this kit is being applied to NT0X41AL, NT0X41AJ, NT3X45AA or NT3X45CA, wiring changes per PC3X45DD and PC3X45DQ must be done (see PC3X45EM).

4) When this kit is being applied to NT3X45DA, wiring changes per PC3X45DQ (P.S. Expansion beyond 2 MW) must be done (see PC3X45EM).

RULE:

AP 1) When PEC NT3X45EM is ordered, these items are provided.

RUL1 1) Remove 4K ROM Extender CP, NT1X53__ if it is equipped.

RUL2 1) Provide two (2) (one per plane) Processor Maintenance CP, NT1X48DA when enhanced CPU capacity for local processor maintenance is specified. If remote processor maintenance feature is selected, provide two (2) Remote Control Processor Maintenance CP, NT1X48CA. Note: NT1X48CA Remote Control Processor Maintenance CP may already have been equipped. Change kit NT3X45DS provides the NT1X48CA CP. Do not replace NT1X48CA with NT1X48DA.

RUL3 1) Provide one (1) designation label for each of NT1X48CA and NT1X48DA CP provided.

RUL4 1) Provide FIller Face Plate, NT0X50BA in slot 12 of shelf 51 if it has not been previously equipped.

RUL5 1) Provide two (2) (one per plane) when enhanced CPU capacity is specified.

DATA STORE MIXED MEMORY 256KW AND 1MW CP PRODUCT CHANGE KIT

PEC CODE: NT3X45EN

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides for 16 megaword memory controller circuit packs and necessary modification information for use of mixed memory (256KW and 1MW circuit packs) to extend data store memory from 4MW to a maximum of 15.75 MW on the central control complex and memory expansion data store shelves.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45EN EMR4-99-EN CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT3X45DA	NT3X32DA
NT3X45DB	NT3X32DB

The NT3X45EN product change kit is comprised of the following removals and additions:

ACTION	EQUIPMENT	PEC	SHF ABBR	CP QTY	POS	POS RULE
REMOVE	1MW Memory BP Term	NT3X4302	2	XX	21R	
REMOVE	Processor ROM CP	NT1X46CA/CB/CC	2	XX	14	RUL1
REMOVE	4MW Memory Ctrl CP	NT3X94AA	2	XX	04	
REMOVE	256KW Memory CP	NT3X93AA		XX	06-21	RUL2
ADD	16MW Memory BP Term	NT3X4309	2	XX	21R	AP
ADD	Processor 8K ROM CP	NT1X46CD		51	14	RUL1
ADD	16MW Memory Ctrl CP	NT4X79AA	2	XX	04	AP
ADD	1MW Memory CP	NT4X80AA		XX	06-21	RUL2
ADD	Des Label (NT1X46CD)	P0664114		51	14	RUL3
ADD	Des Label (NT4X79AA)	P0649155		XX	04	RUL3
ADD	Des Label (NT4X80AA)	P0649156		XX	06-21	RUL3

NOTES:

1) a) Data store memory can be increased by mixing NT3X93AA and NT4X80AA memory packs. The NT3X93AA pack(s) must occupy the address range below that at NT4X80AA packs.

   b) The shelf equipped with this kit must be equipped with at least one (1) NT4X80AA 1MW memory card.

   c) No memory shelves can be assigned to the address range above a mixed memory shelf.

   d) NT4X80AA packs must be added from the next vacant card slot in the existing memory. If the shelf to be modified is full the last NT3X93AA pack on the shelf must be removed.

e) Table 1 shows typical increase for a one data store (per plane) application. When increasing data store memory on offices with two and three shelves (per plane), mixed memory strapping will be applied on the last shelf only (per number of NT3X93AA packs used). NT4X80AA packs will be used on last shelf only and maximum total memory cannot exceed 15.75MW (per plane). Maximum amount of memory (MW) per shelf is shown in Table 2.

TABLE 1

NUMBER OF NT3X93AA	NUMBER OF NT4X80AA	MAX (MW) TOTAL MEMORY	NUMBER OF NT3X93AA	NUMBER OF NT4X80AA	MAX (MW) TOTAL MEMORY
0	15	15.00	8	1-8	10.00
1	1-15	15.25	9	1-7	9.25
2	1-14	14.50	10	1-6	8.50
3	1-13	13.75	11	1-5	7.75
4	1-12	13.00	12	1-4	7.00
5	1-11	12.25	13	1-3	6.25
6	1-10	11.50	14	1-2	5.50
7	1-9	10.75	15	1	4.75

TABLE 2

QM DS SHELVES PER PLANE	MAXIMUM MEMORY EQUIPPED (MW)		
	SHELF 0	SHELF 1	SHELF 2
1	15.25	N/A	N/A
2	4	11.75	N/A
3	4	4	7.75

f) All offices with BCS loads from BCS-18 to BCS-22 cannot be equipped with a maximum Data Store capacity of 16

M-Words. Actual addressable memory maximums are as follows:

i) 15.0 M-Word maximum when only NT4X80AA cards are equipped in the last shelf.

ii) 15.25 M-Word maximum when the office contains only one (1) Data Store shelf. This capacity is only attainable by equipping the shelf with fifteen (15) NT4X80AA's and one (1) NT3X93AA.

iii) 15.75 M-Word maximum when the office is equipped with more than one (1) Data Store shelf and a mixed memory configuration is utilized. This maximum cannot be provisioned using all NT4X80AA's in the last shelf. The equipped memory capacity cannot exceed 15.75 M-Words.

2) Mixed memory requires use of NT4X79AA 16MW Controller CP only. NT3X94AA 4MW Controller CP not to be used.

3) Office must be equipped with BCS-18 or later software.

4) Amount of material and circuit packs provided by NT3X45EN is sufficient to modify two (2) 4MW data store shelves (one per plane). The provisioning of spare circuit packs is the responsibility of the job engineer.

5) "XX" in shelf position is one of 32, 18 when modifications are being made on the NT3X45DA frame. "XX" is one of 65, 51 when modifications are being made on the NT3X45DB frame. Modifications are made to the last DS shelf on the frame.

RULES:

AP 1) When PEC NT3X45EN is ordered, these items are provided.

RUL1 1) Provide one (1) NT1X46CD (per plane), if it has not been previously equipped.

RUL2 1) At least one (1) NT4X80AA must be provided per this change kit (NT3X45EN).

2) Provide one (1) NT4X80AA (per plane) for each additional one megaword of memory required (see note 1).

RUL3 1) Provide one (1) designation label per each of NT4X79AA, NT4X80AA, and NT1X46CD CP.

NT3X45EP PRODUCT CHANGE KIT

PEC CODE: NT3X45EP

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit allows for the user of mixed memory (256 KW and 1 MW cards) on the processor shelf (CPM) of the CCC frame.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45EP EMR4-99-EP CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT3X45AA	NT3X41AA
NT3X45CA	NT3X41BA

The NT3X45EP product change kit is comprised of the following removals and additions:

ACTION		EQUIPMENT	PEC	SHF ABBR	CP QTY	POS	POS RULE
REMOVE	Processor Stack CP	NT1X44AA/BA	2	51	19		
REMOVE	Processor ALF CP	NT1X45AA/BA	2	51	18		
REMOVE	Proc Tim. & Cont CP	NT1X47AA/BA	2	51	17		
REMOVE	64KW Memory CP	NT3X40AA/BA	ALL	51	01-08		
REMOVE	1MW Memory Cont CP	NT3X42AA/BA	2	51	09		
REMOVE	4MW Memory Cont CP	NT3X94AA	2	51	09		
REMOVE	Memory B.P. Term.	NT3X4302	2	51	01R		
REMOVE	Prog Store Port CP	NT1X43AC/BC/BD	2	51	21		
REMOVE	4K ROM Extender CP	NT1X53AA/BB	2	51	12		
REMOVE	4K ROM Extender CP	NT1X53BA/BC	2	51	12		
REMOVE	Processor ROM CP	NT1X46AA/BB	2	51	14		
REMOVE	Processor ROM CP	NT1X46BA/BC/CC	2	51	14		
ADD	Proc Stack (4KW) CP	NT1X44BB		51	19		RUL3
ADD	Processor ALF CP	NT1X45BB		51	18		RUL4
ADD	Proc 8K ROM CP	NT1X46CD		51	14		RUL7
ADD	Proc Tim. & Cont CP	NT1X47BB		51	17		RUL6
ADD	Prog Stor Port 8MW	NT1X43CA		51	21		RUL5
ADD/RMV	256KW Memory CP	NT3X93AA		51	01-08		RUL1
ADD	16MW BP Terminator	NT3X4309	2	51	01R		AP
ADD	16MW Memory Cont CP	NT4X79AA	2	51	09		AP
ADD	1MW Memory CP	NT4X80AA		51	01-08		RUL1
ADD	Fill Face Plate .875	NT0X50BA		51	01-08, 12		RUL2
ADD	Des Label (NT0X50BA)	P0599141		51	01-08, 12		RUL2
ADD	Des Label (NT1X43CA)	P0647819		51	21		RUL5
ADD	Des Label (NT1X44BB)	P0623507		51	19		RUL3
ADD	Des Label (NT1X45BB)	P0623508		51	18		RUL4

ADD	Des Label (NT1X46CD) P0664114	51	14	RUL7
ADD	Des Label (NT1X47BB) P0623511	51	17	RUL6

ACTION	EQUIPMENT	PEC	SHF ABBR	CP QTY	POS	POS	RUL
ADD	Des Label (NT3X93AA) P0584741		51	01-08	RUL1		
ADD	Des Label (NT4X79AA) P0649155	2	51	09	AP		
ADD	Des Label (NT4X80AA) P0649156		51	02-08	RUL1		

NOTES:

1) Modifications described above must be applied to the Central Processor Memory shelf (51) on both planes of the CCC frame. The quantity (QTY) column reflects the total card packs required to change both planes.

2) The modifications mentioned above are not necessarily in sequence of operations to be performed.

3) Maximum total program store capacity (per plane) is 8 MW. This includes 1 MW of memory as NT3X40AA/BA in PS00.

4) Office must be equipped with BCS-18 or later software.

5) All offices with BCS loads from BCS-18 to BCS-22 cannot be equipped with a maximum Data Store capacity of 16 M-Words. Actual addressable memory maximum are as follows:

   i) 15.0 M-Word maximum when only NT4X80AA cards are equipped in the last shelf.

   ii) 15.25 M-Word maximum when the office contains only one (1) Data Store shelf. This capacity is only attainable by equipping the shelf with fifteen (15) NT4X80AA's and one (1) NT3X93AA.

   iii) 15.75 M-Word maximum when the office is equipped with more than one (1) Data Store shelf and a mixed memory configuration is utilized. This maximum cannot be provisioned using all NT4X80AA's in the last shelf. The equipped memory capacity cannot exceed 15.75 M-Words.

6) The shelf equipped with this product change kit must be equipped with at least one (1) NT4X80AA memory card.

RULES:

AP 1) When PEC NT3X45EP is ordered, these items are provided.

2) The amount of AP equipment is sufficient to modify two central processor memory shelves (one per plane).

RUL1 1) Provide one (1) NT4X80AA and label (per plane) for each 1 MW of memory required.

2) Provide one at NT3X93AA and label (per plane) for each 256K words of memory required.

3) Memory growth is on the CPM shelf (pos 51) only. Memory growth is from 51-08 (lowest address) towards 51-01 (highest address). NT3X93AA must occupy the address range below that of NT4X80AA, i.e. higher numbered positions. If shelf is already filled with NT3X93AA, begin removing NT3X93AA from lowest numbered positions and replace with NT4X80AA until desired memory size is reached.

4) Minimum memory which must be equipped on the CPM shelf when NT4X79AA controller is used is either one NT4X80AA or four NT3X93AA. This is a software stipulation.

RUL2 1) Provide one Filler Face Plate and Designation Label (per plane) for each slot left vacant in pos 51-01 to 5108 or pos 51-12. Filler Face Plate and label are not required in pos 51-12 if the product change kit NT3X45DR has been applied.

RUL3 1) Provide one (1) NT1X44BB CP and label (per plane). Do not provide if any of NT3X45DD, NT3X45EM, NT3X45ER or NT3X45EY product change kits have been provided.

RUL4 1) Provide one (1) NT1X45BB CP and label (per plane). Do not provide if any of NT3X45DD, NT3X45EM, NT3X45ER or NT3X45EY product change kits have been provided.

RUL5 1) Provide one (1) NT1X43CA CP and label (per plane). Do not provide if NT3X45DR, NT3X45EM, NT3X45ER or NT3X45EY product change kits have been provided.

RUL6 1) Provide one (1) NT1X47BB CP and label (per plane). Do not provide if NT3X45DD, NT3X45ER, NT3X45EM or NT3X45EY product change kits have been provided.

RUL7 1) Provide one (1) NT1X46CD CP (per plane) if it has not been previously equipped.

2) Provide one (1) Designation Label for each NT1X46CD CP provisioned.

NT3X45EQ PRODUCT CHANGE KIT

PEC CODE: NT3X45EQ

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides for the use of mixed memory (256 KW and 1 MW cards) on CCC frames equipped with discrete program store shelves. This kit extends the program store capability to the maximum of 8.0 Mwords per side.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45EQ EMR4-99-EQ CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT3X45AA	NT3X32AA
NT3X45CA	NT3X32BA

The NT3X45EQ product change kit is comprised of the following removals and additions:

ACTION		EQUIPMENT	PEC	SHF ABBR	CP QTY	POS
POS RULE						
REMOVE	Processor Stack CP	NT1X44AA/BA	2	51	19	
REMOVE	Processor ALF CP	NT1X45AA/BA	2	51	18	
REMOVE	Proc Tim. & Cont CP	NT1X47AA/BA	2	51	17	
REMOVE	64KW Memory CP	NT3X40AA/BA	ALL	XX	05-21	
REMOVE	1MW Memory Cont CP	NT3X42AA/BA	2	XX	04	
REMOVE	4MW Memory Cont CP	NT3X94AA	2	XX	04	
REMOVE	Memory B.P. Term.	NT3X4302	2	XX	21R	
REMOVE	Prog Store Port CP	NT1X43AC/BC/BD	2	51	21	
REMOVE	4K ROM Extender CP	NT1X53AA/BB	2	51	12	
REMOVE	4K ROM Extender CP	NT1X53BA/BC	2	51	12	
REMOVE	Processor ROM CP	NT1X46AA/BB	2	51	14	
REMOVE	Processor ROM CP	NT1X46BA/BC	2	51	14	
ADD	Proc Stack (4KW) CP	NT1X44BB		51	19	RUL4
ADD	Processor ALF CP	NT1X45BB		51	18	RUL5
ADD	Proc 8K ROM CP	NT1X46CD		51	14	RUL3
ADD	Proc Tim. & Cont CP	NT1X47BB		51	17	RUL7
ADD	Prog Stor Port 8MW	NT1X43CA		51	21	RUL6
ADD/RMV	256KW Memory CP	NT3X93AA		XX	06-21	RUL1
ADD	16MW BP Terminator	NT3X4309	2	XX	21R	AP
ADD	16MW Memory Cont CP	NT4X79AA	2	XX	04	AP
ADD	1MW Memory CP	NT4X80AA		XX	06-21	RUL1
ADD	Fill Face Plate .875	NT0X50BA		XX	05-21	RUL2
ADD	Des Label (NT0X50BA)	P0599141		XX	05-21	RUL2
ADD	Des Label (NT1X43CA)	P0647819		51	21	RUL6
ADD	Des Label (NT1X44BB)	P0623507		51	19	RUL4
ADD	Des Label (NT1X45BB)	P0623508		51	18	RUL5
ADD	Des Label (NT1X46CD)	P0664114		51	14	RUL3
ADD	Des Label (NT1X47BB)	P0623511		51	17	RUL7

ADD	Des Label (NT3X93AA)	P0584741		XX	06-21	RUL1
ADD	Des Label (NT4X79AA)	P0649155	2	XX	04	AP
ADD	Des Label (NT4X80AA)	P0649156		XX	06-21	RUL1

NOTES:

1) The program store configuration of both planes should be equivalent, and modifications should be done to both planes. The quantity (QTY) column reflects the total card packs required to change both planes.

2) The modifications mentioned above are not necessarily in sequence of operations to be performed.

3) Maximum total program store capacity (per plane) is 8 MW. This includes 1 MW of memory as NT3X40AA/BA in PS00 (if office is so equipped).

4) Office must be equipped with BCS-18 or later software.

5) "XX" in the shelf position column is equal to 32 or 18 but not both.

6) All offices with BCS loads from BCS-18 to BCS-22 cannot be equipped with a maximum Data Store capacity of 16 M-Words. Actual addressable memory maximum are as follows:

   i) 15.0 M-Word maximum when only NT4X80AA cards are equipped in the last shelf.

   ii) 15.25 M-Word maximum when the office contains only one (1) Data Store shelf. This capacity is only attainable by equipping the shelf with fifteen (15) NT4X80AA's and one (1) NT3X93AA.

   iii) 15.75 M-Word maximum when the office is equipped with more than one (1) Data Store shelf and a mixed memory configuration is utilized. This maximum cannot be provisioned using all NT4X80AA's in the last shelf. The equipped memory capacity cannot exceed 15.75 M-Words.

7) The shelf equipped with this product change kit must be equipped with at least one (1) NT4X80AA memory card.

RULES:

AP 1) When PEC NT3X45EQ is ordered, these items are provided.

2) The amount of AP equipment is sufficient to modify two central processor memory shelves (one per plane).

RUL1 1) Provide one (1) NT4X80AA and label (per plane) for each 1 MW of memory required.

2) Provide one NT3X93AA CP and label (per plane) for each 256K words of memory required.

3) For offices equipped with two shelves (per plane) of program store, mixed memory (NT3X93AA/NT4X80AA) can be provided in second shelf (PS01) only.

4) Memory growth on the NT3X32AA/BA shelves is from XX-06 (lowest address) towards XX-21 (highest address). NT3X93AA must occupy the address range below that of NT4X80AA, i.e. the lower numbered positions. If shelf to be modified is already filled with NT3X93AA, begin removing NT3X93AA from highest numbered positions and replace with NT4X80AA until desired memory size is reached.

RUL2 1) Provide one Filler Face Plate and Designation Label (per plane) for each slot left vacant in pos 18/32-06 to 18/32-21 or pos 18/32-05. Filler Face Plate and label are not required in position 18/32-05 if product change kits NT3X45DE or NT3X45DF have been applied.

RUL3 1) Provide one (1) NT1X46CD CP and label (per plane), if it has not been previusly equipped.

RUL4 1) Provide one (1) NT1X44BB CP and label (per plane). Do not provide if any of NT3X45DD, NT3X45ER, NT3X45EM or NT3X45EY product change kits have been provided.

RUL5 1) Provide one (1) NT1X45BB CP and label (per plane). Do not provide if NT3X45DD, NT3X45ER, NT3X45EM or NT3X45EY product change kits have been provided.

RUL6 1) Provide one (1) NT1X43CA CP and label (per plane). Do not provide if NT3X45DQ, NT3X45ER, NT3X45EM or NT3X45EY product change kits have been provided.

RUL7 1) Provide one (1) NT1X47BB CP and label (per plane). Do not provide if NT3X45DD, NT3X45ER, NT3X45EM or NT3X45EY product change kits have been provided.

DATA STORE MIXED MEMORY (INCREASE TO 15.75 MW) PRODUCT CHANGE KIT

PEC CODE: NT3X45ER

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides for the use of mixed memory (256 KW and 1 MW cards) to extend the data store capacity to 15.75 MWords on the CCC frame or MEX frame.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45ER EMR4-99-ER CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT3X45AA	NT3X32AB
NT3X45AB	NT3X32AB/AC
NT3X45CA	NT3X32BB
NT3X45CB	NT3X32BB/BC

The NT3X45ER product change kit is comprised of the following removals and additions:

ACTION		EQUIPMENT	PEC	SHF ABBR	CP QTY	POS	POS RULE
REMOVE	Processor Stack CP	NT1X44AA/BA	2	51	19		
REMOVE	Processor ALF CP	NT1X45AA/BA	2	51	18		
REMOVE	Proc Tim. & Cont CP	NT1X47AA/BA	2	51	17		
REMOVE	64KW Memory CP	NT3X40AA/BA	ALL	XX	05,06-21		
REMOVE	1MW Memory Cont CP	NT3X42AA/BA	2	XX	04		
REMOVE	4MW Memory Cont CP	NT3X94AA/AB	2	XX	04		
REMOVE	Memory B.P. Term.	NT3X4302	2	XX	21R		
REMOVE	Prog Store Port CP	NT1X43AC/BC/BD	2	51	21		
REMOVE	4K ROM Extender CP	NT1X53AA/BB	2	51	12		
REMOVE	4K ROM Extender CP	NT1X53BA/BC	2	51	12		
REMOVE	Processor ROM CP	NT1X46AA/BB	2	51	14		
REMOVE	Processor ROM CP	NT1X46BA/BC	2	51	14		
ADD	Proc Stack (4KW) CP	NT1X44BB		51	19		RUL4
ADD	Processor ALF CP	NT1X45BB		51	18		RUL5
ADD	Proc 8K ROM CP	NT1X46CD		51	14		RUL3
ADD	Proc Tim. & Cont CP	NT1X47BB		51	17		RUL7
ADD	Prog Stor Port 8MW	NT1X43CA		51	21		RUL6
ADD/RMV	256KW Memory CP	NT3X93AA		XX	06-21		RUL1
ADD	16MW BP Terminator	NT3X4309	2	XX	21R		AP
ADD	16MW Memory Cont CP	NT4X79AA	2	XX	04		AP
ADD	1MW Memory CP	NT4X80AA		XX	06-21		RUL1
ADD	Fill Face Plate .875	NT0X50BA		XX	05-21		RUL2
ADD	Des Label (NT0X50BA)	P0599141		XX	05-21		RUL2
ADD	Des Label (NT1X43CA)	P0647819		51	21		RUL6
ADD	Des Label (NT1X44BB)	P0623507		51	19		RUL4

ADD	Des Label (NT1X45BB) P0623508	51	18	RUL5
ADD	Des Label (NT1X46CD) P0664114	51	14	RUL3

ACTION	EQUIPMENT	PEC	SHF ABBR	CP QTY	POS	POS	RUL
ADD	Des Label (NT1X47BB)	P0623511		51	17		RUL7
ADD	Des Label (NT3X93AA)	P0584741		XX	06-21		RUL1
ADD	Des Label (NT4X79AA)	P0649155	2	XX	04		AP
ADD	Des Label (NT4X80AA)	P0649156		XX	06-21		RUL1

NOTES:

1) The data store configuration of both planes should be equivalent, and modifications should be done to both planes. The quantity (QTY) column reflects the total card packs required to change both planes.

2) The modifications mentioned above are not necessarily in sequence of operations to be performed.

3) Maximum total data store capacity (per plane) is 15.75 MW. This includes data store shelves already equipped with 1 MW per shelf and/or 4 MW per shelf.

4) Office must be equipped with BCS-18 or later software.

5) "XX" in the shelf position column is equal to one of 18, 32, 51 or 65. par

6) All offices with BCS loads from BCS-18 to BCS-22 cannot be equipped with a maximum Data Store capacity of 16 M-Words. Actual addressable memory maximum are as follows: par
   i) 15.0 M-Word maximum when only NT4X80AA cards are equipped in the last shelf. par
   ii) 15.25 M-Word maximum when the office contains only one (1) Data Store shelf. This capacity is only attainable by equipping the shelf with fifteen (15) NT4X80AA's and one (1) NT3X93AA. par
   iii) 15.75 M-Word maximum when the office is equipped with more than one (1) Data Store shelf and a mixed memory configuration is utilized. This maximum cannot be provisioned using all NT4X80AA's in the last shelf. The equipped memory capacity cannot exceed 15.75 M-Words. par

7) The shelf equipped with this product change kit must be equipped with at least one (1) NT4X80AA memory card.

RULES:

AP 1) When PEC NT3X45ER is ordered, these items are provided.

2) The amount of AP equipment is sufficient to modify two central processor memory shelves (one per plane). par

RUL1 1) Provide one (1) NT4X80AA CP and label (per plane) for each 1 MW of memory required (minimum of one (1)).

2) Provide one NT3X93AA CP and label (per plane) for each 0.25 MW of memory required.

3) Mixed memory (NT3X93AA and NT4X80AA) can be provided on last shelf (highest starting address) of data store only. only.

4) Memory growth on the NT3X32AA/BA shelves is from XX-06 (lowest address) towards XX-21 (highest address). NT3X93AA must occupy the address range below that of NT4X80AA, i.e. the lower numbered positions. If shelf to be modified is already filled with NT3X93AA, begin removing NT3X93AA from highest numbered positions and replace with NT3X93AA until desired memory size is reached.

RUL2 1) Provide one Filler Face Plate and Designation Label (per plane) for each slot left vacant in pos 18/32/51/65-06 to 18/32/51/65-21 or pos 18/32/51/65-05. Filler Face Plate and label are not required in position 18/32/51/65-05 if product change kit NT3X45DH has been applied.

RUL3 1) Provide one (1) NT1X46CD CP and label (per plane), if not previously equipped.

RUL4 1) Provide one (1) NT1X44BB CP and label (per plane). Do not provide if NT3X45DD, NT3X45EP, NT3X45EQ, NT3X45EM or NT3X45EY product change kits have been provided.

RUL5 1) Provide one (1) NT1X45BB CP and label (per plane). Do not provide if NT3X45DD, NT3X45EP, NT3X45EQ, NT3X45EM or NT3X45EY product change kits have been provided.

RUL6 1) Provide one (1) NT1X43CA CP and label (per plane). Do not provide if NT3X45DQ, NT3X45DR, NT3X45EP, NT3X45EQ, NT3X45EM or NT3X45EY product change kits have been provided.

RUL7 1) Provide one (1) NT1X47BB CP and label (per plane). Do not provide if NT3X45DD, NT3X45EP, NT3X45EQ, NT3X45EM or NT3X45EY product change kits have been provided.

STRATUM II CLOCK

PEC CODE: NT3X45ES

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides a Stratum II clock interface circuit pack and necessary modification information to allow cabling to the new Stratum II remote oscillator shelf located on the IOE frame.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45ES EMR4-99-ES CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code
NT0X41AC	NT1X41AA
NT0X41AJ	NT1X41AB
NT3X45AA	NT2X76AA
NT3X45CA	NT2X76BA
NT3X45DA	NT2X76BA

The NT3X45ES product change kit is comprised of the following removals and additions:

ACTION		EQUIPMENT	PEC	SHF ABBR	CP QTY	POS
REMOVE	Mstr Clock Osc CP	NT3X15AA/AB/BA/BB	2	XX	AA	
ADD	Strat II Osc I/F CP	NT3X15DA	2	XX	AA	AP
ADD	Designation Label	P0661434	2			AP
ADD	Filler Face Plate	NT0X50BA	2	XX	AA+2	AP

NOTES:

1) Frame positions given as "XX" in the equipment list above refer to the frame position of the shelf being modified. On the NT3X45AA/CA/DA this is shelf position 65 and on NT0X41AC/AJ this is shelf position 51. Circuit pack positions given as "AA" in the equipment list above refer to the circuit pack location on the shelf being modified. On NT2X76AA/BA this is circuit pack position 01 and on NT1X41AA/AB this is circuit pack position 03.

2) Office must be equipped with BCS-20 or later software.

3) Remote oscillator shelf (NT3X95AA) must be provided on IOE frame (NT0X43AD) and equipped with NT3X11AA Stratum II oscillator. See MS0X43AD for provisioning information (Section EMA5-01-000).

4) On NT0X41AC change kit, NT0X41BL synchronizable clock conversion kit must be provided.

5) Amount of material and circuit packs provided by NT3X45ES is sufficient to modify one central control complex frame (both bays/planes). Modifications described apply to both bays.

6) Provisioning of spare circuit packs is the responsibility of the job engineer.

RULES:

AP 1) When PEC NT3X45ES is ordered, these items are provided.

MIXED MEMORY INCREASE TO 16 MW

PEC CODE: NT3X45ET

RATING: MD

REPLACED BY: No Replacement

ENGINEERING DESCRIPTION: This product change kit allows for the application of the 1 MW Memory Card NT4X80AA to the NT0X41 vintage MEX frames. This is accomplished by the replacement of the last existing data store shelf (NT3X31__) or adding an additional data store shelf NT3X32__ on the MEX frame. This will allow for the increase in data store memory to a maximum of 16 MWords.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45ET EMR4-99-ET CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows. This change kit will be applied to both the data store shelf on the MEX frame and the CPU shelf on the associated CCC frame.

MEX Frame Codes	Shelf Codes	CCC Frame Codes	Shelf Codes
NT0X41AB	NT3X31AB NT3X31AC	NT0X41AC	NT1X41AA
NT0X41AK	NT3X31AE NT3X31AF	NT0X41AJ	NT1X41AB

The NT3X45ET Product Change Kit is comprised of the following removals and additions.

ACT	EQUIPMENT	PEC	FRAME	QTY	SHF POS	CP POS	RULE
RMV	Data Store Shelf	NT3X31AB	MEX	2	18,32 or 51		RUL1
RMV	Conn Data Store Shf	NT3X31AC	MEX	2	65		RUL1
RMV	Data Store Shelf	NT3X31AE	MEX	2	18,32 or 51		RUL1
RMV	Conn Data Store Shf	NT3X31AF	MEX	2	65		RUL1
ADD	Conn DS Shf Assy	NT3X3208	MEX	2	65		RUL1
ADD	Data Store Shf Assy	NT3X3209	MEX	2	18,32 or 51		RUL1
ADD	Diff Mem Bus I/F & Term	NT3X36BC	MEX	2	XX	02	AP
ADD	16MW Mem Ctrl CP	NT4X79AA	MEX	2	XX	04	AP
ADD	1MW Memory CP	NT4X80AA	MEX		XX	06-21	RUL3
ADD	256 KW Memory CP	NT3X93AA	MEX		XX	06-21	RUL3
ADD	16MW Backplane Term	NT3X4309	MEX	2	XX	21R	AP
ADD	Pwr Converter CP	NT2X70BA	MEX	2	XX	25	AP
ADD	Filler Face Plate	NT0X50BE	MEX	2	XX	22	AP
ADD	Filler Face Plate	NT0X50BA	MEX		XX	1,3,5, 6-21	RUL4
ADD	Designation Strip	P0656303	MEX	2	XX		RUL5
ADD	Designation Label (NT3X36BC)	P0613365	MEX	2	XX	02	RUL6
ADD	Designation Label (NT3X93AA)	P0623515	MEX	AR	XX	06-21	RUL7
ADD	Designation Label (NT4X80AA)	P0649156	MEX	AR	XX	06-21	RUL7

ADD	Designation Label (NT6X50BA)	P0599141	MEX	AR	XX	1,3,5, RUL7 6-21

ACT	EQUIPMENT	PEC	FRAME	QTY	SHF POS	CP POS	RULE
RMV	MEX Frame Local Cbl	NT0X41AF	MEX	2	51,18		RUL2
RMV	MEX Frame Local Cbl	NT0X41AG	MEX	2	32		RUL2
ADD	MEX Frame Local Cbl	NT3X45AF	MEX	2	51,18		RUL2
ADD	MEX Frame Local Cbl	NT3X45AG	MEX	2	32		RUL2
RMV	Processor Stack CP	NT1X44AA/BA	CCC	2	51	19	
RMV	Processor ALF CP	NT1X45AA/BA	CCC	2	51	18	
RMV	Processor Timing & Control CP	NT1X47AA/BA	CCC	2	51	17	
RMV	Prog Store Port CP	NT1X43AC/BC/BD	CCC	2	51	21	
RMV	4K ROM Extender CP	NT1X53AA/BB/BA/BC	CCC	2	51	12	
RMV	Processor ROM CP	NT1X46AA/BB/BA/BC	CCC	2	51	14	
ADD	Proc Stack (4KW) CP	NT1X44BB	CCC	2	51	19	RUL8
ADD	Processor ALF CP	NT1X45BB	CCC	2	51	18	RUL9
ADD	Processor 8K ROM CP	NT1X46CD	CCC	2	51	14	RUL10
ADD	Processor Timing & Control CP	NT1X47BB	CCC	2	51	17	RUL11
ADD	Program Store Port (8MW) CP	NT1X43CA	CCC	2	51	21	RUL12
ADD	Filler Face Plate	NT0X50BA	CCC	2	51	12	RUL13
ADD	Designation Label (NT1X43CA)	P0647819	CCC	2	51	21	RUL14
ADD	Designation Label (NT1X44BB)	P0623507	CCC	2	51	19	RUL14
ADD	Designation Label (NT1X45BB)	P0623508	CCC	2	51	18	RUL14
ADD	Designation Label (NT1X46CD)	P0664114	CCC	2	51	14	RUL14
ADD	Designation Label (NT1X47BB)	P0623511	CCC	2	51	17	RUL14
ADD	Designation Label (NT0X50BA)	P0599141	CCC	2	51	12	RUL14
ADD	Cable Braid Assy	NT0X9538	MEX	12			RUL15
ADD	Screw HHC	P0069242	MEX	12			RUL15
ADD	Hex Nut	P0065747	MEX	12			RUL15
ADD	Washer	P0160739	MEX	12			RUL15

ACT	EQUIPMENT	PEC	FRAME	QTY	SHF POS	CP POS	RULE
ADD	WS Lock E	P097Y579	MEX	24			RUL15
ADD	WS Lock E	P0183220	MEX	2			RUL15
ADD	Screw HHT	P096F813	MEX	8			RUL15
ADD	Washer FL	P0284154	MEX	2			RUL15

NOTES:

1) When provisioning this kit, order the LWJ/SRJ drawings for the installer.

RULES:

AP 1) When PEC NT3X45ET is ordered, these items are provided.

2) The amount of AP equipment is enough to modify two central processor unit shelves (one per plane).

3) Shelf position XX represents position 18, 32, 51 or 65.

RUL1 1) Remove the last data store shelf from both planes and replace with connectorized data store shelf assembly, NT3X3208 if shelf is in position 65 or data store shelf assembly, NT3X3209 if shelf is in position 51, 32, or 18. (Note: Not required when adding a new shelf.)

RUL2 1) Remove the MEX frame local cable for the shelf that is being replaced and add local cable NT3X45AF if the shelf is in position 51 or 18 and add NT3X45AG if the shelf is in position 32. (Note: Not required when adding a new shelf.)

RUL3 1) Provide two (2) NT4X80AA (one per side) 1MW Memory Card for each 1 MWord of data store memory required. Provide two (2) (one per side) NT3X93AA 256 KW Memory Card for each 256 Kword of data Store memory required. Mixed memory may be applied to the last data store shelf subject to the following constraints:

a) maximum total data store (per plane) does not exceed 16 MWords

b) the data store configuration of both planes should be equivalent and modifications should be done to both planes

c) NT3X93AA 256 KW circuit packs must occupy the address range below that of NT4X80AA 1 MWord circuit packs i.e. lower numbered positions.

d) When adding a NT4X79 16 MW Memory Controller CP to the shelf at least one NT4X80 must reside on the shelf subject to the constraints in a, b, and c.

RUL4 1) Provide filler face plates NT0X50BA for data store shelf positions 1, 3 and 5 and position 6-21 if not equipped with memory circuit packs.

RUL5 1) Provide two (2) (one per side) designation strips, P0656303 for new data store shelves

RUL6 1) Provide two (2) (one per side) designation labels, P0613365 for NT3X36BC differential memory bus interface and terminator CP.

RUL7 1) Provide one (1) designation label for each of NT3X93AA, NT4X80AA and NT0X50BA circuit packs provisioned.

RUL8 1) Provide two (2) (one per side) NT1X44BB Processor Stack CP. Do not provide if product change kits NT3X45EM or NT3X45DD have been previously applied.

RUL9 1) Provide two (2) (one per side) NT1X45BB Processor ALF CP. Do not provide if product change kits NT3X45EM or NT3X45DD have been previously applied.

RUL10 1) Provide two (2) (one per side) NT1X46CD Processor 8KW ROM CP. Do not provide if product change kit NT3X45EM has been previously applied.

RUL11 1) Provide two (2) (one per side) NT1X47BB Processor Timing and Control CP. Do not provide if product change kits NT3X45EM or NT3X45DD have been previously applied.

RUL12 1) Provide two (2) (one per side) NT1X43CA Program Store Port (8MW) CP. Do not provide if product change kits NT3X45EM or NT3X45DQ have been previously applied.

RUL13 1) Provide two (2) (one per side) Filler Face Plate NT0X50BA to equip CPU shelf position 12 if it was previously equipped with 4K ROM Extender CP NT1X53__.

RUL14 1) Provide one (1) designation label for each of NT1X43CA, NT1X44BB, NT1X45BB, NT1X45CD, NT1X47BB and NT0X50BA circuit packs provisioned.

RUL15 1) Provide the indicated equipment if the newly provided data store shelves are to be mounted in previously unequipped shelf positions. The equipment shown is enough to mount two (one per side) data store shelves.

CPU CAPACITY ENHANCEMENT
PRODUCT CHANGE KIT

PEC CODE: NT3X45EY

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This product change kit provides for a capacity improvement in th CPU by increasing the CPU clock from 36 MHz to 40 MHz.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

NT3X45EY EMR4-99-EY CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The codes of the shelves and frames to which this change is applicable are as follows:

Frame Code	Compatible Shelf Code	
NT0X41AC	NT1X41AA	CPU
NT0X41AJ	NT1X41AB	CPU
NT3X45AA	NT3X41AA	CPM
NT3X45CA	NT3X41BA	CPM
NT3X45DA	NT3X41DA	CPM
NT3X45DW	NT3X41DA	CPM

The NT3X45EY product change kit is comprised of the following removals and additions:

ACTION		EQUIPMENT	PEC	SHF ABBR	CP QTY	POS	POS RULE
REMOVE	Prog Store Port CP	NT1X43__	2	51	21		
REMOVE	Processor Stack CP	NT1X44__	2	51	19		
REMOVE	Processor ALF CP	NT1X45__	2	51	18		
REMOVE	Processor ROM CP	NT1X46__	2	51	14		
REMOVE	4K ROM Extender CP	NT1X53__		51	12		RUL1
REMOVE	Proc Tim & Cont CP	NT1X47__	2	51	17		
REMOVE	Processor Maint	NT1X48AA/BA	2	51	16		
REMOVE	Bal Data Port Ext	NT1X50AA/AB/BB	2	51	AA		RUL6
REMOVE	Unbal Data Port Ext	NT1X49AA/BA	2	51	AA		RUL6
REMOVE	CMC Interface CP	NT1X51AA/BA	2	51	BB		

ADD	Proc 8MW Prog Str CP	NT1X43DA	2	51	21	AP
ADD	Proc Stack (4KW) CP	NT1X44DA	2	51	19	AP
ADD	Processor ALF CP	NT1X45DA	2	51	18	AP
ADD	Proc 8KW ROM CP	NT1X46DA		51	14	RUL5
ADD	Proc 8KW ROM CP	NT1X46EA		51	14	RUL5
ADD	Proc Tim & Ctrl CP	NT1X47DA	2	51	17	AP
ADD	Processor Maint CP	NT1X48DA		51	16	RUL2
ADD	Rem Ctl Proc Main CP	NT1X48CA		51	16	RUL2
ADD	Unbal Data Port Ext	NT1X49DA		51	AA	RUL6
ADD	Bal Data Port Ext CP	NT1X50DA		51	AA	RUL6
ADD	CMC Interface CP	NT1X51DA	2	51	BB	AP

ACTION	EQUIPMENT	PEC	SHF ABBR	CP QTY	POS	POS	RUL
ADD	Des Label (NT1X43DA) P0661428	2	51	21		AP	
ADD	Des Label (NT1X44DA) P0661429	2	51	19		AP	
ADD	Des Label (NT1X45DA) P0661430	2	51	18		AP	
ADD	Des Label (NT1X46DA) P0661431		51	14			RUL3
ADD	Des Label (NT1X46EA) P0728435		51	14			RUL3
ADD	Des Label (NT1X47DA) P0661432	2	51	17		AP	
ADD	Des Label (NT1X48DA) P0661433		51	16			RUL3
ADD	Des Label (NT1X48CA) P0649154		51	16			RUL3
ADD	Des Label (NT1X49DA) P0685364		51	AA			RUL3
ADD	Des Label (NT1X50DA) P0683234		51	AA			RUL3
ADD	Des Label (NT1X51DA) P0685365		51	BB			RUL3
ADD	Filler Face Plate NT0X50BA		51	12			RUL4

NOTES:

1) Circuit pack positions given as ’AA’ and ’BB’ in the equipment list above refer to the circuit pack position on the shelf being modified. On NT1X41AA/AB, the designation ’AA’ is circuit pack position 08 and on NT3X41AA/BA/DA this is circuit pack position 10. On NT1X41AA/AB, the designation ’BB’ is circuit pack position 09 and on NT3X41AA/BA/DA this is circuit pack position 11.

2) The length of the differential bus from the CPU shelf (equipped with 40 MHz processor) of the CCC frame to the last data store shelf is restricted to 20 feet (6 meters). This effectively restricts MEX frames to being adjacent to the CCC frame or directly behind the CCC frame. When applying the NT3X45EY kit and MEX frames are present in the office, the floor layout should be checked by the job engineer to ensure the above restriction is met. If the location of the MEX frame does not comply with the above 20 feet (6 meters) restriction, the memory on the MEX frame must be consolidated on the CCC frame by ordering the necessary change kits. Refer to Section EMA4-99-000 for the list of change kits.

3) Office must be equipped with BCS-18 or later software load and wiring changes per PC3X45DN (as indicated in PC3X45EY).

4) For the NT0X41AC, NT0X41AJ, NT3X45AA and NT3X45CA, provide two (2) metres of R0109503 wire for necessary wiring changes if the following two Product Change Kits have not been previously applied:

NT3X45DD Central Processor Enhancement

NT3X45DQ Program Store Expansion beyond 2.0 Megawords (Discrete P.S. Shelf)

For the NT3X45DA and NT3X45DW frames, provide two (2) metres of R0109503 wire if the following Product Change Kit has not been previously applied:

NT3X45DN CPM Program Store Increase from 1.92 to 2.0 Megawords

RULES:

AP 1) When PEC NT3X45EY is ordered, these items are provided.

RUL1 1) Remove 4K ROM Extender CP, NT1X53__ if it is equipped.

RUL2 1) Provide two (2) Processor Maintenance CP, NT1X48DA for local processor maintenance. If remote processor maintenance feature is selected, provide two (2) Remote Control Processor Maintenance CP, NT1X48CA. Note: NT1X48CA Remote Control Processor Maintenance CP may already have been equipped. Change kit NT3X45DS provides the NT1X48CA CP.

RUL3 1) Provide one (1) designation label for each of NT1X48CA, NT1X48DA, NT1X46DA, NT1X46EA, NT1X49DA, NT1X51DA and NT1X50DA CP provided.

RUL4 1) Provide FIller Face Plate, NT0X50BA in slot 12 of shelf 51 if it has not been previously equipped.

RUL5 1) Provide two (2) (one per plane) NT1X46DA Processor 8 KW ROM CP.

2) When the Autoload Route Enhancement feature is required, provide two (2) NT1X46EA circuit packs instead of the two (2) NT1X46DA circuit packs.

RUL6 1) For offices equipped with data store memory on a MEX frame, provide two (2) (one per plane) NT1X50DA Balanced Data Port Extender to replace NT1X50AA/AB/BB Balanced Data Port Extender CP.

For offices not equipped with data store memory on a MEX frame, provide two (2) (one per plane) NT1X49DA Unbalanced Data Port Extender to replace the NT1X49AA/BA Unbalanced Data Port Extender.

PROVISIONING TABLE FOR PRODUCT CHANGE KITS ON CCC FRAMES

PEC CODE: T_CCC_KITS

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This section lists the change kits available for upgrading firmware, memory and circuit pack requirements for CCC frames.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

T CCC KITS EMR4-99-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

This table shown which product change kits are provisionable on which frames. Included in the table is a note number which refers to the note section where further information about the product change kit can be found. The following sections contain detailed information on each kit. These sections are labelled according to the last two letters of the PEC. For example, NT3X45DG is found in section EMA4-99-DG. These sections are to be read before ordering the change kit.

CCC FRAME CODE

PRODUCT CHANGE KIT	0X41AC	0X41AJ	3X45AA	3X45CA	3X45DA	3X45DW
NT3X45DC	1	1	1	1		
NT3X45DD	2	2	2	2		
NT3X45DE	3	3	3	3		
NT3X45DF	4	4	4	4		
NT3X45DG			5	5		
NT3X45DH	6	6	6	6		
NT3X45DJ	7	7	7	7		
NT3X45DK					16	
NT3X45DL	22	22	22	22		
NT3X45DM	17	17	17	17		
NT3X45DN					8	
NT3X45DP					9	
NT3X45DQ	10	10	10	10		
NT3X45DR			11	11		
NT3X45DS				12	12	
NT3X45EC					13	
* NT3X45EM	14	14	14	14	14	
NT3X45EN					18	
NT3X45EP			19	19		
NT3X45EQ			20	20		
NT3X45ER			21	21		
NT3X45ES	15	15	15	15	15	
NT3X45ET	23	23				
NT3X45EY	24	24	24	24	24	24

MEX FRAME CODE

PRODUCT CHANGE KIT	NT0X41AB	NT0X41AK	NT3X45AB	NT3X45CB	NT3X45DB
NT3X45DH	6	6	6	6	
NT3X45DJ	7	7	7	7	
NT3X45EN					18
NT3X45ER			21	21	
NT3X45ET	23	23			

* MD. Replaced by NT3X45EY.

NOTES: 1) Provide one kit per CCC when office is updated to BCS-10 software.

2) Provide one kit per CCC when processor real time capacity enhancement is required.

Before this kit can be provided, office must be equipped with BCS-10 or compatible software and NT3X45DC firmware change kit.

3) Provide one kit per CCC when second shelf of program store (PS01) is to be expanded with NT3X93AA (256 KW MEM) circuit packs.

4) Provide one kit per CCC when single shelf program store (PS00) is to be expanded with NT3X93AA (256 KW MEM) circit packs.

5) Provide one kit per CCC when processor (CPM) shelf, already equipped with program store memory, is to be expanded with NT3X93AA (256 KW MEM) circuit packs.

6) Provide one kit per pair of CCC or MEX frames (plane 0, plane 1) when last (highest numbered) data store shelf is to be expanded with NT3X93AA (256 KW MEM) circit packs.

7) Provide one kit pr pair of CCC or MEX frames (plane 0, plane 1) when second last data store shelf is to be exanded with NT3X93AA (256 KW MEM) circuit packs.

Note that this change can be applied to the third last shelf etc., on the condition that all higher numbered data store shelves must have all 64 KW (NT3X40AA/BA) circuit packs removed when this kit is applied.

8) Provide one kit per NT3X45DA when program store memory requirements exceed 1.92 megawords.

Office must be equipped with BCS-13 or later software. If office has not previously been equipped with NT3X45DK kit, it will not have to be specified in order to provide BCS-15/16 software compatibility and 8 MW + data store capability. This will automatically be provided by the firmware on NT1X46CC circuit pack supplied in the NT3X45DN kit. Note that 8 MW + data store capability will not be available unless office software is updated to BCS-14 or later.

9) Provide one kit per NT3X45DA when program store memory requirements exceed 2.0 megawords.

When NT3X45DP kit is provided, office must be equipped with

1) NT3X45DN change kit and
2) BCS-16 or later software.

10) Provide one kit per CCC when program store memory (discrete shelves) is to exceed 2.0 megawords (per plane).

Office must be equipped with BCS-13 or later software and NT3X45DD processor enhancement kit (if not previously equipped). For offices equipped with one shelf of program store (per plane) NT3X45DF single mixed memory change kit must be provided if not previously equipped. Provision memory per MS3X45DF. For offices equipped with two shelves of program store (per plane) NT3X45DE two shelf mixed memory change kit must be provided if not previously equipped. Provision memory per MS3X45DE.

Since NT3X45DQ kit provides NT1X46CC circuit pack, if office has not previously been equipped with an NT3X45DL or NT3X45DM change kit, the NT3X45DL or NT3X45DM does not need to be specified. The firmware contained in NT1X46CC circuit pack will provide BCS-15/16 software compatibility and 8 MW + data store capability. Note that 8 MW + data store capability will not be available unless office software is updated to BCS-14 or later.

11) Provide one kit per CCC when CPM program store memory required is up to 3.0 megawords (per plane).

Office must be equipped with BCS-13 or later software and NT3X45DD processor enhancement kit (if not previously equipped). NT3X45DG CPM mixed memory change kit must be provided if not previously equipped. Provision memory per MS3X45DG. Since NT3X45DR kit provides NT1X46CC circuit pack, if office has not previously be equipped with NT3X45DL or NT3X45DM change kits, the NT3X45DL or NT3X45DM does not need to be specified. The firmware contained in the NT1X46CC cicuit pack will provide BCS-15/16 software compatibility and 8 MW + data store capability. Note that 8 MW + data store capability will not be available unless office softwareis updated to BCS-14 or later.

12) Provide one kit per CCC when remote surveillance and control via WE E2A scanner is required. Office must be equipped with BCS-14 or later software.

13) Provide one kit per MS3X45DA when program store up to a maximum of eight megawords is required (per plane). Offices already equipped with the NT3X45DP and/or NT3X45DN product change kits still require the NT3X45EC change kit when adding NT4X80AA 1 MW Memory Circuit pack. Offices must be equipped with BCS-18 software.

14) Provide one kit per CCC when CPU capacity enhancement is required (per plane).

    Office must be equipped with BCS-18 or later software load and wiring changes per PC3X45DN (as indicated in PC3X45EM).

    Manufacture Discontinued, replaced by NT3X45EY. (See Section 44C-99-EM for further information on NT3X45EM).

15) Provide one kit per CCC when stratum II clock interface is required. Office must be equipped with BCS-20 or later software.

    This change kit only provides wiring and circuit packs (NT3X15DA) for interface to the new stratum II oscillators (NT3X16AA) mounted on the stratum II oscillator shelf (NT3X95AA) located on IOE frame (NT0X43AD) and provided separately.

16) Provide one kit per NT3X45DA when office is to be updated to BCS-15 or BCS-16 software or when office data store is to exceed eight megawords (per plane).

    Office must be equipped with BCS-13 or later software. If office has not previously been equipped with NT3X45DK kit, it will not have to be specified in order to provide BCS-15/16 software compatibility and 8 MW + data store capability. This will automatically be provided by the firmware on NT1X46CC circuit pack supplied in the NT3X45DN kit. Note that 8 MW + data store capability will not be available unless office software is updated to BCS-14 or later.

17) Provide one kit per CCC when office data store is to exceed eight megawords (per plane).

    Office must be equipped with BCS-13 or later software and NT3X45DD processor enhancement kit (if not previously equipped). NT3X45DG CPM mixed memory change kit must be provided if not previously equipped. Provision memory per MS3X45DG. Since NT3X45DR kit provides NT1X46CC circuit pack, if office has not previously been equipped with

NT3X45DL or NT3X45DM change kits, the NT3X45DL or NT3X45DM does not need to be specified. The firmware contained the NT1X46CC circuit pack will provide BCS-15/16 software compatibility and 8 MW + data store capability. Note that 8 MW + data store capability will not be available unless office software is updated to BCS-14 or later.

18) Provide one kit pr CCC or MEX when data store up to a maximum of 15.75 megawords is required (per plane).

19) Provide one kit per CCC when office program store with memory in CPM requires program store memory in the range 1.25 to 8.0 MW and NT4X79AA controller is to be used with NT4X80AA/NT3X93AA mix.

    Office must be equipped with BCS-18 or later software load and wiring change per PC3X45DD and PC3X45DQ must also be provided (as indicated in PC3X45EM).

    This change kit expands program/data store memory by means of mixed memory using the NT3X79AA 16 MW memory controller CP with NT4X80AA 1 MW memory CP and NT3X93AA 256 KW memory CP. Maximum program store memory = 8.0 MW, maximum data store memory = 15.75 MW (each per plane).

20) Provide one kit per NT3X45CA when office program store with memory in discrete shelves requires memory in the range of 1.0 to 8.0 MW and NT4X79AA controller is to be used with NT4X80/NT3X93AA mix.

    Office must be equipped with BCS-18 or later software load and wiring change per PC3X45DD and PC3X45DQ must also be provided (as indicated in PC3X45EM).

    This change kit expands program/data store memory by means of mixed memory using the NT4X79AA 16 MW memory controller CP with NT4X80AA 1 MW memory CP and NT3X93AA 256 KW memory CP. Maximum program store memory = 8.0 MW, maximum data store memory = 15.75 MW (each per plane).

21) Provide one kit per NT3X45CA when data store memory is required in the range of 1.0 MW to 15.75 MW and NT4X79AA controller is to be used with NT4X80AA/NT3X93AA mix.

    Office must be equipped with BCS-18 software or later at time of application of this kit.

    This change kit expands program/data store memory by means of mixed memory using the NT4X79AA 15.75 MW memory control-

ler CP with NT4X80AA 1 MW memory CP and NT3X93AA 256 KW memory CP. Maximum program store memory = 8.0 MW, maximum data store memory = 15.75 MW (each per plane).

22) Provide one kit per CCC when office is to be updated to BCS-15 or BCS-16 software.

Office must be equipped with BCS-13 or later software and NT3X45DD processor enhancement kit (if not previously equipped). For offices equipped with one shelf of program store (per plane) NT3X45DF single mixed memory change kit must be provided if not prevously equipped. Provision memory per MS3X45DF. For offices equipped with two shelves of program store (per plane) NT3X45DE two shelf mixed memory change kit must be provided if not previously equipped. Provision memory per MS3X45DE.

Since NT3X45DQ kit provides NT1X46CC circuit pack, if office has not previously been equipped with an NT3X45DL or NT3X45DM change kit, the NT3X45DL or NT3X45DM does not need to be specified. The firmware contained in NT1X46CC circuit pack will provide BCS-15/16 software compatibility and 8 MW + data store capability. Note that 8 MW + data store capability will not be available unless office software is updated to BCS-14 or later.

23) PC Kit, NT3X45ET equips the old CCC and MEX frames (NT0X41 vintage) for application of 1 MWord Memory Cards to data store.

This is accomplished by providing a new NT3X32__ DS shelf in an unequipped frame position (U.S.) or by replacing the last existing DS shelf (NT3X31__) on the MEX frame with a new (NT3X32__) DS shelf (Canada) that will support the new memory cards. When provisioning this kit, also order LWJ/SRJ drawings for the installer.

24) PC Kit NT3X45EY allows the application of the 40 MHz CPU to the older vintage of CCC frames. This change was previously applied with product change kit NT3X45EM which has now been Manufacture Discontinued.

MEMORY PROVISIONING CONSIDERATIONS

PEC CODE: T_MEMORY

RATING: MD

REPLACED BY: No Replacement

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This section details the provisioning considerations related to the engineering of additional memory on the CCC frame. This section is organized by CCC frame vintage and is intended to step the engineer logically through all change kit / memory milestones to achieve the desired store for the frame vintage selected.

REFERENCE DOCUMENTATION: N/A

ISSUE AUTHOR: NTI: Bob Belvin DEPT. 3471 (PPK)

MAIN CONTACT: NTI: Jerry Palmer Dept. 3471 (PPK)

T MEMORY EMR4-99-001 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-- -- -- 95 09 18	--- --- -- ECM 580 02	Previous history not available. MD entire NT40 product line per ECs 018-42794, 018-43569, 018-44097, 018-45275, 018-45338, 018-42385.

The Memory Provisioning Considerations is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Central Control Complex	NT0X41AC					RUL1
Central Control Complex	NT0X41AJ					RUL1
Central Control Complex equipped with MEX NT0X41AB	NT0X41AC					RUL2
Central Control Complex equipped with MEX NT0X41AK	NT0X41AJ					RUL2
Central Control Complex	NT3X45AA					RUL3
Central Control Complex	NT3X45CA					RUL3
Central Control Complex equipped with MEX NT3X45AB	NT3X45AA					RUL4
Central Control Complex equipped with MEX NT3X45CB	NT3X45CA					RUL4
Central Control Complex	NT3X45DA					RUL5
Central Control Complex	NT3X45EA					RUL6

NOTES

1. LAST SLOT RULE

ONLY FOR MIXED MEMORY with 64k and 256k cards.

Only the last shelf (highest addresses) of either program store or data store can have mixed memory.

THE LAST SLOT (highest address) - slot 21 cannot be used (due to NT3X94AA controller addressing problems) when both 64k and 256k cards are on the same shelf.

2. THREE TECHNOLOGIES

The three technologies of memory (i.e. 64k, 256k, 1MW) can be mixed as long as:

a. The technology runs from lowest (64K) in the lowest data store address to the highest (1 MW) in the highest data store address.

b. Only the last shelf can have mixed memory and this can be only be of type 256k and 1 Megaword cards.

3. "E" SERIES KIT RULES (i.e. NT3X45EC, EN, EP, EQ, ER ,ET kits)

Follow these guidelines when provisioning any "E" series change it.

a. All previous change kits which apply to that frame type must have been previously installed. If they have not been previsioned then do so before applying any "E" series kit.

b. The NT1X46CD card (8k ROM circuit pack) must have been previously provisioned or must be provisioned with any "E" series kit.

4. DATA STORE PROVISIONING- 192 64k equivalent boundary

When provisioning data store, the 192 64k equivalent boundary (12 Meg) cannot be exceeded using the NT3X94AA 4 Megaword controller. When provisioning over the 192 64k equivalent boundary, the office must be equiped with the NT4X79AA 16 Megaword controller. Provide NT4X79AA's (one per plane) as required with spare using the appropriate NT3X45 "E" series type change kit.

5. OFFICES with a 40 Megahertz clock

For any office configuration with a 40 MHz clock, the following rules apply: .

a. The 40 Megahertz clock provides cards which are totally downward compatible and are capable of all of the functions of the 36 MHz clock cards. (Note: these cards, the 1X43 through the 1X51 all have a DA suffix PEC code)

b. Therefore no further CPU type change kit need be (can be) applied to that office (e.g. 3X45DD, DN, DQ, DR). Memory shelf change kits (i.e. memory controller upgrades) are still required.

6. Provide DESIGNATION LABELS for every circuit pack supplied.

7. Provide SPARES for all circuit packs and back plane terminators. (i.e. NT3X4302, NT3X4309)

8. Provide FILLER FACE PLATES for all unused memory slots.

RULES

RUL1 Frames NT0X41AC, NT0X41AJ

Program Store

One Shelf of Program Store Per Plane - NT3X31AA On Frame Position 32

a) Assumed that NT3X45DG change kit has already been provisioned to allow mixed memory (NT3X40AA's and NT3X93AA's) on same shelf.

b) For PS greater than 30 64K equivalents provision NT3X45DD and NT3X45DQ for processor real time enhancement.

c) Exhaust limit of 16 256K cards per plane (64 64K equivalents). Note: Last Slot Rule

d) No change kits presently available to increase program store greater than 64 64K equivalents per plane.

Two Discrete Program Store Shelves Per Plane
2 * NT3X31AA - Frame Positions 18 and 32

a) For PS less than or equal to 30 64K equivalents no change kits are required.

b) For PS greater than 30 64K equivalents provision kits NT3X45DD and NT3X45DQ for processor real time enhancement.

c) For PS greater than 32 64K equivalents provision NT3X45DE allowing mixed memory NT3X40AA's and NT3X93AA's on second shelf only (Shelf 18).

Note: Last Slot Rule.

d) Exhaust limit of 80 64K equivalents per plane (i.e. 16 256K cards on shelf 18 and 16 64K cards on shelf 32).

4KW RAM Stack

Prior to an office receiving BCS-24 or later, the NT0X41AC/NT0X41AJ CCC must be equipped with the 4 KW Processor RAM Stack CP, NT1X44BB or NT1X44DA. These cards may hae been provisioned by one of the following PC kits NT3X45DD,EP,EQ,ER,ET,EM or EY. If the office does not have any

of these PC kits, provision one (1) NT3X44DD Central Processor Real Time Enhancement Change Kit to upgrade the CCC frame for the application of BCS-24 or later.

RUL2 Frames NT0X41AC, NT0X41AJ using NT0X41AB, NT0X41AK MEX Frames.

DATA STORE

ALL SHELVES CURRENTLY WITH ONE MEMORY TYPE - NT3X40AAs, 64 k Packs

a. To increase data store provision NT3X45DJ to allow mixed memory (NT3X40AAs and NT3X93AAs) on last data store shelf.

b. Provision NT3X93AAs until last shelf is full.

Note: Last Slot Rule

ONE OR MORE SHELVES PROVISIONED WITH NT3X93AAs

a. To add data store provision NT3X45ET in last shelf to allow mixed memory NT3X93AAs and NT4X80AAs. This kit consists of a shelf retrofit replacing the existing data store shelf NT3X31AB with a NT3X32AA. The NT3X32AA shelf is required since the NT3X31AB shelf does not support the NT4X80AA memory card or the NT4X79AA controller.

Note: "E" Series kit rules, Three Technologies.

b. Provision NT4X80AAs until data store limit of 16 meg is reached. (i.e 264 64k equivalents)

RUL3 Frames NT3X45AA, NT3X45CA

Program Store

ONE SHELF OF PROGRAM STORE PER PLANE - NT3X32AA ON FRAME POS 32

a. Assumes NT3X45DF kit provisioned in order to mix NT3X40AA’s and NT3X93AA’s on the same shelf.

b. For PS > 30 64k equivalents, provision NT3X45DD and NT3X45DQ for processor real time enhancement.

c. Exhaust limit of 16 256k cards per plane (i.e. 64 64k equivalents, or 4 Megawords). Note: Last SLot Rule

d. For PS > 64 64k equivalents, provision NT3X45EQ to mix NT3X93AAs and NT4X80AAs on the same shelf. This allows PS to grow to the maximum of 128 64k equivalents (8 Megawords)

Note: "E" Series Kits.

MEMORY ON CPM SHELF ALONG WITH DISCRETE PROGRAM STORE SHE LF NT3X32AA - SHELF POS 32

a. For PS less than or equal to 24 64k equivalents, no change kits are required (16 NT3X40AA's on shelf 32 and 8 NT3X40AA's on CPM shelf).

b. For PS > 24 64k equivalents, provision NT3X45DG kit. This allows mixed memory NT3X40AAs and NT3X93AAs on the CPM shelf.
(Highest Address of Program Store)

c. For PS > 30 64k equivalents, add NT3X45DR and NT3X45DQ kits for processor real time enhancement.

d. The configuration of "B" & "C" allows a maximum of 48, 64k equivalents. (i.e. 16 64k cards on discrete shelf and 8 256k cards, on the CPM shelf.) Note: Last Slot Rule (applies to CPM shelf as well)

e. For Program Store > 48 64k equivalents.

OPTION #1. Provision the NT3X45DE change kit

This allows provisioning of 256k cards on the discrete program store shelf. To install the 256k cards on the discrete shelf, all 64k cards must be removed from the discrete shelf and all 256k cards must be removed from the CPM shelf. Provision to the discrete shelf (lowest address's) until the shelf is full , then the CPM shelf (highest address's) can be provisioned . Be sure to provide filler face plates at this point to fill the CPM shelf. The final configuration will allow a maximum of 24 256k cards or 96 64k equivalents.

For PS > 96 64k equivalents, provision the NT3X45EP kit. This allows mixed memory on the CPM shelf (NT3X93AAs and NT4X80AAs). With this configuration Program Store will be

able to grow to the maximum of 128 64k equivalents. (8 Megawords)
Note: "E" Series Kit rules

OPTION #2. Provision the NT3X45EQ change kit

This allows mixed memory (NT3X93AAs and NT4X80AAs) on the the discrete PS shelf. All memory on the CPM shelf will be removed permanently. The CPM shelf should be filled with filler face plates. Then provision mixed memory of NT3X93AAs and NT4X80AAs as required until limit of 128 64k equivalents is reached.
Note: Three Technologies.

RECOMMENDED OPTION - OPTION #2

TWO DISCRETE PROGRAM STORE SHELVES PER PLANE 2 * NT3X32AA - FRAME POSITIONS 18 AND 32

a. For PS less than or equal to 30 64k equivalents, no change kits are required.

b. For PS > 30 64k equivalents, provision NT3X45DD and NT3X45DQ kits for processor real time enhancement.

c. For PS > 32 64k equivalents, provision NT3X45DE allowing mixed memory (NT3X40AAs and NT3X93AAs) on second shelf only. (shelf 18) This will allow program store to expand to 80 64k equivalents (i.e. 16 64k cards on shelf 32 and 16 256k cards in shelf 18) Note: Last Slot Rule.

d. For PS > 80 64k equivalents, order the NT3X45EQ kit to allow mixed memory (NT3X93AAs and NT4X80AAs) on the second discrete program store shelf. (Shelf 18)
Note: "E" Series Kit rules, Three technologies.

e. This will allow program store to expand to the limit of 8 megawords (i.e. 128 64k equivalents)

4KW RAM Stack

Prior to an office receiving BCS-24 or later, the NT0X41AC/NT0X41AJ CCC must be equipped with the 4 KW Processor RAM Stack CP, NT1X44BB or NT1X44DA. These cards may hae been provisioned by one of the following PC kits NT3X45DD,EP,EQ,ER,ET,EM or EY. If the office does not have any

of these PC kits, provision one (1) NT3X44DD Central Processor Real Time Enhancement Change Kit to upgrade the CCC frame for the application of BCS-24 or later.

RUL4 FRAMES NT3X45AA, NT3X45CA with NT3X45AB, NT3X45CB Mex frames *

DATA STORE

ALL SHELVES CURRENTLY WITH ONE MEMORY TYPE - NT3X40AAs

a. To increase data store provide the NT3X45DJ kit to allow mixed memory NT3X40AAs and NT3X93AAs on last data store shelf.
Note: Last Slot Rule

b. Provision NT3X93AAs until shelf is full. Exhaust limit of 16 256k cards (4 Megawords)

ONE OR MORE SHELVES PROVISIONED WITH NT3X93AAs

a. To add data store provision NT3X45ER to allow mixed memory (NT3X93AAs and NT4X80AAs) on last data store shelf.
Note: Three Technologies, "E" Series kit rules

b. Provision NT4X80AAs until maximum data store limit of 16 meg is reached. (i.e. 256 64k equivalents)

RUL5 FRAME NT3X45DA

PROGRAM STORE

a. For PS less than or equal to 30 64k equivalents, no change kits are required.

b. For PS > 30 64k equivalents provision the NT3X45DN kit for program store port expansion. This allows a maximum of 8 256k cards. (32 64k equivalents)

c. For PS > 32 64k equivalents provision NT3X45EC kit to allow mixed memory (NT3X93AAs and NT4X80AAs) until exhaust limit of 128 64k equivalents is reached. (8 Megawords)
Note: "E" Series Kit rules

Note: Some offices are currently provisioned with 7, 256k cards and 1 , 1 Megaword card in program store (i.e. 44 64k equivalents) without using the NT3X45EC kit. (which

provides the 16 MEG NT4X79AA controller) This was done using a now MD'd change kit, the NT3X45DP kit which supplied a single NT4X80AA using the 4 Megaword NT3X94AA controller. This was a stop gap measure to allow for the expansion of program store before the NT4X79AA controller was available.

Therefore, in order to further increase PS in these offices, the NT3X45EC kit must be provisioned (along with any additional NT4X80AA's required)

DATA STORE

a. To increase data store provision NT3X45EN to allow mixed memory of NT3X93AAs and NT4X80AAs on last data store shelf 18 ONLY This will allow data store to expand to the maximum of 16 Megawords. (i.e. 256 64k equivalents)
Note: "E" Series Kit rules

RUL6 Frame NT3X45EA

Program Store

a. No change kits required. Provision NT4X80AAs as required.

Data Store

a. No change kits required. Provision NT4X80AAs as required.

EMR5

INPUT/OUTPUT SUBSYSTEMS CHAPTER ALL

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INPUT/OUTPUT SUBSYSTEMS CHAPTER ALL

EMR5-01-BMCA-2	REDUNDANT BMC AMA LSSGR, HDLC LAP B, PSE	NT8M04_D
EMR5-01-BMCA-3	REDUNDANT BMC AMA LSSGR, HDLC ADU, PSEUD	NT8M04_F
EMR5-01-BMCD-1	BILLING MEDIA CONVERTER DEUCE SMDR BISYN	NT8M04_G
EMR5-01-BMCD-2	BILLING MEDIA CONVERTER DEUCE SMDR ASCII	NT8M04_L
EMR5-01-DDU-1	DISK DRIVE UNIT SHELF	NT4X00AA
EMR5-01-DDU-2	DISK DRIVE UNIT SHELF	NT4X00AB
EMR5-01-DDU-3	DISK DRIVE UNIT SHELF NT	NT4X00AC
EMR5-01-DDU-4	DUAL DISK DRIVE UNIT SHELF	NT4X00AF
EMR5-01-DPP-2	DISTRIBUTIVE PROCESSING PERIPHERAL	NT6M01AB
EMR5-01-DSM-1	DATA SET MODULE	NT1X60AA
EMR5-01-DSM-2	DATA SET MODULE SHELF	NT1X60AB
EMR5-01-DSM-7	DATA SET MODEM SHELF	NT5X09AA
EMR5-01-IOC-1	I/O CONTROLLER MODULE	NT1X61AA
EMR5-01-IOC-2	INPUT/OUTPUT CONTROLLER MODULE	NT1X61AB
EMR5-01-IOC-3	INPUT/OUTPUT CONTROLLER COMMON CP FILL	NT1X61AC
EMR5-01-IOC-4	INPUT/OUTPUT CONTROLLER MODULE	NT1X61AD
EMR5-01-IOC-5	INPUT/OUTPUT CONTROLLER COMMON CP	NT1X61AE
EMR5-01-ROS-1	REMOTE OSCILLATOR DMS-CORE SHELF	NT3X95BA
EMR5-01-ROS-2	STRATUM II OSCILLATOR SHELF	NT3X95AA
EMR5-01-000	MAG TAPE CENTRE FRAME	NT0X43AA
EMR5-01-001	MAG TAPE CENTRE FRAME	NT0X43AB
EMR5-01-002	MAG TAPE CENTRE FRAME	NT0X43AC
EMR5-02-DRS-1	DATA UNIT RACKMOUNT SHELF	NT4X25BH
EMR5-02-DRS-2	RACKMOUNT DATA UNIT SHELF	NT4X25DH
EMR5-02-000	#6 SIGNALLING EQUIPMENT FRAME	NT5X08AA
EMR5-02-001	#6 SIGNALLING EQUIPMENT FRAME	NT5X08AB
EMR5-02-002	MODEM EQUIPMENT FRAME	NT0X43BA
EMR5-99-CLC-1	PRODUCT CHANGE KIT	NTRX30ZA
EMR5-99-DDU-1	14 INCH DDU ENHANCEMENT	NT4X00AY
EMR5-99-IOC-1	INPUT/OUTPUT CONTROLLER PRODUCT CHANGE K	NT1X61AX

REDUNDANT BMC AMA LSSGR, HDLC LAP B, PSEUDO

PEC CODE:	NT8M04_D
CPC CODE:	N/A
RATING:	MD
REPLACES:	Not Applicable
REPLACED BY:	Not Applicable
ABBREVIATION NAME:	BMCA
ENGINEERING DESCRIPTION:	The NSD Redundant Billing Media Converter II for Automatic Message Accounting (AMA), provides for the acquisition, storage, formating, and forwarding of AMA data from the switch. In operation, the BMCA accepts AMA data from the DMS100F, temporarily stores the collected data on hard disk, and when requested, retrieves, reformats, and sends the stored data to the Host Collector.
REFERENCE DOCUMENTATION:	N/A
MARKETS:	Applicable markets: US Canada

ISSUE AUTHOR: NTI Barbara Berkley Dept. 3471 (PPK)

MAIN CONTACT: NTI Barbara Berkley Dept. 3471 (PPK)

NT8M04 D EMR5-01-BMCA-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
92 12 14	ECM 202 08	Updates this section per the following: - Cook ECO #70532 DTD: 910421 Add 380MB DDU Option For The NT8M04_D Series BMC. - ET-14369 Replace NT6M72AD and NT6M66AC with NT6M72AE and NT6M66AL Respectively per Cook ECO 70573. - Change all references to Cook/Cook Division to NSD
94 10 21	ECM 202 11	Engineering Action where an SAE tried to order NT8M04DD. This BMC, however, should not have been included in the rules since the Cook ECO # 70532 to introduce this version was rejected by CRB 5/17/91.
97 04 23	ECM 202 18	Several BMC units are MD'd per ECD 024-97670, this EMS is retired as a result of those products being MD'd.

The Redundant BMC AMA LSSGR, HDLC Lap B, Pseudo is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Hardware Unit BMCA EMC	NT8M54AD		1	X		AP
CPU PCB	NT6M62BA		1	X	1A1	AP
EPROM PCB	NT6M63CD		1	X	1A2	AP
Memory Expansion PCB	NT6M64AA		1	X	1A3	AP
Error Control PCB	NT6M65AB		1	X	1A5	AP
Quad Serial I/O PCB	NT6M60BA		2	X	1A6,	AP
				X	1A7	AP
Disk Interface PCB	NT6M66AL		1	X	1A11	RUL6
Disk Interface PCB	NT6M66AH		1	X	1A11	RUL6
Data Stream Interface PCB	NT6M70AB		1	X	1A12	AP
Data Stream Interface PCB	NT6M70AB		1	X	1A13	AP
Bus Terminator PCB	NT6M68AA		1	X	1A14	AP
Disk Crossover PCB	NT6M72AE		1	X	1A15	AP
PWR/ALM Communications PCB	NT6M84BA		1	X	1A16	AP
4-Chan Communications PCB	NT6M85AA		1	X	1A17	AP
Fan Assembly	NT6M55DD		1	X	1A18	AP
Fan Foam Filter	680-7859		-	X	1A18	AP
Switch & Status Panel	NT8M59AA		1	X	1A19	AP
Power Supply Assembly	NT6M71AB		1	X	1A20	AP
72MB Disk Drive Unit	NT6M72AA		1	X	1A21	RUL5
140MB Disk Drive Unit	NT6M72BA		1	X	1A21	RUL5
30MB Disk Drive Unit	NT6M72CA		1	X	1A21	RUL5
380MB Disk Drive Unit	NT6M72DA		1	X	1A21	RUL5
Disk Controller PCB	680-9143		-	X	1A21	AP
4-Chan Communications PCB	NT6M85AA		1	X	1A26	AP
CPU PCB	NT6M62BA		1	X+14	2A1	AP
EPROM PCB	NT6M63CD		1	X+14	2A2	AP
Memory Expansion PCB	NT6M64AA		1	X+14	2A3	AP
Error Control Jumper PCB	NTM609AB		1	X+14	2A5	AP
Quad Serial I/O PCB	NT6M60BA		2	X+14	2A6,	AP
				X+14	2A7	AP
Disk Interface PCB	NT6M66AL		1	X+14	2A11	RUL6
Data Stream Interface PCB	NT6M70AB		1	X+14	2A12	AP
Data Stream Interface PCB	NT6M70AB		1	X+14	2A13	AP
Bus Terminator PCB	NT6M68AA		1	X+14	2A14	AP
Disk Crossover PCB	NT6M72AE		1	X+14	2A15	AP
Fan Assembly	NT6M55DD		1	X+14	2A18	AP
Fan Foam Filter	680-7859		-	X+14	2A18	AP
Filler Panel	NT8M59BB		1	X+14	2A19	AP
Power Supply Assembly	NT6M71AB		1	X+14	2A20	AP
72MB Disk Drive Unit	NT6M72AA		1	X+14	2A21	RUL5
140MB Disk Drive Unit	NT6M72BA		1	X+14	2A21	RUL5

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
30MB Disk Drive Unit	NT6M72CA		1	X+14	2A21	RUL5
Disk Controller PCB	680-9143		-	X+14	2A21	AP
Interface Box	NT6M98AA	A2	1			AP
Connector/Transformer Kit	NT6M96AA		2			AP
Mounting Adapter 19-26"	NT6M97AA		1			AP
BMCD MIN Kit W/30MB Opt D	NT8M94GD					RUL1
BMCD MIN Kit W/72MB Opt D	NT8M94AD					RUL1
BMCD MIN Kit W/O Disk Opt D	NT8M94BD					RUL1
BMCD MIN Kit W/140MB Opt D	NT8M94ED					RUL1
BMCD MAX Kit W/30MB Opt D	NT8M94HD					RUL1
BMCD MAX Kit W/72MB Opt D	NT8M94CD					RUL1
BMCD MAX Kit W/O Disk Opt D	NT8M94DD					RUL1
BMCD MAX Kit W/140MB Opt D	NT8M94FD					RUL1
AC Mounting Plate	NT0X07AU					RUL2
Duplex AC Outlet	ED351670G30					RUL2
KSR Printer						RUL3
Modem						RUL4
Administrative Information						

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) The "X" is used to indicate variable shelf mounting positions. The Redundant Billing Media Converters (those BMCs

which have the two shelf arrangement) shall be mounted in shelf position 51 only when mount on IOC 00 or 01. However, if mounted on IOE 02 and higher then the mounting position may be shelf position 18 or 51 if space is available or if this does not conflict with mounting a DDU. X+14 is used to indicate the second shelf of a two shelf arrangement.

2) The underline "_" in the PEC NT8M04_D must be substituted for one of three variables which are used to indicate the required Disk Drive Unit (DDU) size, where:

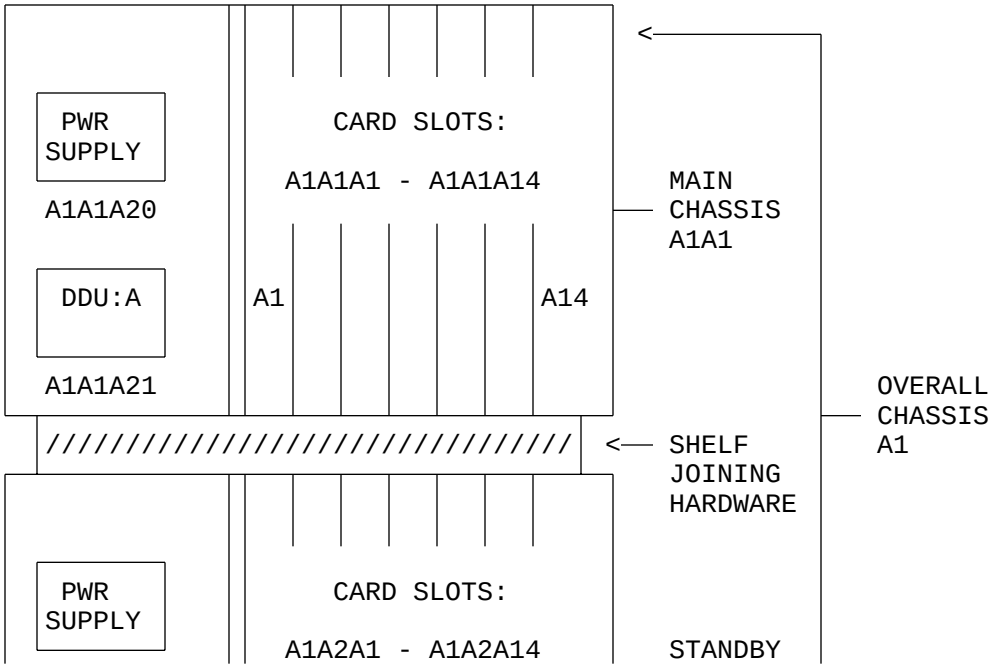
A = 72 Megabyte Disk Drive Unit, or
B = 140 Megabyte Disk Drive Unit, or
C = 30 Megabyte Disk Drive Unit

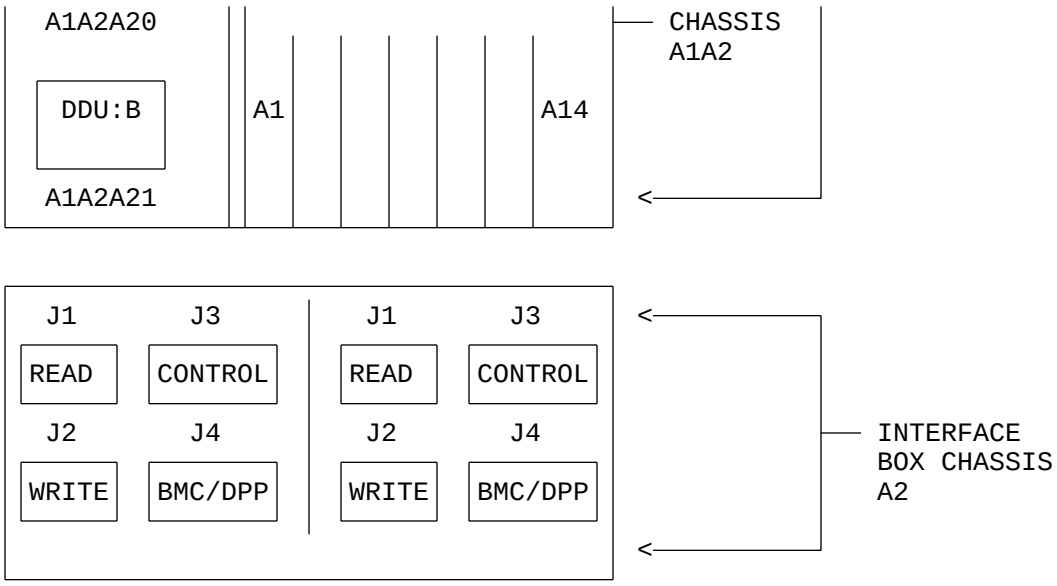
a) The resulting possibilities for the Redundant BMC PECs are:

NT8M04AD - BMCS w/72MB DDU LSSGR, HDLC Lap B, Pseudo
NT8M04BD - BMCS w/140MB LSSGR, HDLC Lap B, Pseudo
NT8M04CD - BMCS w/30MB LSSGR, HDLC Lap B, Pseudo *.par

3) See Table B I/O Controller Module Provisionable Cards for device controller card assignment rules.

4) The diagram below depicts the Redundant BMC architecture.





RULES:

RUL1 1) Provide the BMCA spares kits as per telco instructions.

RUL2 1) The BMCA is equipped with three crystal clocks which are used to provide time stamps for log messages. One is DC powered and is always active when the BMCA is powered. The other two may be powered from a 110VAC 60Hz signal or 8KHz signal. However, the 8KHz clock is not to be used the the DMS100F environment. When the 110VAC clock is connected it becomes the prime clock and the DC clock switches to the standby mode. If the 110VAC clock is not connected then the DC clock will provide the log message time stamps, however there is not a backup clock in this configuration.

2) Connecting this equipment as described below is optional; it should not be connected in ISG offices. Providing this equipment and connections would introduce a ISG violations.

3) If the commercial AC (non-generator) supply is required to drive the BMCA clock interrupt circuit in the Power & Alarm PCB. Provide one NT0X07AU (AC Mounting Plate) to accommodate the ED3516_30 Group (Duplex Outlet Box) and cabling provided by Building Studies. A 16 VAC stepdown transformer is always provided with the BMCA unit.

RUL3 1) Provide a KSR printer for installation, testing, and maintenance purposes.

RUL4 1) The BMCA employs two modems, one is used for the polling of call record data and another is for downloading of software.

CAUTION: UDS modems will not work properly with the BMCA Automatic Dial-Up (ADU) function and emergency software downloads.

2) The modems selected may be either Desk Set (DS) or Desk Set Card (DSC) Dial-Up modems, which operates at 12/24/4800 bps. The modem model numbers are 212, 201c, or 208A/B. These modems do not require autodial capabilities. Refer to the Engineering Manual Sections EMA13-01-UDS-1 for detailed engineering information for these modems.

3) The Maintenance Terminal Port baud rate can not exceed 1200bps. Therefore provide the 212 modem model only for this port.

RUL5 1) The DDU provided with the BMCA will be one of the following DDUs depending on the varible selected per NOTE 2 above.

NT6M72AA - 72MB DDU or, NT6M72BA - 140MB DDU, or NT6M72CA - 30MB DDU.

RUL6 1) The DDU interface PCB provided with the BMCA will be NT6M66AL - Disk Interface Controller for 30-140MB DDUs.

REDUNDANT BMC AMA LSSGR, HDLC ADU, PSEUDO

PEC CODE: NT8M04_F

CPC CODE:

RATING: MD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: BMCA

ENGINEERING DESCRIPTION: The NSD Redundant Billing Media Converter II for Automatic Message Accounting (AMA), provides for the acquisition, storage, formating, and forwarding of AMA data from the switch. In operation, the BMCA accepts AMA data from the DMS100F, temporarily stores the collected data on hard disk, and when requested, retrieves, reformats, and sends the stored data to the Host Collector.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US
Canada

ISSUE AUTHOR: NTI Barbara Berkley Dept. 3471 (PPK)

MAIN CONTACT: NTI Barbara Berkley Dept. 3471 (PPK)

NT8M04 F EMR5-01-BMCA-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
92 12 14	ECM 202 08	Updates this section per the following: - Cook ECO #70365 DTD: 900801 Add 380MB DDU Option For The NT8M04_F Series BMC. - ET-14369 Replace NT6M72AD and NT6M66AC with NT6M72AE and NT6M66AL Respectively per Cook ECO 70573. - Change all references to Cook/Cook Division to NSD
97 04 23	ECM 202 18	Several BMC units are MD'd per ECD 024-97670, this EMS is retired as a result of those products being MD'd.

The Redundant BMC AMA LSSGR, HDLC ADU, Pseudo is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Hardware Unit BMCA EMC	NT8M54AF		1	X		AP
CPU PCB	NT6M62BA		1	X	1A1	AP
EPROM PCB	NT6M63DE		1	X	1A2	AP
Memory Expansion PCB	NT6M64AA		1	X	1A3	AP
Error Control PCB	NT6M65AB		1	X	1A5	AP
Quad Serial I/O PCB	NT6M60BA		1	X	1A6	AP
Automatic Dial-UP (ADU) PCB	212744-107		1	X	1A8	AP
Disk Interface PCB	NT6M66AL		1	X	1A11	RUL6
Disk Interface PCB	NT6M66AH		1	X	1A11	RUL6
Data Stream Interface PCB	NT6M70AB		1	X	1A12	AP
Data Stream Interface PCB	NT6M70AB		1	X	1A13	AP
Bus Terminator PCB	NT6M68AA		1	X	1A14	AP
Disk Crossover PCB	NT6M72AE		1	X	1A15	AP
PWR/ALM Communications PCB	NT6M84BA		1	X	1A16	AP
4-Chan Communications PCB	NT6M85AA		1	X	1A17	AP
Fan Assembly	NT6M55DD		1	X	1A18	AP
Fan Foam Filter	680-7859		-	X	1A18	AP
Switch & Status Panel	NT8M59AA		1	X	1A19	AP
Power Supply Assembly	NT6M71AB		1	X	1A20	AP
72MB Disk Drive Unit	NT6M72AA		1	X	1A21	RUL5
140MB Disk Drive Unit	NT6M72BA		1	X	1A21	RUL5
30MB Disk Drive Unit	NT6M72CA		1	X	1A21	RUL5
380MB Disk Drive Unit	NT6M72DA		1	X	1A21	RUL5
Disk Controller PCB	680-9143		-	X	1A21	AP
4-Chan Communications PCB	NT6M85AA		1	X	1A26	AP
CPU PCB	NT6M62BA		1	X+14	2A1	AP
EPROM PCB	NT6M63DE		1	X+14	2A2	AP
Memory Expansion PCB	NT6M64AA		1	X+14	2A3	AP
Error Control Jumper PCB	NTM609AB		1	X+14	2A5	AP
Quad Serial I/O PCB	NT6M60BA		1	X+14	2A6	AP
Automatic Dial-UP (ADU) PCB	212744-107		1	X+14	2A8	AP
Disk Interface PCB	NT6M66AL		1	X+14	2A11	RUL6
Disk Interface PCB	NT6M66AH		1	X+14	2A11	RUL6
Data Stream Interface PCB	NT6M70AB		1	X+14	2A12	AP
Data Stream Interface PCB	NT6M70AB		1	X+14	2A13	AP
Bus Terminator PCB	NT6M68AA		1	X+14	2A14	AP
Disk Crossover PCB	NT6M72AE		1	X+14	2A15	AP
Fan Assembly	NT6M55DD		1	X+14	2A18	AP
Fan Foam Filter	680-7859		-	X+14	2A18	AP
Filler Panel	NT8M59BB		1	X+14	2A19	AP
Power Supply Assembly	NT6M71AB		1	X+14	2A20	AP
72MB Disk Drive Unit	NT6M72AA		1	X+14	2A21	RUL5

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
140MB Disk Drive Unit	NT6M72BA		1	X+14	2A21	RUL5
30MB Disk Drive Unit	NT6M72CA		1	X+14	2A21	RUL5
380MB Disk Drive Unit	NT6M72DA		1	X	2A21	RUL5
Disk Controller PCB	680-9143		-	X+14	2A21	AP
Interface Box	NT6M98AA	A2	1			AP
Connector/Transformer Kit	NT6M96AA		2			AP
Mounting Adapter 19-26"	NT6M97AA		1			AP
BMCA MIN Kit W/30MB Opt F	NT8M94GF					RUL1
BMCA MIN Kit W/72MB Opt F	NT8M94AF					RUL1
BMCA MIN Kit W/O Disk Opt F	NT8M94BF					RUL1
BMCA MIN Kit W/140MB Opt F	NT8M94EF					RUL1
BMCA MIN Kit W/380MB Opt F	NT8M94JF					RUL1
BMCA MIN Kit W/O 380DDU Opt F	NT8M94LF					RUL1
BMCA MAX Kit W/30MB Opt F	NT8M94HF					RUL1
BMCA MAX Kit W/72MB Opt F	NT8M94CF					RUL1
BMCA MAX Kit W/O Disk Opt F	NT8M94DF					RUL1
BMCA MAX Kit W/140MB Opt F	NT8M94FF					RUL1
BMCA MAX Kit W/380MB Opt F	NT8M94KF					RUL1
BMCA MAX Kit W/O 380DDU Opt F	NT8M94MF					RUL1
AC Mounting Plate	NT0X07AU					RUL2
Duplex AC Outlet	ED351670G30					RUL2
KSR Printer						RUL3
Modem						RUL4
Administrative Information						

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) The "x" is used to indicate variable shelf mounting positions. The Redundant Billing Media Converters (those BMCs which have the two shelf arrangement) shall be mounted in shelf position 51 only when mount on IOC 00 or 01. However, if mounted on IOE 02 and higher then the mounting position may be shelf position 18 or 51 if space is available or if this does not conflict with mounting a DDU. X+14 is used to indicate the second shelf of a two shelf arrangement.

2) The underline "_" in the PEC NT8M04_F must be substituted for one of three variables which are used to indicate the required Disk Drive Unit (DDU) size, where:

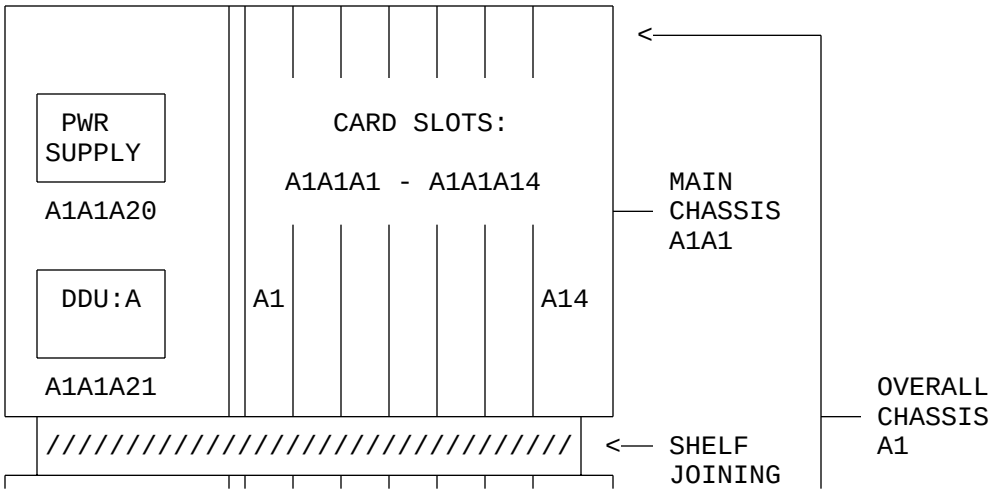
   A = 72 Megabyte Disk Drive Unit, or
   B = 140 Megabyte Disk Drive Unit, or
   C = 30 Megabyte Disk Drive Unit, or
   D = 380 Megabyte Disk Drive Unit.

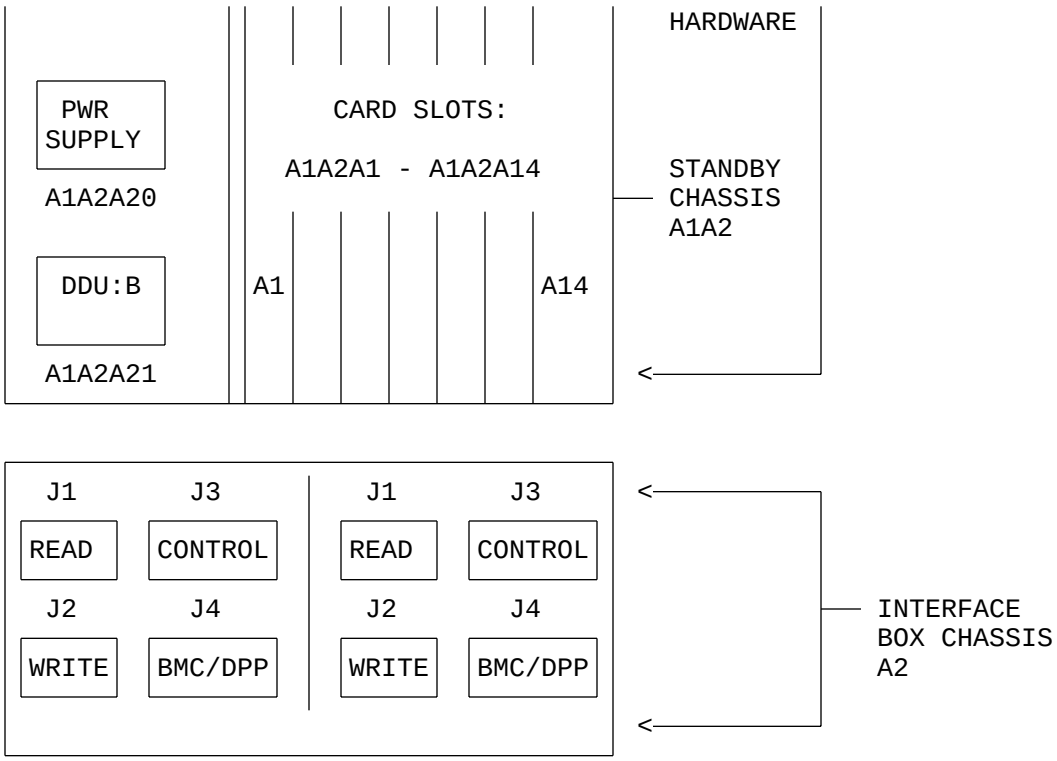
a) The resulting possibilities for the Redundant BMC PECs are:

   NT8M04AF - BMCA w/72MB DDU LSSGR, HDLC ADU, Pseudo
   NT8M04BF - BMCA w/140MB DDU LSSGR, HDLC ADU, Pseudo
   NT8M04CF - BMCA w/30MB DDU LSSGR, HDLC ADU, Pseudo
   NT8M04DF - BMCA w/380MB DDU LSSGR, HDLC ADU, Pseudo

3) See Table B I/O Controller Module Provisionable Cards for device controller card assignment rules.

4) The diagram below depicts the Redundant BMC architecture.





RULES:

RUL1 1) Provide the BMCA spares kits as per telco instructions.

RUL2 1) The BMCA is equipped with three crystal clocks which are used to provide time stamps for log messages. One is DC powered and is always active when the BMCA is powered. The other two may be powered from a 110VAC 60Hz signal or 8KHz signal. However, the 8KHz clock is not to be used in the DMS100F environment. When the 110VAC clock is connected it becomes the prime clock and the DC clock switches to the standby mode. If the 110VAC clock is not connected then the DC clock will provide the log message time stamps, however there is not a backup clock in this configuration.

2) Connecting this equipment as described below is optional; it should not be connected in ISG offices. Providing this equipment and connections would introduce a ISG violations.

3) If the commercial AC (non-generator) supply is required to drive the BMCA clock interrupt circuit in the Power & Alarm PCB. Provide one NT0X07AU (AC Mounting Plate) to accommodate the ED3516_30 Group (Duplex Outlet Box) and cabling provided by Building Studies. A 16 VAC stepdown transformer is always provided with the BMCA unit.

RUL3 1) Provide a KSR printer for installation, testing, and maintenance purposes.

RUL4 1) The BMCA employs two modems, one is used for the polling of call record data and the downloading of software, and another is used for the Automatic Dial-Up (ADU) function and emergency software downloads.

CAUTION: UDS modems will not work properly with the BMCA Automatic Dial-Up (ADU) function and emergency software downloads.

2) The modems selected may be either a Data Set (DS) or Data Set Card (DSC) Dial-Up modems, which operates at 12/24/4800 bps. The modem model numbers are 212, 201c, or 208A/B. These modems do not require autodial capabilities. Refer to the Engineering Manual Sections EMA13-01-UDS-1 for detailed engineering information for these modems.

3) The Maintenance Terminal Port baud rate can not exceed 1200bps. Therefore provide the 212 modem model only for this port.

RUL5 1) The DDU provided with the BMCA will be one of the following DDUs depending on the varible selected per NOTE 2 above.

NT6M72AA - 72MB DDU, NT6M72BA - 140MB DDU, NT6M72CA - 30MB DDU, or NT6M72DA - 380MB DDU.

RUL6 1) The DDU interface PCB provided with the BMCA will be one of the following PCBs, depending on the variable selected per NOTE #2 above:

NT6M66AL - Disk Interface PCB for 30-140MB DDU, or
NT6M66AH - Disk Interface PCB for 380MB DDU.

BILLING MEDIA CONVERTER DEUCE SMDR BISYNC

PEC CODE: NT8M04_G

CPC CODE:

RATING: MD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: BMCD

ENGINEERING DESCRIPTION: The NSD Billing Media Converter II Deuce for Station Message Detailed Recording (SMDR), provides for the acquisition, storage, formating, and forwarding of SMDR data from the switch for two Customer Groups. In operation, the BMCD accepts SMDR data from the DMS100F, temporarily stores the collected data on hard disk, and when requested, retrieves, reformats, and sends the stored data to the Host Collector.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US
Canada

ISSUE AUTHOR: NTI Barbara Berkley Dept. 3471 (PPK)

MAIN CONTACT: NTI Barbara Berkley Dept. 3471 (PPK)

NT8M04 G EMR5-01-BMCD-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
92 12 14	ECM 202 08	Updates this section per the following: - Cook ECO #70532 DTD: 910421 Add 38MB DDU Option For The NT8M04_D Series BMC. - ET-14369 Replace NT6M72AD and NT6M66AC with NT6M72AE and NT6M66AL Respectively per Cook ECO 70573. - Change all references to Cook/Cook Division to NSD
97 04 23	ECM 202 18	Several BMC units are MD'd per ECD 024-97670, this EMS is retired as a result of those products being MD'd.

The Billing Media Converter Deuce SMDR Bisync is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Hardware Unit BMCD EMC	NT8M54AG	A1	1	18,32 51,65		AP
	Connector/Transformer Kit	NT6M96AJ		1			AP
#	Mounting Adapter 19-26"	NT6M97AE		1			AP
	CPU PCB	NT6M62BA		1		A1	AP
	EPROM PCB	NT6M63CG		1		A2	AP
	Memory Expansion PCB	NT6M64AA		1		A3	AP
	Error Control PCB	NT6M65AH		1		A5	AP
	Quad Serial I/O PCB	NT6M60BA		1		A6	AP
	Disk Interface PCB	NT6M66AB		1		A11	AP
	Data Stream Interface PCB	NT6M70BF		1		A12	AP
	Bus Terminator PCB	NT6M68AA		1		A14	AP
	Disk Crossover PCB	NT6M72AE		1		A15	AP
	PWR/ALM Communications PCB	NT6M84BA		1		A16	AP
	4-Chan Communications PCB	NT6M85AA		1		A17	AP
	Fan Assembly	NT6M55DD		1		A18	AP
	Fan Foam Filter	NT6M56AB		-		A18	AP
	Switch & Status Panel	NT8M59AB		1		A19	AP
	Power Supply Assembly	NT6M71AB		1		A20	AP
	72MB Disk Drive Unit	NT6M72AA		1		A21	RUL5
	140MB Disk Drive Unit	NT6M72BA		1		A21	RUL5
	Disk Controller PCB	680-9143		-		A21	AP
#	Interface Box	NT6M98AG	A2	1			AP
	Fuse Kit	NT6M96AA		1			AP
	Alarm Connector Kit	NT6M96AD		1			AP
	Min BMCD Spares W/72MB DDU	NT8M94AG					RUL1
	Min BMCD Spares W/O DDU	NT8M94BG					RUL1
	Min BMCD Spares W/140MB DDU	NT8M94EG					RUL1
	Max BMCD Spares W/72MB DDU	NT8M94CG					RUL1
	Max BMCD Spares W/O DDU	NT8M94DG					RUL1
	Max BMCD Spares W/140MB	NT8M94FG					RUL1
	AC Mounting Plate	NT0X07AU					RUL2
	Duplex AC Outlet	ED351670G30					RUL2
	KSR Printer						RUL3
	Modem						RUL4
	Administrative Information						

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT6M97AE	MD	No direct repl.
NT6M98AG	MD	No direct repl.

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) The underline "_" in the PEC (NT8M04_G) must be substituted for one of two variables which are used to indicate the required Disk Drive Unit (DDU) size, where:

   A = 72 Megabyte Disk Drive Unit, and
   B = 140 Megabyte Disk Drive Unit.

   The resulting possibilities for BMC Deuce PECs are:

   NT8M04AG - BMCD w/72MB SMDR BISYNC, or
   NT8M04BG - BMCD w/140MB SMDR BISYNC.

2) The BMCD is a single shelf unit used for remote polling of Station Message Detailed Recording data records. In addition, interface to DMS-100F will be limited to Tape Emulation (TEC) only. Passive interface of the BMC to magnetic tape drives (1-3) will not be supported.

3) The BMCD interfaces the DMS100F through one (1) NT1X68AC or NT1X68BC, NSD Magnetic Tape Drive Controller Cards. The BMCD provides for total magnetic tape drive emulation and accordingly can reduce office requirements for magnetic tape drives.

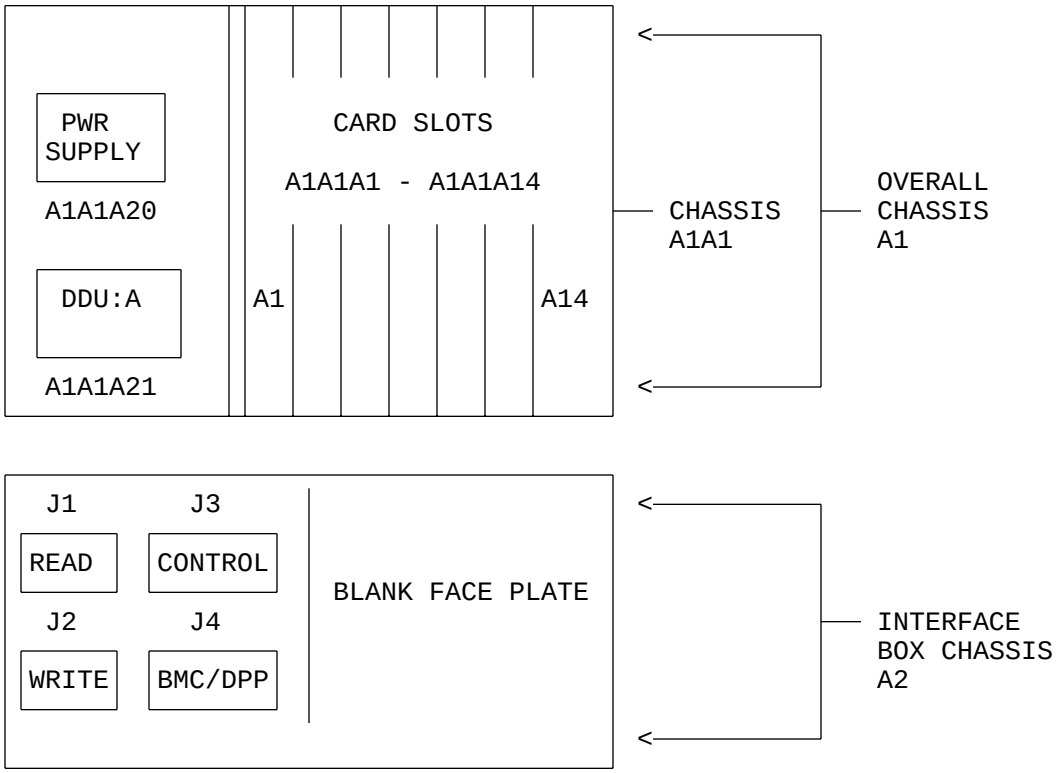
   See Table B I/O Controller Module Provisionable Cards for device controller card assignment rules.

4) The BMCD offers the capability of monitoring several BMC alarm conditions through the DMS-100F alarm system. The BMC alarm signals may be implemented via NT0X10, Miscellaneous Scan Detector card.

5) The BMCD requires one (1) -48V input fused at 10 amperes. If the telco selects the commercial 110VAC (Non-Generator) option (See RULE #2).

6) The IOE frame mounting position 51 is the primary mounting location for the BMCD, however, shelf position 18, 32, 51, 65 may be used in cases where this application does not conflict with mounting rules for other units such as DDUs or IOCs.

7) The diagram below depicts the Redundant BMCD architecture:



RULES:

RUL1 1) Provide the BMCD spares kits as per telco instructions.

RUL2 1) The BMCD is equipped with three crystal clocks which are used to provide time stamps for log messages. One is DC powered and is always active when the BMCD is powered. The other two may be powered from a 110VAC 60Hz signal or 8KHz signal. However, the 8KHz clock is not to be used in the DMS100F environment. When the 110VAC clock is connected it becomes the prime clock and the DC clock switches to the standby mode. If the 110VAC clock is not connected then the DC clock will provide the log message time stamps, however there is not a backup clock in this configuration.

2) Connecting this equipment as described below is optional; it should not be connected in ISG offices. Providing this equipment and connections would introduce a ISG violations.

3) If the commercial AC (non-generator) supply is required to drive the BMCD clock interrupt circuit in the Power & Alarm PCB. Provide one NT0X07AU (AC Mounting Plate) to accommodate the ED3516_30 Group (Duplex Outlet Box) and cabling provided by Building Studies. A 16 VAC stepdown transformer is always provided with the BMCD unit.

RUL3 1) Provide a KSR printer for installation, testing, and maintenance purposes.

RUL4 1) The BMCD employs three modems used for the polling of call record data and the downloading of software.

2) The modems selected may be either Desk Set (DS) or Desk Set Card (DSC) Dial-Up modems, which operates at 12/24/4800 bps. The modem model numbers are 212, 201c, or 208A/B. These modems do not require autodial capabilities. Refer to the Engineering Manual Sections EMA13-01-UDS-1 for detailed engineering information for these modems.

3) The Maintenance Terminal Port baud rate can not exceed 1200bps. Therefore provide the 212 modem model only for this port.

RUL5 1) The DDU provided with the BMCD will be a 72 or 140 megabyte DDU depending on the varible selected per NOTE 1 above. The DDU included with the BMCD will be one of the following:

NT6M72AA - 72MB DDU or, NT6M72BA - 140MB DDU

BILLING MEDIA CONVERTER DEUCE SMDR ASCII

PEC CODE: NT8M04_L

CPC CODE:

RATING: MD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: BMCD

ENGINEERING DESCRIPTION: The NSD Billing Media Converter II Deuce for Station Message Detailed Recording (SMDR), provides for the acquisition, storage, formating, and forwarding of SMDR data from the switch for two Customer Groups. In operation, the BMCD accepts SMDR data from the DMS100F, temporarily stores the collected data on hard disk, and when requested, retrieves, reformats, and sends the stored data to the Host Collector.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US

ISSUE AUTHOR: NTI: Barbara Berkley Dept. 3471 (PPK)

MAIN CONTACT: NTI: Barbara Berkley Dept. 3471 (PPK)

NT8M04 L EMR5-01-BMCD-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 12 14	ECM 202 08	Implement Cook ECO #70509 DTD: 910307 Add NT8M04_L Series BMC
93 04 28	ECM 202 09	Clarify RUL5 Per ET-16059
97 04 23	ECM 202 18	Several BMC units are MD’d per ECD 024-97670, this EMS is retired as a result of those products being MD’d.

The Billing Media Converter Deuce SMDR ASCII is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Hardware Unit BMCD EMC	NT8M54AG	A1	1	18,32 51,65		AP
	Connector/Transformer Kit	NT6M96AJ		1			AP
#	Mounting Adapter 19-26"	NT6M97AE		1			AP
	CPU PCB	NT6M62BA		1		A1	AP
	EPROM PCB	NT6M63CG		1		A2	AP
	Memory Expansion PCB	NT6M64AA		1		A3	AP
	Error Control PCB	NT6M65AH		1		A5	AP
	Quad Serial I/O PCB	NT6M60BA		1		A6	AP
	Disk Interface PCB	NT6M66AB		1		A11	AP
	Data Stream Interface PCB	NT6M70BF		1		A12	AP
	Bus Terminator PCB	NT6M68AA		1		A14	AP
	Disk Crossover PCB	NT6M72AE		1		A15	AP
	PWR/ALM Communications PCB	NT6M84BA		1		A16	AP
	4-Chan Communications PCB	NT6M85AA		1		A17	AP
	Fan Assembly	NT6M55DD		1		A18	AP
	Fan Foam Filter	NT6M56AB		-		A18	AP
	Switch & Status Panel	NT8M59AB		1		A19	AP
	Power Supply Assembly	NT6M71AB		1		A20	AP
	72MB Disk Drive Unit	NT6M72AA		1		A21	RUL5
	140MB Disk Drive Unit	NT6M72BA		1		A21	RUL5
	Disk Controller PCB	680-9143		-		A21	AP
#	Interface Box	NT6M98AG	A2	1			AP
	Fuse Kit	NT6M96AA		1			AP
	Alarm Connector Kit	NT6M96AD		1			AP
	Min BMCD Spares W/72MB DDU	NT8M94AL					RUL1
	Min BMCD Spares W/O DDU	NT8M94BL					RUL1
	Min BMCD Spares W/140MB DDU	NT8M94EL					RUL1
	Max BMCD Spares W/72MB DDU	NT8M94CL					RUL1
	Max BMCD Spares W/O DDU	NT8M94DL					RUL1
	Max BMCD Spares W/140MB	NT8M94FL					RUL1
	AC Mounting Plate	NT0X07AU					RUL2
	Duplex AC Outlet	ED351670G30					RUL2
	KSR Printer						RUL3
	Modem						RUL4
	Administrative Information						

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT6M97AE	MD	No direct repl.
NT6M98AG	MD	No direct repl.

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) The underline "_" in the PEC (NT8M04_L) must be substituted for one of two variables which are used to indicate the required Disk Drive Unit (DDU) size, where:

   A = 72 Megabyte Disk Drive Unit, and
   B = 140 Megabyte Disk Drive Unit.

   The resulting possibilities for BMC Deuce PECs are:

   NT8M04AL - BMCD w/72MB SMDR ACSII, or
   NT8M04BL - BMCD w/140MB SMDR ASCII.

2) The BMCD is a single shelf unit used for remote polling of Station Message Detailed Recording data records. In addition, interface to DMS-100F will be limited to Tape Emulation (TEC) only. Passive interface of the BMC to magnetic tape drives (1-3) will not be supported.

3) The BMCD interfaces the DMS100F through one (1) NT1X68AC or NT1X68BC, NSD Magnetic Tape Drive Controller Cards. The BMCD provides for total magnetic tape drive emulation and accordingly can reduce office requirements for magnetic tape drives.

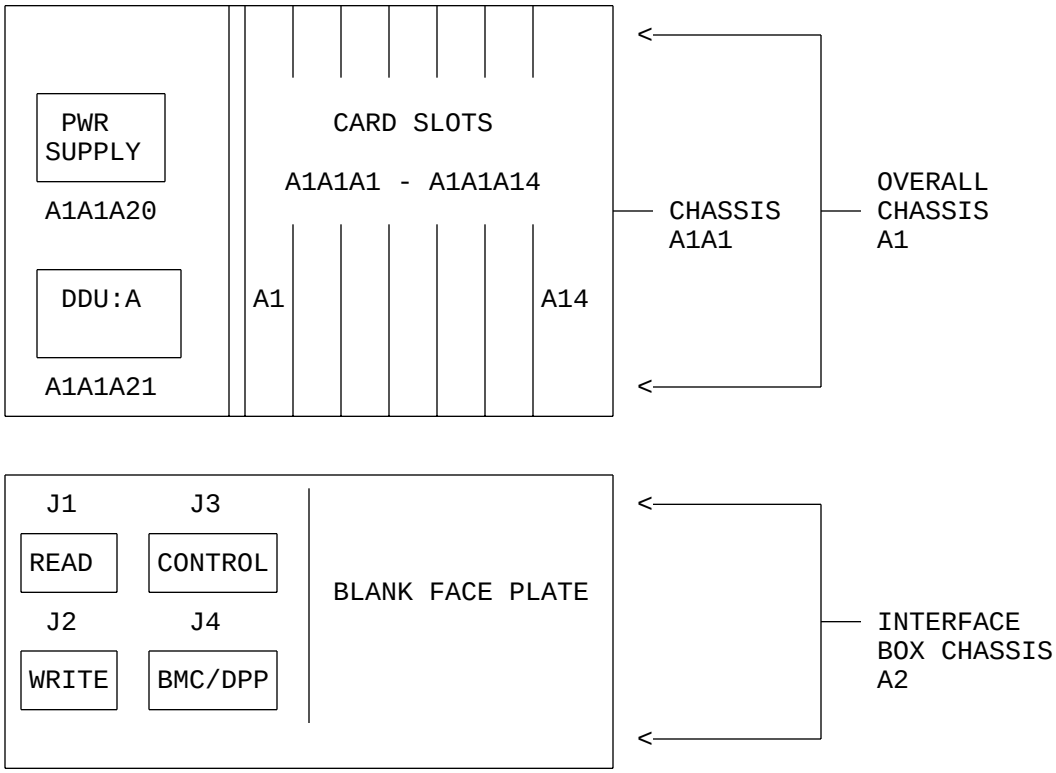
   See Table B I/O Controller Module Provisionable Cards for device controller card assignment rules.

4) The BMCD offers the capability of monitoring several BMC alarm conditions through the DMS-100F alarm system. The BMC alarm signals may be implemented via NT0X10, Miscellaneous Scan Detector card.

5) The BMCD requires one (1) -48V input fused at 10 amperes. If the telco selects the commercial 110VAC (Non-Generator) option (See RULE #2).

6) The IOE frame mounting position 51 is the primary mounting location for the BMCD, however, shelf position 18, 32, 51, 65 may be used in cases where this application does not conflict with mounting rules for other units such as DDUs or IOCs.

7) The diagram below depicts the Redundant BMCD architecture:



RULES:

RUL1 1) Provide the BMCD spares kits as per telco instructions.

RUL2 1) The BMCD is equipped with three crystal clocks which are used to provide time stamps for log messages. One is DC powered and is always active when the BMCD is powered. The other two may be powered from a 110VAC 60Hz signal or 8KHz signal. However, the 8KHz clock is not to be used in the DMS100F environment. When the 110VAC clock is connected it becomes the prime clock and the DC clock switches to the standby mode. If the 110VAC clock is not connected then the DC clock will provide the log message time stamps, however there is not a backup clock in this configuration.

2) Connecting this equipment as described below is optional; it should not be connected in ISG offices. Providing this equipment and connections would introduce a ISG violations.

3) If the commercial AC (non-generator) supply is required to drive the BMCD clock interrupt circuit in the Power & Alarm PCB. Provide one NT0X07AU (AC Mounting Plate) to accommodate the ED3516_30 Group (Duplex Outlet Box) and cabling provided by Building Studies. A 16 VAC stepdown transformer is always provided with the BMCD unit.

RUL3 1) Provide a KSR printer for installation, testing, and maintenance purposes.

RUL4 1) The BMCD employs three modems used for the polling of call record data and the downloading of software.

2) The modems selected may be either Desk Set (DS) or Desk Set Card (DSC) Dial-Up modems, which operates at 12/24/4800 bps. The modem model numbers are 212, 201c, or 208A/B. These modems do not require autodial capabilities. Refer to the Engineering Manual Sections EMA13-01-UDS-1 for detailed engineering information for these modems.

3) The Maintenance Terminal Port baud rate can not exceed 1200bps. Therefore provide the 212 modem model only for this port.

RUL5 1) The DDUs (NT6M72AA [72 MB DDU] or NT6M72BA [140 MB DDU]) are always provided with the BMCD unit depending on the variable selected per NOTE 1 above. THIS RULE IS FOR REFERENCE ONLY.

Note:

DO NOT ORDER THE NT6M72AA - 72MB DDUs or, NT6M72BA - 140MB DDUs in ADDITION TO THE BMCD UNIT(s).

DISK DRIVE UNIT SHELF NT4X00AA

RATING: MD. On new jobs replace by NT4X00AB.

ABBREVIATION NAME: DDU

ENGINEERING DESCRIPTION: N/A

REFERENCE DOCUMENTATION: MS4X00AA

The Disk Drive Unit Shelf is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Disk Drive Unit Assembly	NT4X0001		1			AP
*	Disk Drive Unit 33 Mbyte	A0300005				01	RUL1
*	Disk Drive Unit 66 Mbyte	A0300006				01	RUL1
*	MSD 8" Disk Drive unit	8211D-19-61				01	RUL2
*	MSD 8" Disk Drive unit	8211D-19-62				01	RUL2
*	MSD 8" Disk Drive unit	8211D-19-63				01	RUL2
	Pwr Conv +/-5V,+12V,+24V	NT1X78AA		1		02	AP
	5.25" Disk Drive Unit	NT4X00AG		1	X	01	RUL3
#	DDU Enhancement Kit	NT4X00AY			X		RUL4
	DDU Enhancement Kit	NT4X00AZ			X		RUL4
	Isolation Hardware Kit	NT4X00BZ			X		RUL5
	Univ 5.25" DDU Upgrade Kit	NTZZ99AG			X		RUL6

FLAGS:

\# MD. Replaced by NT4X00AZ.
* MD. Replaced by NT4X00AG on NT4X00AF.

RULES:

AP 1) When PEC NT4X00AA is ordered, these items are provided.

2) Each NT4X00AA comes equipped with one NT1X78AA Power Converter card for which a spare must be provided.

RUL1 1) Provide one A0300005 or A0300006 per Disk Drive Unit Shelf as per office requirements.

2) Different types of Disk Drive Units can be mounted on the same frame.

3) If the Disk Drive Unit is to be drop-shipped, the drive (A0300005 or A0300006) and the Disk Drive Unit Shelf (NT4X00AA) are ordered separately on the appropriate specs.

4) If the Disk Drive Unit is not to be drop-shipped, the drive (A0300005 or A0300006) and the Disk Drive Unit Shelf (NT4X00AA) are ordered together on the appropriate specs.

RUL2 1) The 8" DDU is no longer available. See rule 3. Provide one 8 inch disk drive unit (8211D-19-61, 8211D-19-62 or 8211D-19-63) to replace the 14 inch disk drive on the shelf per office requirements. Refer to the Engineering Manual section on the IOE frame for ordering information on the necessary change kit.

RUL3 1) Provide one 5.25" DDU (NT4X00AG) to replace an existing 14" DDU or an existing 8" DDU on this shelf.

RUL4 1) Provide one 14 Inch Disk Drive Enhancement Kit (NT4X00AZ) to replace a 14" Disk Drive Unit with a 5.25" Disk Drive Unit. The NT4X00AY is no longer available.

RUL5 1) Provide one 14 Inch Disk Drive Unit Isolation Mounting Hardware Kit per 14 inch DDU shelf (NT4X00AA, NT4X00AB or NT4X00AC) for either of the following conditions.

a. The replacement of existing mounting hardware as a maintenance enhancement.

b. The office is required to be ISG compliant.

RUL6 1) Provide one NTZZ99AG Univ 5.25" DDU Upgrade Kit for each 5.25" DDU provided to replace an existing Priam or Mercury 8" DDU.

DISK DRIVE UNIT SHELF NT4X00AB

RATING: MD. Replaced by NT4X00AC.

ABBREVIATION NAME: DDU

ENGINEERING DESCRIPTION: The Disk Drive Unit shelf functions as the office primary mass storage system.

REFERENCE DOCUMENTATION: MS4X00AB

The Disk Drive Unit Shelf is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Disk Drive Unit Assembly	NT4X0008		1	X		AP
*	Disk Drive Unit 33 MB	A0300005			X	01	RUL1
*	Disk Drive Unit 66 MB	A0300006			X	01	RUL1
*	Disk Drive Unit 154 MB	A0300007			X	01	RUL1
*	MSD 8" Disk Drive Unit	8211D-19-61				01	RUL3
*	MSD 8" Disk Drive Unit	8211D-19-62				01	RUL3
*	MSD 8" Disk Drive Unit	8211D-19-63				01	RUL3
	Pwr Conv. (+-5V,+12V,+24V)	NT1X78AA		1	X	02	AP
	Top Cover Protection Kit	NT4X00AX			X	TOP	RUL2
	5.25" Disk Drive Unit	NT4X00AG		1	X	01	RUL4
#	DDU Enhancement Kit	NT4X00AY			X		RUL5
	DDU Enhancement Kit	NT4X00AZ			X		RUL5
	Isolation Hardware Kit	NT4X00BZ			X		RUL6
	Univ 5.25" DDU Upgrade Kit	NTZZ99AG			X		RUL7

FLAGS:

\# MD. Replaced by NT4X00AZ.
* MD. Replaced by NT4X00AG on NT4X00AF.

NOTES:

1) "X" Can be one of 04 and 18.

RULES:

AP 1) When PEC NT4X00AB is ordered, these items are provided.

2) Each NT4X00AB comes equipped with one (1) NT1X78AA Power Converter card for which a spare must be provided.

RUL1 1) Provide one (1) A0300007 per Disk Drive Unit Shelf as per office requirements.

2) Different types of Disk Drive Units can be mounted on the same frame.

3) If the Disk Drive Unit is to be drop-shipped, the drive (A0300007) and the Disk Drive Unit Shelf (NT4X00AB) are ordered separately on the appropriate specs.

4) If the Disk Drive Unit is not to be drop-shipped, the drive (A0300007 and the Disk Drive Unit Shelf (NT4X00AB) are ordered together on the appropriate specs.

RUL2 1) Provide NT4X00AX Top Cover Protection kit when disk drive top cover protection is required.

RUL3 1) The 8" DDU is no longer available. See Rule 4. Provide one 8 inch disk drive unit (8211D-19-61, 8211D-19-62 or 8211D-19-63) to replace the 14 inch disk drive on the shelf per office requirements. Refer to the Engineering Manual section on the IOE frame for ordering information on the necessary change kit.

RUL4 1) Provide one 5.25" DDU (NT4X00AG) to replace an existing 14" DDU or an existing 8" DDU on this shelf.

RUL5 1) Provide one 14 Inch Disk Drive Enhancement Kit (NT4X00AZ) to replace a 14" Disk Drive Unit with a 5.25" Disk Drive Unit. The NT4X00AY is no longer available.

RUL6 1) Provide one 14 Inch Disk Drive Unit Isolation Mounting Hardware Kit per 14 inch DDU shelf (NT4X00AA, NT4X00AB or NT4X00AC) for either of the following conditions.

a. The replacement of existing mounting hardware as a maintenance enhancement.

b. The office is required to be ISG compliant.

RUL7 1) Provide one NTZZ99AG Univ 5.25" DDU Upgrade Kit for each 5.25" DDU provided to replace an existing Priam or Mercury 8" DDU.

DISK DRIVE UNIT SHELF NT4X00AC

RATING: MD Replaced by NT4X00AF

ABBREVIATION NAME: DDU

ENGINEERING DESCRIPTION: The Disk Drive Unit shelf functions as the office primary mass storage system.

REFERENCE DOCUMENTATION: MS4X00AC

The Disk Drive Unit Shelf is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Disk Drive Unit Assembly	NT4X0013		1	X		AP
*	Disk Drive Unit 33 MB	A0300005			X	01	RUL1
*	Disk Drive Unit 66 MB	A0300006			X	01	RUL1
*	Disk Drive Unit 154 MB	A0300007			X	01	RUL1
*	MSD 8" Disk Drive Unit	8211D-19-061			X	01	RUL1
*	MSD 8" Disk Drive Unit	8211D-19-062			X	01	RUL1
*	MSD 8" Disk Drive Unit	8211D-19-063			X	01	RUL1
	5.25" Disk Drive Unit	NT4X00AG		1	X	01	RUL1
	Power Converter (+-5V, +12V,+24V)	NT1X78AA		1	X	02	AP
	Top Cover Protection Kit	NT4X00AX			X	TOP	RUL2
#	DDU Enhancement Kit	NT4X00AY			X		RUL3
	DDU Enhancement Kit	NT4X00AZ			X		RUL3
	Isolation Hardware Kit	NT4X00BZ			X		RUL4
	Univ 5.25" DDU Upgrade Kit	NTZZ99AG			X		RUL5

FLAGS:

\# MD. Replaced by NT4X00AZ.
* MD. Replaced by NT4X00AG on NT4X00AF.

NOTE;

1) "X" Can be one of 04 and 18.

RULES:

AP 1) When PEC NT4X00AC is ordered, these items are provided.

2) Each NT4X00AC comes equipped with one (1) NT1X78AA Power Converter card for which a spare must be provided.

RUL1 1) Provide one 5.25’ DDU (NT4X00AG) to replace and existing 14" DDU or and existing 8" DDU on this shelf. The 8" DDU is no longer available.

2) Different types of Disk Drive Units can be mounted on the same frame.

3) If the Disk Drive Unit is to be drop-shipped, the drive (A0300007) and the Disk Drive Unit Shelf (NT4X00AC) are ordered separately on the appropriate specs.

4) If the Disk Drive Unit is not to be drop-shipped, the drive (A0300007 and the Disk Drive Unit Shelf (NT4X00AC) are ordered together on the appropriate specs.

RUL2 1) Provide NT4X00AX Protection Kit when Disk Drive Top Cover protection is required.

RUL3 1) Provide one 14 Inch Disk Drive Enhancement Kit (NT4X00AZ) to provision a 5.25 disk drive unit in place of a 14 inch disk drive unit. The NT4X00AY is no longer available.

RUL4 1) Provide one 14 Inch Disk Drive Unit Isolation Mounting Hardware Kit per 14 inch DDU shelf (NT4X00AA, NT4X00AB or NT4X00AC) for either of the following conditions.

a. The replacement of existing mounting hardware as a maintenance enhancement.

b. The office is required to be ISG compliant.

RUL5 1) Provide one NTZZ99AG Univ 5.25" DDU Upgrade Kit for each 5.25" DDU provided to replace an existing Priam or Mercury 8" DDU.

DUAL DISK DRIVE UNIT SHELF

PEC CODE: NT4X00AF

CPC CODE: B0225620

RATING: MD

REPLACES: N/A

REPLACED BY: NT1X55FA

ABBREVIATION NAME: DDU

ENGINEERING DESCRIPTION: The Dual Disk Drive Unit shelf functions as the office primary mass storage system. The 5.25" DDU disk system is MD and replaced with 3.5" DDUs.

REFERENCE DOCUMENTATION: MS4X00AF

MARKETS: Applicable markets:

Canada
US
CALA
Asia/Pacific
Europe

ISSUE AUTHOR: NTI: Bob Belvin Dept. 3471 (PPK)

MAIN CONTACT: Richard Mathias Dept. 3471 (PPK)

NT4X00AF EMR5-01-DDU-4 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
96 02 19	ECM 502 11	MD Section Per ECD 18-45271.

The Dual Disk Drive Unit Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
# Dual DDU Assembly	NT4X0023		1	04		AP
# Priam 8" DDU (188 MB)	806-11			04	10,18	RUL1
# Priam 8" DDU (227 MB)	806-13			04	10,18	RUL1
# MSD 8" DDU (228.9 MB)	8211D-19-061			04	10,18	RUL1
# MSD 8" DDU (228.9 MB)	8211D-19-062			04	10,18	RUL1
# MSD 8" DDU (228.9 MB)	8211D-19-063			04	10,18	RUL1
5.25" Disk Drive Unit	NT4X00AG			04	10,18	RUL1
Filler Face Plate	NT0X50AE			04	02,26	RUL2
Power Converter (+-5V, +12V,+24V)	NT1X78AA			04	02,26	RUL2
Desig. Label for NT0X50AE	P0591361			04	02,26	RUL2
Desig. Label for NT1X78AA	P0668410			04	02,26	RUL2
Mercury Disk Hardware Kit	NT4X0038			04		RUL3
Mercury Disk Hardware Kit	NT4X0037			04		RUL3

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
806-11	MD	NT4X0038
806-13	MD	NT4X0038
8211D-19-061	MD	NT4X0038
8211D-19-062	MD	NT4X0038
8211D-19-063	MD	NT4X0038
806-11	MD	NT4X0038
NT4X0023	MD	None

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

NOTE; 1) The Priam 8" DDU (806-13) is provided only for MTX-Mini offices. The Priam 8" DDU is no longer available.

2) The 5.25" DDU shall be used for all offices. The 8" DDUs are no longer available.

RULES:

AP 1) When PEC NT4X00AF is ordered, these items are provided.

RUL1 1) Provide up to a maximum of two (2) 5.25 DDUs per Dual Disk Drive Shelf (NT4X00AF) for all offices. The 8" DDUs are no longer available.

2) Only the MSD 8" (8211D-19-61/62/63) or 5.25" (NT4X00AG) DDU can be mounted on the Dual Disk Drive Shelf (NT4X00AF). The 8" DDUs are no longer available. Please note that the NT4X00AF shelf can have one 8" and one 5.25" DDU mounted on the shelf if the replacement of only one of the 8" DDUs is required by the Customer.

3) If the Disk Drive Unit is to be drop-shipped, the drive (NT4X00AG) and the Disk Drive Unit Shelf (NT4X00AF) are ordered separately on the appropriate specs.

4) If the Disk Drive Unit is not to be drop-shipped, the drive, (NT4X00AG) and the Dual Disk Drive Shelf (NT4X00AF) are ordered together on the appropriate specs.

6) 5.25" DDUs are provisioned on the NT4X00AF Disk Drive Unit Shelf on the IOE frame at shelf position 04. Shelf position 18 must be left vacant due to heat dissipation restrictions and a fusing limitation on the IOE FSP.

RUL2 1) Provide one (1) NT1X78AA Power Converter CP (up to a maximum of two (2) per shelf) for each 5.25"DDU equipped. The 8" DDU is no longer available.

2) Provide one (1) Designation Label, P0668410, for each Power Converter ,NT1X78AA, equipped.

3) Provide one Filler Face Plate, NT0X50AE, for each card position 02,26 that unequipped.

4) Provide one (1) Designation Label, P0591361, for each Filler Face Plate, NT0X50AE, equipped.

RUL3 1) Provide one (1) Mercury Disk Drive Hardware Kit (NT4X0038) for each 5.25" (NT4X00AG) DDU initially equipped on this shelf. The NT4X0037 is no longer available and is not required.

RUL4 1) Provide one (1) Univ 5.25" DDU Upgrade Kit for each 5.25" DDU provided to replace and existing 8" DDU on this shelf.

DISTRIBUTIVE PROCESSING PERIPHERAL NT6M01AB

RATING: A&M. Replaced by NT8M05AB.

ABBREVIATION NAME: DPP

ENGINEERING DESCRIPTION: The DPP allows remote polling of AMA information in Bellcore record format on provisionable 72,140,or 380 MByte 5 1/4" Disk Drive Units.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US
Canada

NT6M01AB EMR5-01-DPP-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
92 12 14	ECM 306 19	To remove NT6M56AB as AP. Was MD'd in 1987 per Cook.

The Distributive Processing Peripheral is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	CPU/DMA CP	NT6M62BA		2	A,B	01	AP
	Extended Memory	NT6M64AA		2	A,B	03	AP
	Error Control II	NT6M65AA		1	A	05	AP
	Error Control Jumper	NTM609AB		1	B	05	AP
	Bus Terminator	NT6M68AA		2	A,B	14	AP
	Fan Filter CP	NT6M56AD		2	A,B	18	AP
	Status panel assembly	NT6M59AA		1	A	19	AP
#	Fan Filter	NT6M56AB		1	B	19	AP
	Power Supply Assy	NT6M71AB		2	A,B	20	AP

FLAGS:

\# MD. Replace by NT6M56AD.

NOTES:

RULES:

AP 1) When PEC NT6M01AB is ordered, these items are provided.

DATA SET MODULE NT1X60AA

RATING: MD. Replaced by NT1X60AB.

ABBREVIATION NAME: DSM

ENGINEERING DESCRIPTION: N/A

REFERENCE DOCUMENTATION: MS1X60AA 01 02

The Data Set Module is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Data Set shelf GDC	202-9DR		1			AP
Modem card	AR				01-16	RUL1

RULE:

AP 1) When PEC NT1X60AA is ordered, these items are provided.

RUL1 1) The Data Set Module can accommodate up to sixteen (16) Modems of the following types:

a) GDC 202-9DR-AM A0265165
b) GDC 108-2AE A0265166
c) GDC 108-3RE A0265166

Rated MD. Select GDC 108-3RE.

2) These modems are for use in private line circuits. Modems for dial-up connections are discussed elsewhere in this manual.

3) Provide one (1) GDC 202-9DR-AM for each remote terminal whose BAUD rate is greater than 300, to a maximum of 1200 BAUD.

4) Provide one (1) GDC 108-2AE for each remote terminal whose BAUD rate is 300 and less.

5) Provide one (1) GDC 108-3RE for each remote terminal whose BAUD rate is 300 and less.

6) A modem is required for every I/O Device which is to be located more than 1200 feet, cabling distance, from the IOC or MDC shelf. See Table B, Section EMA14-02-0000.

DATA SET MODULE SHELF NT1X60AB

RATING: MD. On new jobs replace by NT5X08AC.

ABBREVIATION NAME: DSM

ENGINEERING DESCRIPTION: The Data Set Module Shelf houses up to sixteen data set modems per office requirements.

REFERENCE DOCUMENTATION: MS1X60AB 01 01

The Data Set Module Shelf is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	GDC202-9DR-AM Data Set	A0265165			X	1-16	RUL1
*	GDC108-2AE Data Set	A0265166			X	1-16	RUL2
	GDC108-3RE Data Set	A0265166			X	1-16	RUL3

* MD. Replaced by 'A0265166 GDC108-3RE Data Set'.

NOTE:

1) "X" can be one of 09, 23, 37, 56, 70.

2) The following stand alone modems are approved for use with DMS-100:

CPC	PART NO.	DESCRIPTION
A0328521	202-9D	GDC 1200 Baud Stand Alone Modem
A0328537	108-3M	GDC 300 Baud Stand Alone Modem

RULE:

RUL1 1) Provide one (1) GDC202-9DR-AM Data Set modified for Remote ANALOOP to transmit and receive binary serial data for every remote terminal requiring rates above 300 baud up to 1200 baud over private line circuits. (Maximum 16 Data Sets per shelf.)

RUL2 1) Provide one (1) GDC108-2AE Data Set modified for 202 AD shelf to transmit and receive binary serial data for every remote terminal requiring rates up to 300 baud over the switched network or private line circuits. (Maximum 16 Data Sets per shelf.)

RUL3 1) Provide one (1) GDC108-3RE Data Set modified for 202 AD shelf to transmit and receive binary serial data for every remote terminal requiring rates up to 300 baud over the switched network or private line circuits. (Maximum 16 Data Sets per shelf.)

DATA SET MODEM SHELF

PEC CODE:	NT5X09AA
CPC CODE:	B0225381
RATING:	MD
REPLACES:	Not Applicable
REPLACED BY:	No Replacement
ABBREVIATION NAME:	DSM
ENGINEERING DESCRIPTION:	The Data Set Modem Shelf houses Data Set Modems (MTX) per office office requirements.
REFERENCE DOCUMENTATION:	MS5X09AA 01 01
MARKETS:	Applicable markets: Canada US CALA Asia/Pacific Europe
ISSUE AUTHOR: NTI:	Steve Martin Dept. 3471 (PPK)
MAIN CONTACT: NTI:	Steve Martin Dept. 3471 (PPK)

NT5X09AA EMR5-01-DSM-7 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
97 10 08	ECM 602 34	MD per EC 018-51379.

The Data Set Modem Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Modem Shf E/W 2 PWR Supp	010M001-001		1	XX		AP
9600 GDC Modem, Rckmnt	049M020-001			XX	1-16	RUL4
9600 GDC Modem, Rckmnt	049M037-011			XX	1-16	RUL4
4800 GDC Modem, Rckmnt	051P006-002			XX	1-16	RUL1
1200 GDC Modem, Rckmnt	053P001-002			XX	1-16	RUL2
1200 GDC Modem, Rckmnt	053P001-003			XX	1-16	RUL3

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES: 1) "X" can be one of 05, 19, 33, 52, 66.

RULES:

AP 1) When PEC NT5X09AA is ordered, these items are provided.

RUL1 1) Provide one (1) 4800 baud plug-in modem for each MTX Link Controller NT6X91AB (Active and Standby). A maximum of nine (9) modems are associated with each IOC shelf (NT1X61AB) containing a maximum of nine (9) MTX Link Controllers (NT6X91AB).

RUL2 1) Provide one (1) Datacomm GDC 202 S/T 1200 baud rackmounted modem for every remote terminal at an asynchronous serial digital data rate of up to 1200 baud. The 202 S/T modem can be used in two-wire half duplex dial up or switched network connections, and in two-wire half duplex or four-wire full duplex private line connections using dedicated facilities.

RUL3 1) Provide one (1) Datacomm GDC 202 T 1200 baud rackmounted modem for every remote terminal at an asynchronous serial digital data rate of up to 1200 baud. The 202 T modem can be used in two-wire half duplex or four-wire full duplex private line connections using dedicated facilities.

RUL4 1) Provide one (1) 9600 baud plug-in modem for each MTX Link Controller NT6X91CA (Active and Standby) mounted in an IOC shelf (NT1X61AB/AD).

I/O CONTROLLER MODULE NT1X61AA

RATING: MD. See MS0X43AA, Section EMR5-01-000.

ABBREVIATION NAME: IOC

ENGINEERING DESCRIPTION: N/A

REFERENCE DOCUMENTATION: MS1X61AA 01 06

The I/O Controller Module is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
I/O Shelf Assy	NT1X6101		1			AP
Filler Face Plate .875	NT0X50AA		1		01	AP
I/O MSG Controller	NT1X62AA		1		02	AP
I/O Device Control CP	AR				04,06, 08,10, 12,14, 16,18, 20	RUL1
Filler Face Plate .875	NT0X50AA				04,06, 08,10, 12,14, 16,18, 20	RUL2
Filler Face Plate .875	NT0X50AA		8		05,07, 09,11, 13,15, 17,19	AP
I/O Control Terminator	NT0X67AA		1		21	AP
Power Converter (5V/12V)	NT2X70AB		1		22	AP
Power Converter (5V/12V)	NT2X70AB		1		25	AP

RULE:

AP 1) When PEC NT1X61AA is ordered, these items are provided.

RUL1 1) The I/O Controller Module (IOC) provides space to mount up to nine (9) I/O device control cards. Refer to Table B, Section EMA14-02-000. for the types of control cards which can mount on NT1X61AA and related assignment restrictions.

RUL2 1) When customer requirements specify that Filler Face Plates are to be ordered provide one (1) NT0X50AA for each location which is not to be equipped with a device control card.

INPUT/OUTPUT CONTROLLER MODULE

PEC CODE: NT1X61AB

CPC CODE: B0208791

RATING: MD

REPLACES: Not Applicable

REPLACED BY: NT1X61AD

ABBREVIATION NAME: IOC

ENGINEERING DESCRIPTION: The Input/Output Controller Module houses Device Controller cards, each of which has its own subsidiary map position.

REFERENCE DOCUMENTATION: MS1X61AB 01 19

MARKETS: Applicable markets:

Canada
US
CALA
Asia/Pacific
Europe

ISSUE AUTHOR: Erica Keltner Dept. 3471 (PPK)

MAIN CONTACT: Erica Keltner Dept. 3471 (PPK)

NT1X61AB EMR5-01-IOC-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
94 07 08	ECM 613 22	ECD 018-41414 - MD’s NT1X61AB

The Input/Output Controller Module is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
I/O Shelf Assembly	NT1X6106		1	X		AP
Filler Face Plate 0.875	NT0X50AA		1	X	01	AP
I/O Msg Controller	NT1X62AB		1	X	02	AP
Filler Face Plate 0.875	NT0X50AA		9	X	05,07	AP
				X	09,11	AP
				X	13,15	AP
				X	17,19	AP
				X	21	
I/O Control Terminator	NT0X67AA		1	X	22	AP
Filler Face Plate 1.72	NT0X50AF		1	X	23	AP
Power Converter (+-5,+-12V)	NT2X70AA		1	X	25	AP
I/O Device Controller CP	AR			X	4,6,	RUL1
				X	8,10,	
				X	12,14	
				X	16,18	
				X	20	
Desg Lable For I/O Cntrl CP	AR			X	4,6	RUL1
				X	8,10,	
				X	12,14	
				X	16,18	
				X	20	
Filler Face Plate 0.875	NT0X50AA			X	4,6	RUL2
				X	8,10,	
				X	12,14	
				X	16,18	
				X	20	

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) "X" Can be one of 04,18,32

RULES:

AP 1) When PEC NT1X61AB is ordered, these items are provided.

RUL1 1) The I/O Controller Module (IOC) provides space to mount up to nine (9) I/O device control cards. Refer to Table B, Section EMA14-02-000, for the types of control cards and their respective labels which can mount on NT1X61AB and related assignment restrictions.

RUL2 1) When customer requirements specify that Filler Face Plates are to be ordered, provide one (1) NT0X50AA for each location which is not to be equipped with an I/O device control card.

INPUT/OUTPUT CONTROLLER COMMON CP NT1X61AC

RATING: MD

ABBREVIATION NAME: IOC

ENGINEERING DESCRIPTION: The Input/Output Controller Common CP contains the always provided circuit packs for the NT1X61AD I/O Controller Module.

REFERENCE DOCUMENTATION: N/A

The Input/Output Controller Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Face Plate 0.875	NT0X50AA		10	X	1,5,7, 9,11,13, 15,17, 19,21	AP
I/O Control Terminator	NT0X67AA		1	X	22	AP
Filler Face Plate 1.72	NT0X50AF		1	X	23	AP
Power Converter	NT2X70AA		1	X	25	AP

RULE:

AP 1) When PEC NT1X61AC is ordered, these items are provided.

INPUT/OUTPUT CONTROLLER MODULE

PEC CODE: NT1X61AD

CPC CODE: B0226020

RATING: MD

REPLACES: Not applicable

REPLACED BY: NT1X61AG

ABBREVIATION NAME: IOC

ENGINEERING DESCRIPTION: The Input/Output Controller Module houses Device Controller cards, each of which has its own subsidiary MAP position.

REFERENCE DOCUMENTATION: SL1X61AD 00 02
MS1X61AD 01 16

MARKETS: Applicable markets:

Canada
US
CALA
Asia/Pacific
Europe

ISSUE AUTHOR: Erica Keltner Dept. 3471 (PPK)

MAIN CONTACT: Erica Keltner Dept. 3471 (PPK)

NT1X61AD EMR5-01-IOC-4 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
93 12 20	ECM 613 18	ECD 018-40186 - Replace NT1X62AB/CA by NT1X62CB.
94 07 08	ECM 613 22	ECD 018-41414 - MD’s NT1X61AD
95 04 06	ECM 316 08	EC 024-93972- Introduces the NT2X70AF and its label to replace the NT2X70AE and its label. The design documents will be updated after this EMS.

The Input/Output Controller Module is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	I/O Shelf Assembly	NT1X6112		1	X		AP
#	I/O Msg Controller	NT1X62AB			X	02	RUL1
#	I/O Msg Controller	NT1X62CA			X	02	RUL1
	I/O Msg Controller	NT1X62CB			X	02	RUL1
#	Desig. Label (NT1X62CA)	P0686038			X	02	RUL1
	Desig. Label (NT1X62CB)	P0745105			X	02	RUL1
	I/O Controller Common CP	NT1X61AE			X		RUL4
	I/O Device Controller CP	AR			X	4,6,8,	RUL2
					X	10,12,	
					X	14,16,	
					X	18,20	
	Desg Lable For I/O Cntrl CP	AR			X	4,6,8,	RUL2
					X	10,12,	
					X	14,16,	
					X	18,20	
	Filler Face Plate 0.875	NT0X50AA			X	4,6,8,	RUL3
					X	10,12,	
					X	14,16,	
					X	18,20	
	Power Converter	NT2X70AF			X	25	RUL5
	Desig. Label (NT2X70AF)	P0809960			X	25	RUL5
#	Power Converter	NT2X70AE			X	25	RUL5
#	Power Converter	NT2X70AA			X	25	RUL5

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT1X62AB	MD	NT1X62CB
NT1X62CA	MD	NT1X62CB
P0686038	MD	
NT2X70AA	MD	NT2X70AE
NT2X70AE	MD	NT2X70AF

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

1) "X" Can be one of 04,18,32.

RULES:

AP 1) When PEC NT1X61AD is ordered, these items are provided.

RUL1 1) Provide one (1) I/O Message Controller NT1X62CB in each IOC module for both NT-40 and SuperNode applications. The NT1X62CB replaces both NT1X62AB (for NT-40 applications) and NT1X62CA (for SuperNode applications).

2) Provide one (1) I/O Message Controller NT1X62CB for SuperNode upgrades on cabinetized switches with MCCM Cabinets (NT40).

RUL2 1) The I/O Controller Module (IOC) provides space to mount up to nine (9) I/O device control cards. Refer to Table B, Section EMA14-02-000, for the types of control cards and their respective labels which can mount on NT1X61AD and related assignment restrictions.

RUL3 1) When customer requirements specify that Filler Face Plates are to be ordered, provide one (1) NT0X50AA for each location which is not to be equipped with an I/O device control card.

RUL4 1) Order one (1) NT1X61AE I/O Controller Common CP fill when NT1X61AD is ordered.

RUL5 1) Order one (1) NT2X70AF Power Converter and label for NT1X61AD.

INPUT/OUTPUT CONTROLLER COMMON CP

PEC CODE: NT1X61AE

CPC CODE: B0229383

RATING: MD

REPLACES: Not Applicable

REPLACED BY: NT0X50AA, NT0X67AA

ABBREVIATION NAME: IOC

ENGINEERING DESCRIPTION: The Input/Output Controller Common CP contains the always provided circuit packs for the NT1X61AG/AD I/O Controller Module.

REFERENCE DOCUMENTATION: MS1X61AG 01 03

MARKETS: Applicable markets:

US
Europe
Asia/Pacific
CALA

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NT1X61AE EMR5-01-IOC-5 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
--------	----------	Previous history not available
94 07 08	ECM 613 22	EC 018-42674 Removes 1 NT0X50AF from NT1X61AE and replaces it with 2 NT0X50AA's.
94 10 07	ECM 613 24	EC 018-43459 MD's NT1X61AE.

The Input/Output Controller Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Face Plate 0.875	NT0X50AA		12	X	1,5,7, 9,11,13, 15,17, 19,21,23 24	AP
Designation Strip	P0588099		1	X		AP
I/O Control Terminator	NT0X67AA		1	X	22	AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

DEV - DEVELOPMENT. These products are in the development phase. Please contact NPPM prior to ordering.

A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

MD - MANUFACTURED DISCONTINUED. These products are no longer manufactured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NT1X61AE is ordered, these items are provided.

2) X refers to the shelf that the IOC mounts on. See IOE and CIOE Engineering Manual Sections for IOC mounting locations.

REMOTE OSCILLATOR SHELF NT3X95BA

RATING: Rating Change Pending, On new jobs replace by NT3X95BB

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This shelf houses the DMS clock for SuperNode applications. This clock provides a capability that is not Stratum rated, however, in terms of accuracy, falls in between Stratum II and Stratum III.

REFERENCE DOCUMENTATION: N/A

The Remote Oscillator Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Remote Osc. Shelf Assy	NT3X9501		1			AP
Osc. (DMS-Core) & I/F CP	NT3X16BA		2		01,15	AP
Osc. (DMS-Core) & I/F CP	NT3X16BA				09,23	RUL1
Filler Face Plate 2.62	NT0X50BE				09,23	RUL1
Pwr Converter (+5,+12,+24V)	NT1X78AA		2		06,20	AP
Filler Face Plate 2.62	NT0X50BE		1		12	AP
Filler Face Plate 1.72	NT0X50BF		3		04,18,26	AP
Desig. Strip (NT3X95BA)	P0687681					AP

RULES:

AP 1) When PEC NT3X95BA is ordered, these items are provided.

RUL1 1) If 'hot' spares are requested by the customer they may be equipped in positions 09 and 23.

2) If 'hot' spares are not equipped, provision two (2) NT0X50BE Filler Face Plates.

STRATUM II OSCILLATOR SHELF NT3X95AA

RATING: Standard

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The Stratum II clock system will provide the ability to synchronize from a Stratum 1 or to any Stratum 2 clock.

The Stratum II Oscillator Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Stratum II Osc. Shf Assy	NT3X9501		1			AP
Stratum II Osc. & Int. CP	NT3X16AA		2		01,15	AP
Pwr Converter (+5,+12,+24V)	NT1X78AA		2		06,20	AP
Filler Face Plate 2.62	NT0X50BE		2		09,23	AP
Filler Face Plate 1.72	NT0X50BF		2		12,26	AP
Stratum II Osc & Int. CP	NT3X16AA				09,23	RUL1
Filler Face Plate 0.875	NT0X50BA		1		14	AP

RULE:

AP 1) When PEC NT3X95AA is ordered, these items are provided.

RUL1 1) Two NT3X16AA Crystal Oscillator CP’s are always provided with the shelf. Two additional oscillators can be provisioned on the shelf to serve as "HOT" spares. When "HOT" spares are not provisioned, CP positions 09,23,12 and 26 are provided with filler face plates. The filler face plates are always provided in the NT3X95AA stocklist.

MAG TAPE CENTRE FRAME NT0X43AA

RATING: MD. Replaced by NT0X43AB.

ABBREVIATION NAME: MTC

ENGINEERING DESCRIPTION:

REFERENCE DOCUMENTATION: MS0X43AA 01 06

The Mag Tape Centre Frame is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
%	Mag Tape Drive Unit (HP)	NT0X44AA	MTD		18,51		RUL1
	Mtg Hardware for HP MTD	NT0X44AC			18,51		RUL1
	Mag Tape Drive Unit (Cook)	NT0X44AB	MTD		18,51		RUL1
	Magnetic Tape Drive (Cook)	209800-153	MTD		18,51		RUL1
	Mtg Hardware for Cook MTD	NT0X44AD			18,51		RUL1
	COM & STAT Cable Cook MTD	NT0X44AE			18,51		RUL8
	Read Data Cable Cook MTD	NT0X44AF			18,51		RUL8
	Write Data Cable Cook MTD	NT0X44AG			18,51		RUL8
	Frame Supervisory Panel	NT0X28AD	FSP	1	45		AP
#	I/O Controller Module	NT1X61AA	IOC		04		RUL2
	I/O Controller Module	NT1X61AB	IOC		04		RUL2
	Power Cable	NT0X95BK			04		RUL7
	Power Cable	NT0X95BJ			04		RUL7
	IOC PC Kit	NT1X61AX					RUL2
	Power Converter PC Kit	NT2X70AZ					RUL6
$	Data Set Module	NT1X60AA	DSM		09,23, 37,56, 70		RUL3
	Data Set Module	NT1X60AB	DSM		09,23, 37,56, 70		RUL3
	Inverter Unit	NT0X87AA	INV		04,18, 32,51, 65		RUL4
	Filler Panel	P0575239			04,18, 32,51, 65		RUL5

FLAGS:

\# MD. Replaced by NT1X61AB.
$ MD. Replaced by NT1X60AB.
% Rated MD

RULE:

AP 1) When PEC NT0X43AA is ordered, these items are provided.

RUL1 1) If MTD is to be dropped-shipped, the drive (209800-153) and its mounting hardware (NT0X44AD) are ordered separately on the appropriate specs.

2) If MTD is not to be dropped-shipped, the combined drive and H/W is ordered using NT0X44AB.

3) Provide one (1) NT0X44AC if required to mount a customer-provided HP MTD.

4) MTD are to be assigned to positions on the MTC as follows:

```
MTD:00  MTC 00  51
MTD:01  MTC 01  51
MTD:02  MTC 00  18
MTD:03  MTC 01  18
MTD:04  MTC 02  51
MTD:05  MTC 02  18
```

RUL2 1) Provide a minimum of two I/O Controller Modules (IOC) per system.

2) Equip per MS1X61AB or MS1X61AA.

3) Provide one (1) PC Kit NT1X61AX when converting an existing IOC Module (NT1X61AA or AB) for DMS-Core applications.

RUL3 1) Provide one as required to accommodate up to sixteen modems.

2) Equip the Data Set Module per MS1X60AB or MS1X60AA.

3) Locate in position 09 if IOC is not to be equipped in POS 04, (third MTC frame only), or in position 23, 37, 56 or 70 if an MTD is not to be equipped in covering locations else locate on Miscellaneous Equipment Frame (MIS) at job-engineered location.

4) Locate within 50 feet of connecting IOC.

RUL4 1) Provide one Inverter Unit for each DSM provided.

2) Locate each immediately below its associated DSM.

RUL5 1) Provide Filler Panels as follows:

a) one if neither a IOC nor a DSM + INV is being provided in position 04. Locate at position 04.

b) two if a MTD is not being provided in position 51. Locate at positions 51 and 65.

c) two if neither a MTD nor a DSM + INV is being provided in position 18. Locate at positions 18 and 32.

RUL6 1) Provide one (1) NT2X70AZ Power Converter PC Kit to modify the existing NT2X70__ to the NT2X70AE. This PC kit contains one (1) NT2X70AE and one (1) designation label.

RUL7 1) Provide one of each Power Cable, NT0X95BK and NT0X95BJ if an I/O Controller Module is provided.

RUL8 1) One (1) of each data cable, NT0X44AE, NT0X44AF and NT0X44AG is provided with each Cook MTD provided and is not to be ordered separately.

2) Cables are of fixed length (17’) and are manufactured by Cook.

MAG TAPE CENTRE FRAME NT0X43AB

RATING: MD. Replaced by NT0X43AC.

ABBREVIATION NAME: MTC

ENGINEERING DESCRIPTION:

REFERENCE DOCUMENTATION: MS0X43AB 01 05

The Mag Tape Centre Frame is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
$	Mag Tape Drive Unit (HP)	NT0X44AA	MTD			18,51	RUL1
	Mtg Hardware for HP MTD	NT0X44AC				18,51	RUL1
	Mag Tape Drive Unit (Cook)	NT0X44AB	MTD			18,51	RUL1
	Mag Tape Drive (Cook)	209800-153	MTD			18,51	RUL1
	Mtg Hardware for Cook MTD	NT0X44AD				18,51	RUL1
	COM & STAT Cable Cook MTD	NT0X44AE				18,51	RUL8
	Read Data Cable Cook MTD	NT0X44AF				18,51	RUL8
	Write Data Cable Cook MTD	NT0X44AG				18,51	RUL8
	Frame Supervisory Panel	NT0X28AD	FSP	1		45	AP
	I/O Controller Module	NT1X61AB	IOC			04	RUL2
	Power Cable	NT0X95BK				04	RUL7
	Power Cable	NT0X95BJ				04	RUL7
	IOC PC Kit	NT1X61AX					RUL9
	Power Converter PC Kit	NT2X70AZ					RUL6
#	Data Set Module	NT1X60AA	DSM			09,23, 37,56, 70	RUL3
	Data Set Module	NT1X60AB	DSM			09,23, 37,56, 70	RUL3
	Inverter Unit	NT0X87AA	INV			04,18, 32,51, 65	RUL4
	Filler Panel	P0575239				04,18, 32,51, 65	RUL5

FLAGS:

\# MD. Replaced by NT1X60AB.
$ Rated MD.

RULE:

AP 1) When PEC NT0X43AB is ordered, these items are provided.

RUL1 1) If MTD is to be dropped-shipped, the drive (209800-153) and its mounting hardware (NT0X44AD) are ordered separately on the appropriate specs.

2) If MTD is not to be dropped-shipped, the combined drive and H/W is ordered using NT0X44AB.

3) Provide one (1) NT0X44AC if required to mount a customer-provided HP MTD.

4) MTD are to be assigned to positions on the MTC as follows:

```
MTD:00  MTC 00  51
MTD:01  MTC 01  51
MTD:02  MTC 00  18
MTD:03  MTC 01  18
MTD:04  MTC 02  51
MTD:05  MTC 02  18
```

RUL2 1) A minimum of 2 I/O Controller Modules (IOC:00, IOC:01) is required per system. These may be provisioned either as functional modules within the Central Message I/O Controller shelf (MDC) (NT2X76AA) or as independent shelves here (see guidelines, MS2X76AA, rule AP, Section EMR4-05-MDC-1).

2) If provisioned as independent shelves then provide two (2) NT1X61AB. Mount IOC:00 on MTC 00 POS 04 and IOC:01 on MTC 01 POS 04.

3) Each shelf accommodates up to 9 I/O device controller cards.

4) Provide one (1) NT1X61AB. for each additional 9 I/O device controller cards to be accommodated. Number these shelves IOC:02 and up.

5) Equip each shelf per MS1X61AB.

6) Maximum one shelf per frame.

RUL3 1) Provide one as required to accommodate up to sixteen modems.

2) Equip the Data Set Module per MS1X60AB or MS1X60AA.

3) Locate in position 09 if IOC is not to be equipped in POS 04, or in position 23, 37, 56 or 70 if a MTD is not to be equipped in covering locations else locate on Miscellaneous Equipment frame (MIS) at job-engineered location.

4) Locate within 50 feet of connecting IOC.

RUL4 1) Provide one Inverter Unit for each DSM provided.

2) Locate each immediately below its associated DSM.

RUL5 1) Provide one (1) Filler Panel as required to cover each vacant 14 inch mounting span defined on positions 04, 18, 32, 51, 65.

RUL6 1) Provide one (1) NT2X70AZ Power Converter PC Kit to modify the existing NT2X70__ to the NT2X70AE. This PC kit contains one (1) NT2X70AE and one (1) designation label.

RUL7 1) Provide one of each Power Cable, NT0X95BK and NT0X95BJ, if an I/O Controller Module is provided.

RUL8 1) One (1) of each data cable, NT0X44AE, NT0X44AF and NT0X44AG, is provided with each Cook MTD provided and is not to be ordered separately.

2) Cables are of fixed length (17’) and are manufactured by Cook.

RUL9 1) Provide one (1) NT1X61AX IOC PC Kit when converting an existing IOC Module (NT1X61AB) for DMS_Core applications.

MAG TAPE CENTRE FRAME NT0X43AC

RATING: MD. On new jobs replace by NT0X43AD.

ABBREVIATION NAME: MTC

ENGINEERING DESCRIPTION:

REFERENCE DOCUMENTATION: MS0X43AC 01 11

The Magnetic Tape Centre Frame is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
*	Mag Tape Drive Unit (HP)	7970E-151 -048	MTD		18,51		RUL1
*	Mag Tape Drive Unit (HP)	NT0X44AA	MTD		18,51		RUL1
	Mtg Hardware for HP MTD	NT0X44AC			18,51		RUL1
	Mag Tape Drive Unit (Cook)	NT0X44AB	MTD		18,51		RUL1
	Mag Tape Drive (Cook)	209800-153	MTD		18,51		RUL1
	Mtg Hardware for Cook MTD	NT0X44AD			18,51		RUL1
*	COM & STAT Cable Cook MTD	NT0X44AE			18,51		RUL8
*	Read Data Cable Cook MTD	NT0X44AF			18,51		RUL8
*	Write Data Cable Cook MTD	NT0X44AG			18,51		RUL8
┌	Magnetic Tape Ctrl Cables	210566			18,51		RUL8
┌	Magnetic Tape Ctrl Cables	210567			18,51		RUL8
┌	Magnetic Tape Ctrl Cables	210568			18,51		RUL8
	Magnetic Tape Ctrl Cables	NT0X96AA			18,51		RUL8
	Magnetic Tape Ctrl Cables	NT0X96AB			18,51		RUL8
	Magnetic Tape Ctrl Cables	NT0X96AC			18,51		RUL8
%	Dist. Processor Peripheral	NT8X48AA	DPP		18,51		RUL6
%	Dist. Processor Peripheral	NT8X48BA	DPP		18,51		RUL6
%	Dist. Processor Peripheral	NT8X48AB	DPP		18,51		RUL6
	Dist. Processor Peripheral	NT8X48AD	DPP		18,51		RUL6
	I/O Controller Module	NT1X61AB	IOC		04		RUL2
	IOC PC Kit	NT1X61AX			04		RUL2
	Power Converter Kit	NT2X70AZ					RUL11
	Power Cable	NT0X95BK			04		RUL7
	Power Cable	NT0X95BJ			04		RUL7
	Power Converter Kit	NT2X70AZ					RUL11
	Frame Supervisory Panel	NT0X28AJ	FSP	1	45		AP
	Data Set Module	NT1X60AB	DSM		09,23, 37,56, 70		RUL3
	Data Set Modem Shelf (-48V DC)	NT5X09AA	DSM		05,19,33, 52,66		RUL9
	Data Set Module Shelf Cover	NT5X0806			08,22,36, 55,69		RUL10
	DSM Shelf Cover Mounting HW	NT5X0810		2			RUL10
	DSM Shelf Cover Mounting HW	P097F813		4			RUL10

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Inverter Unit	NT0X87AA	INV		04,18, 32,51, 65		RUL1
Filler Panel	P0575239			04,18, 32,51, 65		RUL5

FLAGS:

% Rating change pending. On new jobs replace with NT8X48AD.
* Rated MD.
┌ MD. Replaced by NT0X96AA/AB/AC.

RULES:

AP 1) When PEC NT0X43AC is ordered, these items are provided.

2) Each NT0X28AJ, FSP, comes equipped with one NT0X36AB, Power Control and Alarm card.

Provide one additional NT0X36AB if an IOC is to be equipped in shelf position 18, or if a Distributed Processing Peripheral (DPP) is equipped in shelf position 18 or 51.

RUL1 1) The standard DMS MTD is the Cook Electric drive, NT0X44AB or 209800-153.

2) If MTD is to be dropped-shipped, the drive (209800-153) and its mounting hardware (NT0X44AD) are ordered separately on the appropriate specs.

3) If MTD is not to be dropped-shipped, the combined drive and H/W is ordered using NT0X44AB.

4) Provide one (1) NT0X44AC if required to mount a customer-provided HP MTD, or if 7970E-151-048 MTD is drop shipped. The Hewlett Packard 7970E-151-048 MTD has been rated Manufacture Discontinued and can no longer be ordered.

5) MTD are to be assigned to positions on the MTC as follows:-

```
MTD:00  MTC 00  51
MTD:01  MTC 01  51
MTD:02  MTC 00  18
MTD:03  MTC 01  18
MTD:04  MTC 02  51
MTD:05  MTC 02  18
```

RUL2 1) A minimum of 2 I/O Controller Modules (IOC:00, IOC:01) is required per system. These may be provisioned either as functional modules within the Central Message I/O Controller shelf (MDC) (NT2X76BA) or as independent shelves here (see guidelines, MS2X76BA, rule AP, Section EMR4-10-MDC-1).

2) If provisioned as independent shelves then provide two (2) NT1X61AB. Mount IOC:00 on MTC 00 POS 04 and IOC:01 on MTC 01 POS 04.

3) Each shelf accommodates up to 9 I/O device controller cards.

4) Provide one (1) NT1X61AB. for each additional 9 I/O device controller cards to be accommodated. Number these shelves IOC:02 and up.

5) Equip each shelf per MS1X61AB.

6) Maximum one shelf per frame.

7) Provide one (1) NT1X61AX IOC PC Kit when interfacing an existing IOC module (NT1X61AA or AB) to an Enhanced Core.

RUL3 1) Provide one as required to accommodate up to sixteen modems.

2) Equip the Data Set Module per MS1X60AB.

3) Locate in position 09 if IOC is not to be equipped in POS 04, or in position 23, 37, 56 or 70 if a MTD is not to be equipped in covering locations else locate on Miscellaneous Equipment frame (MIS) at job-engineered location.

4) Locate within 50 feet of connecting IOC.

RUL4 1) Provide one Inverter Unit for each DSM provided.

2) Locate each immediately below its associated DSM.

RUL5 1) Provide one (1) Cage Filler Panel as required to cover each vacant 14 inch mounting span defined on positions 04, 18, 32, 51, 65.

RUL6 1) The Distributed Processor Peripheral (DPP) will allow remote polling of Automatic Message Accounting (AMA) in the DMS-100F.

2) The DPP Disk Drive Units are now provisionable under the Product Engineering Code (PEC), NT8X48AB/AD. Initial DPP offices will provide one (1) NT8X48AD and either 140, 380 or 760 MByte 5 1/4" Winchester Disk per office requirements (note - when the 760 MByte Disk is generally available the 75 MByte disk will be discontinued). Existing NT8X48AA/BA offices will be updated when required via Product Change Kit to the NT8X48AB level.

3) The available disk call record capacity for the 72 MByte DPP, with call records in the AMATPS format, is 464,152 AMA records. The 140 MByte AMATPS call record capacity is 939,848 AMA records. The 380 MByte DPP AMATPS call record capacity is 3,341,520 AMA records. The 760 MByte DPP AMATPS call record capacity is 6,335,200 records.

Note - These figures represent actual storage values. DPP warning threshold alarms will be present as these values are exceeded.

4) A Product Change Kit (PC Kit), NT8X48AC, will be provisioned with BCS-20 upgrades for existing NT8X48AA and NT8X48BA DPP units. This PC Kit contains Designation Labels converting the DPP to the NT8X48AB PEC. See Engineering Manual section on NT8X48AB for a list of equipment that is provisionable to the DPP unit.

5) Provide one (1) AC Mounting Plate for each equipped 72, 140, 380 or 760 MByte DPP NT8X48AB when the DPP clock is to be optionally powered with external (commercial AC) source. This plate is required to mount the duplex outlets providing commercial AC power to the DPP clocks. Note AC power will not be offered to the NT8X48AD DPP.

6) In addition to the b attery supply, a commercial "AC" (non-generator supply is optionally provisioned to drive the DPP clocks. Building Studies Engineering will provide two EDD3516-30 Group 30 duplex outlets for this purpose. The outlet will be placed in the MIS frame nearest the IOE using a NT0X07AU mounting plate. Building Studies shall run TEC 90 cable from a customer supplied commercial "AC"

source to the duplex outlet. AC Power will not be offered to the NT8X48AD DPP.

RUL7 1) Provide one of each Power Cable NT0X95BK and NT0X95BJ, if an I/O Controller Module is provided.

RUL8 1) Magnetic Tape Control Cables NT0X96AA (read), NT0X96AB (write), and NT0X96AC (control) has been replaced by job engineered length cables (refer to CA0X15). They were formerly provided when the Distributed Processing Peripheral (DPP) was equipped. Note that these cables are always provided with the Cook Mag Tape Drive (MTD) and thus DO NOT need to be provisioned for the MTD. Cables 210568 (read), 210566 (write) and 210567 (control) are Manufacture Discontinued.

2) NT0X96AA/AB/AC cables are of fixed length (4.57 metres/15 feet).

RUL9 1) Provide one (1) NT5X09AA Data Set Modem Shelf (-48V DC) to accommodate up to sixteen (16) Data Set Interfaces (Modems) equipped per MS5X09AA.

2) Provide 100 feet of NT-26CR wire to be used to wire NT5X09AA to the Frame Supervisory Panel as shown below:

NT5X09AA	FSP
(J1) CONN 2	(J2) CONN 2 to (TB2) TB 6B
(J1) CONN 6	(J2) CONN 6 to (TB2) TB 5B

RUL10 1) Provide one (1) cover and associated hardware for each NT5X09AA Data Set Modem Shelf.

RUL11 1) Per Telco request, provide one (1) NT2X70AZ Power Converter PC Kit to upgrade NT2X70-- to a NT2X70AE.

Release 05.03
December 1997

DMS-100 Family
North American DMS-100
ALL PRODUCTS COMPUTING-MODULE LOADS Vol 6 of 15

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