
DMS-100* FAMILY

ALL PRODUCT COMPUTING-MODULE LOADS

Volume 1 of 15

ACTIVE ENGINEERING MANUALS

97Q4 Standard 05.03 December 1997

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ACTIVE EQUIPMENT

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ACTIVE EQUIPMENT

EMA1: INTRODUCTION

EMA2: PERIPHERAL MODULES MENU

EMA2-01-AXU-1	ALARM X-CONNECT UNIT	NT3X89CA
EMA2-01-EMS-1	THIS FILE IS A TEMPORARY PLACEHOLDER FIL	EMS001
EMA2-01-EMS-2	THIS FILE IS A TEMPORARY PLACEHOLDER FIL	EMS002
EMA2-01-ISM-1	CABINETIZED ISM EQUIPMENT	NTFX40AA
EMA2-01-ISM-2	FRAME ISM EQUIPMENT	NTFX40BA
EMA2-01-ISM-3	ISM SHELF ASSEMBLY	NTFX4101
EMA2-01-MTA-1	CABINETIZED METALLIC TEST ACCESS (CMTA)	NTFX40EA
EMA2-01-MTA-2	METALLIC TEST ACCESS EQUIPMENT (MTAE)	NTFX40FA
EMA2-01-MTM-11	MAINTENANCE TRUNK MODULE	NT2X58CA
EMA2-05-001	REMOTE CONTROLLER EQUIPMENT KIT .TOPIC2	NT6X10AH
EMA2-06-DTC-7	FXPM ENHANCED DTC COMMON CP (DMS250)	NT6X02LF
EMA2-06-DTC-8	DIGITAL TRUNK CONTROLLER COMMON CP	NT6X02CZ
EMA2-06-DTCI-1	FXPM ISDN ENHANCED DTC COMMON CP (DMS250)	NT6X02RF
EMA2-06-FFP-1	FILLER FACE PLATE PACKAGE	NT6X02AB
EMA2-06-ILGC-1	INTERNATIONAL LINE GROUP CONTROLLER MOD.	NT6X02KF
EMA2-06-ILGC-8	UNIVERSAL ILGC/IDTC COMMON CP FILL	NT7X02BP
EMA2-06-IXPM-3	INTERNATIONAL DTC/LGC COMMON CIRCUIT PAC	NT6X02JB
EMA2-06-IXPM-5	CABINETIZED FIBER INTERNATIONAL LGC/DTC	NTRX47AC
EMA2-06-IXPM-7	INTERNATIONAL DTC/LGC COMMON CIRCUIT PAC	NT6X02JH
EMA2-06-I00	INT'L LINE GROUP/DIGITAL TRUNK EQUIP FRA	NT6X01BA
EMA2-06-LGC-1	LINE GROUP CONTROLLER COMMON CP FILL	NT6X02LC
EMA2-06-LTC-1	LINE TRUNK CONTROLLER COMMON CP FILL	NT6X02MC
EMA2-06-RX46BB	CIPE COMMON CIRCUIT PACK	NTRX46BB
EMA2-06-RX46CE	CIPE COMMON PACKFILL	NTRX46CE
EMA2-06-RX46CF	CIPE COMMON PACKFILL	NTRX46CF
EMA2-06-SMA-4	SUBSCRIBER CARRIER MODULE-100 ACCESS COM	NT6X02TJ
EMA2-06-SMS-8	SUBSCRIBER MODULE - SLC-96	NT6X02DV
EMA2-06-SMSR-6	SUBSCRIBER MODULE - SLC-96 REMOTE	NT6X02PL
EMA2-06-SMU-7	ESMU PACKFILL	NT6X02CX
EMA2-06-SMU-8	SMU PACKFILL	NT6X02EU
EMA2-07-ILCM-4	INTERNATIONAL LCM COMMON CP	NT6X04BC
EMA2-07-ILD-1	LINE DRAWER (INTERNATIONAL)	NT6X05BA
EMA2-07-ILDR-2	ISDN LINE DRAWER REMOTES	NT6X05DA
EMA2-07-LCEC-1	CLCE DOMESTIC COMMON CP FILL-MOD B	NT6X04MD
EMA2-07-LCEC-3	CLCE INTERNATIONAL COMMON CP FILL-MOD B	NT6X04ND
EMA2-07-LCM-2	LCM FILLER KIT	NT6X04AX
EMA2-07-LCM-3	LINE CONCENTRATING MODULE COMMON CP	NT6X04AD
EMA2-07-LCM-4	LCM COMMON CP	NT6X04AE
EMA2-07-LD-1	LINE DRAWER	NT6X05AA
EMA2-07-LDPB-3	LCM LINE DRAWER, PROVISIONABLE BIC	NT6X05EA
EMA2-07-PCKIT-1	PRODUCT CHANGE KIT	NTEX37AA
EMA2-07-PPKIT-1	1-MEG MODEM SERVICE PATCH PANEL KIT	NTEX45AA
EMA2-07-000	LINE CONCENTRATING EQUIPMENT FRAME	NT6X03AA
EMA2-09-000	SIGNALLING TERMINAL 7 EXTENSION FRAME	NT6X09AA

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EMA2-10-000	DATA MODEM EXTENSION FRAME	NT6X29AA
EMA2-11-MSB7-5	INTERNATIONAL CMS7 MSB7 COMMON CP	NTRX48AC
EMA2-11-000	MESSAGE SIGNALLING 7 FRAME	NT6X31AA
EMA2-12-LIS-3	LINK INTERFACE UNIT SHELF COMMON CP FILL	NT9X72BA
EMA2-12-003	LINK INTERFACE MODULE ENHANCED CABINET	NT9X70BB
EMA2-12-004	SINGLE SHELF LPP(FLIS) IN C42 CABINET	NT6X01AB
EMA2-12-005	ENHANCED LINK PERIPHERAL PROCESSOR CABIN	NT9X70CA
EMA2-13-BCU-1	BATTERY CHARGING UNIT COMMON CP FILL	NT8X03AA
EMA2-13-LCM-3	LCM COMMON CP	NT8X04AC
EMA2-13-LCM-5	LCM COMMON CP	NT8X04BD
EMA2-13-001	OPM OUTSIDE PLANT MODULE (256)	NT8X01BC
EMA2-13-002	OUTSIDE PLANT MODULE 640	NT8X01AC
EMA2-13-100	OUTSIDE PLANT ACCESS CABINET	NTRX60AA
EMA2-13-200	INTL OPAC.	INTRX60AA
EMA2-14-FSP-1	RLCM FRAME SUPERVISORY PANEL	NT6X25AA
EMA2-14-FSP-2	RLCM FRAME SUPERVISORY PANEL	NT6X25BA
EMA2-14-HIE-3	HOST INTERFACE EQUIPMENT COMMON CP FILL	NT6X11EB
EMA2-14-HIE-4	HIE COMMON CP FILL (CHINA)	NT6X11KA
EMA2-14-HIE-5	HOST INTERFACE EQUIPMENT COMMON CP INTER	NT6X11BC
EMA2-14-RMM-1	REMOTE MAINTENANCE MODULE COMMON CP FILL	NT6X13AB
EMA2-14-RMM-2	REMOTE MAINTENANCE MODULE COMMON CP FILL	NT6X13BA
EMA2-14-RMM-3	REMOTE MAINTENANCE MODULE COMMON CP FILL	NT6X13DA
EMA2-14-000	REMOTE LINE CONCENTRATING MODULE	NT6X14AA
EMA2-15-RCC2-1	REMOTE SWITCHING CENTER - SONET	NTMX89FA
EMA2-15-RCC2-2	REMOTE SWITCHING CENTER - SONET	NTMX89FB
EMA2-15-RCC2-3	REMOTE SWITCHING CENTER - SONET	NTMX89FC
EMA2-15-003	REMOTE MAINTENANCE MODULE EQUIPMENT FRAM	NT6X10DA
EMA2-18-CPC-1	ISDN COMMON PERIPHERAL CONTROLLER CP FIL	NT6X02NA
EMA2-18-100	COMMON PERIPHERAL CONTROLLER EQUIPMENT F	NT6X01AD
EMA2-19-ELD-1	ISDN ENHANCED (2B1Q) LINE DRAWER	NTBX32BA
EMA2-19-FFP-1	LCMI FILLER FACEPLATE FILL	NTBX31AB
EMA2-19-LCME-3	ISDN ENHANCED LINE CONCENTRATING MODULE	NTBX31BC
EMA2-19-LCME-4	LCME CIRCUIT PACKFILL	NTBX31BD
EMA2-19-LCMI-1	ISDN LINE CONCENTRATION MODULE CP FILL	NTBX31AA
EMA2-19-LCMI-2	ISDN LINE CONCENTRATION MODULE CP FILL	NTBX31AC
EMA2-19-PCKIT-2	LCME PACKFILL UPGRADE KIT	NTBX31PB
EMA2-19-000	ISDN LINE CONCENTRATING EQUIPMENT FRAME	NTBX30AB
EMA2-20-ILGC-6	INTERNATIONAL LGC/DTC COMMON CP	NTFX33BH
EMA2-20-ILGC-7	INTERNATIONAL LGC/DTC COMMON CP	NTFX33BJ
EMA2-20-ILGC-8	INTERNATIONAL LGC/DTC COMMON CP	NTFX33BE
EMA2-20-IMTM-2	INTERNATIONAL MTM-DRA SHELF	NT2X58BD
EMA2-20-IPTM-1	IPTM WITH OAU COMMON CIRCUIT PACK	NTFX37BA
EMA2-20-IPTM-2	IPTM COMMON CIRCUIT PACK FOR ICAM	NTFX37BB
EMA2-20-LGCI-10	LGCI/DTCI COMMON CIRCUIT PACK (OFFSHORE)	NTFX33CG
EMA2-20-LGCI-2	INTERNATIONAL CIDC LGC/DTC FIBER COMMON	NTRX46AC
EMA2-20-LGCI-4	LGCI/DTCI COMMON CIRCUIT PACK (OFFSHORE)	NTFX33CE
EMA2-20-LGCI-9	LGCI/DTCI COMMON CIRCUIT PACK (OFFSHORE)	NTFX33CF
EMA2-20-000	INTERNATIONAL CABINET TRUNK MODULE FIBER	NTFX33AA
EMA2-20-001	OFFSHORE LINE TRUNK EQUIPMENT ISDN MODUL	NTFX33CA
EMA2-21-LTCI-1	LGC/DTC OFFSHORE COMMON CP	NT6X02UB
EMA2-21-000	OFFSHORE COMMON PERIPHERAL	NT6X01AC
EMA2-22-RMM-1	REMOTE MAINTENANCE MODULE COMMON CP	NT6X13EA
EMA2-23-SRU-1	SRU COMMON CP FILL	NT8X
EMA2-23-SRU-2	SRU-240 COMMON CP FILL	NT8X95AQ
		NT8X95AX

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EMA2-23-000	SMALL REMOTE UNIT (SRU)	N NT8X95AB
EMA2-23-001	SMALL REMOTE UNIT 60 LINE (SRU60)	NTSX02AA
EMA2-24-GPP-1	GLOBAL PERIPHERAL PLATFORM (GPP)	NTMX90AB
EMA2-24-MVI-1	CABINETIZED MULTI-VENDOR INTERFACE	NTMX90BA
EMA2-24-MVI-3	MULTI-VENDOR INTERFACE EQUIPMENT FRAME	NTQX90AA
EMA2-24-RC2-1	REMOTE SWITCHING CENTER EQUIPMENT (RSCE)	NTMX89GA
EMA2-24-RSCM-1	REMOTE SWITCHING CENTER-MULTI ACCESS	NTMX90AC
EMA2-25-001	C28B MECHANICAL ASSEMBLY MODEL B	NTRX25AA
EMA2-26-SDM-1	SUPERNODE DATA MANAGER CABINET	NTRX50BA
EMA2-26-SDM-2	SUPERNODE DATA MANAGER STANDALONE SYSTEM	NTRX50CA
EMA2-26-SDM-3	STANDALONE TO CABINETIZED SDM02 KIT	NTRX5082
EMA2-26-SDM-4	VME SUPERNODE DATA MANAGER	NTRX50DA
EMA2-26-SDM-5	CABINETIZED SUPERNODE DATA MANAGER	NTRX50FA
EMA2-27-SPM	SPECTRUM PERIPHERAL MODULE	NTLX50AA
EMA2-96-AS	SERIES I PERIPHERAL CHANGE KIT FOR EN	NT2X31AS
EMA2-97-LCM-2	LCM PROCESSOR CP CHANGE KIT	NT6X04ZY
EMA2-97-LCM-3	LCM PROCESSOR CP CHANGE KIT	NT6X04ZX
EMA2-97-LCME-3	ISDN LCMI TO LCME UPGRADE KIT	NTBX30BC
EMA2-97-LCMI-1	LCMI PROCESSOR MEMORY UPGRADE KIT	NTBX31AD
EMA2-99-ECC-1	2 PROCESSOR BKPML XPM+ ECHO CANCELLER UP	NT6X01XG
EMA2-99-ECC-2	ECC UPGRADE KIT FOR FRAME (NO CABLE FILT	NT6X01XK
EMA2-99-ECC-3	ECC CABLE SUPPORT BRACKET KIT (FRAMES)	NT6X01XJ
EMA2-99-IAE-1	IAE SP MEMORY UPGRADE KIT	NTBX40BD
EMA2-99-ISDN-3	PRODUCT CHANGE KIT NT6X01AA EQUIPPED FOR	NT6X02YS
EMA2-99-LGC-4	LGC/LTC/DTC COMMON CIRCUIT PACK PC KIT	NT6X02ZP
EMA2-99-OPM-1	4-PIN STUBLESS PROTECTOR BLK ASSY LINE U	NT8X09AB
EMA2-99-OPM-2	5-PIN PROTECTOR BLK ASSY WITH 50' STUB U	NT8X09AC
EMA2-99-OPM-3	5-PIN PROTECTOR BLK ASSY LINE UPGRADE	NT8X09AD
EMA2-99-RCC-10	NT6X10AC/AD TO NT6X10DA PC KIT	NT6X10ZA
EMA2-99-RLM-1	RLM CONTROL SHELF MUX KIT	NT2X14AZ
EMA2-99-SMR-2	SMR PACKFILL CHANGE KIT	NT6X02CU
EMA2-99-SMS-2	SMS PRODUCT CHANGE KIT	NT6X02DK
EMA2-99-SMS-6	SMR TO SMS KIT	NT6X02YB
EMA2-99-SMU-5	SMU COMMON CP KIT	NT6X02CM
EMA2-99-SMU-6	NTAX78AB UPGRADE KIT	NT6X02CY
EMA2-99-SMU-7	NT6X80BB PRODUCT CHANGE KIT	NT6X02WE
EMA2-99-SMU-8	SMR TO SMU KIT	NT6X02YA
EMA2-99-TM8-1	TM8 PRODUCT CHANGE KIT	NT2X52AU
EMA2-99-XPM-1	EXPANDED SIGNALING PROCESSOR PC KIT	NT6X02ZJ
EMA2-99-XPM-12	NT6X86AB CHANGE KIT	NT6X02WC
EMA2-99-XPM-14	REMOTE XPM PLUS PACKFILL FIT	NT6X02XG
EMA2-99-XPM-15	NT6X69AD PRODUCT CHANGE KIT	NT6X02WB
EMA2-99-XPM-16	XPM+ PADDLECARD UPGRADE KIT	NTMX70AB
EMA2-99-XPM-17	NT7X05AA PRODUCT CHANGE KIT	NT6X02WF
EMA2-99-XPM-18	N5 SIGNALLING KIT	NTRX4653
EMA2-99-XPM-20	NT6X80BB/86AB PRODUCT CHANGE KIT	NT6X02WG
EMA2-99-XPM-21	ENHANCED 3P BACKPLANE XPM+ UPGRADE KIT	NT6X03DE
EMA2-99-XPM-3	FXPM PC KIT	NT6X02BQ
EMA2-99-XPM-4	XPM PC KIT	NT6X02EQ
EMA2-99-XPM-5	XPM PC KIT	NT6X02ER
EMA2-99-XPM-7	XPM TO XPM PLUS PRODUCT CHANGE KIT	NT6X02XC
EMA2-99-000	PROV. TABLE FOR PROD CHG KITS ON CPC FIL	PCKLGC

EMA3: DIGITAL NETWORK SUBSYSTEMS MENU

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EMA3-01-NET-1	NETWORK COMMON CIRCUIT PACK FILL	NT8X11AD
EMA3-01-NET-2	NETWORK COMMON CIRCUIT PACK FILL (INT'L)	NT8X11BB
EMA3-01-000	DOUBLE SHELF NETWORK EQUIPMENT FRAME	NT8X10AA
EMA3-02-000	SPEECH LINK CONNECTING FRAME	NT0X56AA
EMA3-03-000	DIGITAL NETWORK CONNECTION FRAME	NT0X18CB
EMA3-04-000	MERIDIAN DIGITAL NETWORK INTERCONNECT	NTNX97AA
EMA3-05-CAB	CABLING STRUCTURE CABINET	NT0X35CC
EMA3-05-001	S/DMS ENHANCED NETWORK	NT9X05AC
EMA3-05-002	SINGLE CABINET ENHANCED NETWORK (64K ENE	NT9X05AD
EMA3-05-003	ENET 64K TO 128K UPGRADE KIT	NT9X0560
EMA3-99-AK	NETWORK CHANGE KIT (DMS SUPERNODE)	NT0X48AK
EMA3-99-AL	NETWORK CHANGE KIT (DMS SUPERNODE)	NT0X48AL
EMA3-99-AZ	FIBER RSC INTERFACE UPGRADE KIT	NT3X75AZ
EMA3-99-ZX	DMS-CORE PC KIT	NT5X13ZX

EMA4: CENTRAL CONTROL SUBSYSTEMS MENU

EMA4-02-CM3	CM PROCESSOR SHELF COMMON CP	NT9X06AF
EMA4-02-MP4	MESSAGE SWITCH COMMON CP	NT9X04AL
EMA4-02-MSPS-3	MESSAGE SWITCH PROCESSOR SHELF CP FILL	NT9X04AH
EMA4-02-SL2	SLM SHELF COMMON CP NT9X07AC	NT9X07AC
EMA4-03-001	SUPERNODE IN C42(S/DMS) CABINET	NT9X01JB
EMA4-07-001	MECHANICAL H/W FOR C42(S/DMS) CABINET	NT9X95BA
EMA4-98-CMPS-2	COMPUTING MODULE CURRENT LOOP UP	NT9X06AZ
EMA4-98-MSPS-3	MESSAGE SWITCH CLOCK INTERFACE UPGRADE K	NT9X04AZ

EMA5: INPUT/OUTPUT SUBSYSTEMS MENU

EMA5-01-BMCA-1	REDUNDANT BMC LSSGR BISYNC PSEUDO	NT8M04_C
EMA5-01-BMCA-4	REDUNDANT BMC LSSGR, BX.25	NT8M04_E
EMA5-01-BMCA-41	BMC SYSTEM, DMS-100, AMAT	NT8M04GE
EMA5-01-BMCA-42	BMC SYSTEM, DMS-100, AMAT	NT8M04HE
EMA5-01-BMCA-43	BMC SYSTEM, DMS-100, AMAT	NT8M04IE
EMA5-01-BMCA-5	REDUNDANT BMC AMA NT, HDLC ADU, PS	NT8M04_J
EMA5-01-BMCB-1	BMC SYSTEM, DMS-100, INDEPENDANT, BISYNC	NT8M04GC
EMA5-01-BMCS-1	REDUNDANT BMC SMDR/NT FORMAT	NT8M04_A
EMA5-01-BMCS-2	REDUNDANT BMC SMDR/NT FORMAT ASCII	NT8M04_M
EMA5-01-DPP-1	DISTRIBUTED PROCESSING PERIPHERAL	NT8X48AB
EMA5-01-DPP-3	DISTRIBUTED PROCESSING PERIPHERAL	NT8X48AD
EMA5-01-DPP-4	DISTRIBUTIVE PROCESSING PERIPHERAL	NT8M05AB
EMA5-01-DPP-5	UL DPP SHELF,	NT8X48BD
EMA5-01-DSM-1	DATA SET MODULE SHELF	NT5X08AC
EMA5-01-I0C-3	INPUT/OUTPUT CONTROLLER MODULE (I0C)	NT1X61AG
EMA5-01-ROS-1	REMOTE OSCILLATOR SHELF	NT3X95AB
EMA5-01-ROS-2	REMOTE OSCILLATOR DMS-CORE SHELF	NT3X95BB
EMA5-01-000	INPUT/OUTPUT EQUIPMENT FRAME	NT0X43AD
EMA5-03-I0M-001	I0M PERTEC SMART CABLE ASSEMBLY	NTFX36AA
EMA5-03-I0M-002	I0M - DPP/BMC INTERFACE	NTRX33DW
EMA5-03-I0M-003	CIOE RETROFIT KIT FOR I0M TO MTD	NTRX33DX
EMA5-99-BMC-1	FIELD UPGRADE KITS FOR BMC PRODUCTS	T_BMC_KITS
EMA5-99-BMC-2	BMC UPGRADE KIT,	NT6M97IM
EMA5-99-BMC-3	BMC UPGRADE KIT,	NT6M97IN
EMA5-99-BMC-4	BMC UPGRADE KIT,	NT6M97IT

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EMA5-99-BMC-5	BMC UPGRADE KIT,	NT6M97JH
EMA5-99-BMC-6	BMC UPGRADE KIT,	NT6M97LC
EMA5-99-BMC-7	BMC UPGRADE KIT,	NT6M97JF
EMA5-99-BMC-8	BMC UPGRADE KIT, BISYNC, INDEP	NT6M97IK
EMA5-99-DDU-1	14 INCH DDU ENHANCEMENT	NT4X00AZ
EMA5-99-DPP-1	DPP CONVERSION PC KIT	NT8X48AC
EMA5-99-DPP-10	DPP UPGRD, NON-TURBO TO 1GB TURBO/COMPRES	NT6M97FC
EMA5-99-DPP-11	DPP UPGRD, NON-TURBO TO 2GB TURBO	NT6M97FD
EMA5-99-DPP-12	DPP UPGRD, NON-TURBO TO 2GB TURBO/COMPRES	NT6M97FE
EMA5-99-DPP-13	DPP UPGRD, TURBO TO 1GB TURBO	NT6M97FF
EMA5-99-DPP-14	DPP UPGRD, TURBO TO 2GB TURBO	NT6M97FG
EMA5-99-DPP-15	DPP UPGRD, TURBO TO 1GB TURBO/COMPRESSIO	NT6M97FH
EMA5-99-DPP-16	DPP UPGRD, TURBO TO 2GB TURBO/COMPRESSIO	NT6M97FI
EMA5-99-DPP-2	DPP CONVERSION PC KIT	NT6M97EA
EMA5-99-DPP-3	DPP CONVERSION PC KIT	NT6M97EB
EMA5-99-DPP-4	DPP CONVERSION PC KIT	NT6M97EC
EMA5-99-DPP-5	DPP CONVERSION PC KIT	NT6M97ED
EMA5-99-DPP-6	DPP CONVERSION PC KIT	NT6M97EF
EMA5-99-DPP-7	DPP CONVERSION PC KIT	NT6M97EG
EMA5-99-DPP-8	DPP UPGRD, NON-TURBO TO 1 GB NON-TURBO	NT6M97FA
EMA5-99-DPP-9	DPP UPGRD, NON-TURBO TO 1GB TURBO	NT6M97FB
EMA5-99-I/O-2	I/O MESSAGE CONTROLLER REPLACEMENT KIT	NT1X61AY
EMA5-99-ROS-1	STRATUM II REMOTE OSCILLATOR SHELF ISG K	NT0X43XB
EMA5-99-ROS-2	STRATUM 2.5 REMOTE OSCILLATOR SHELF ISG	NT0X43XC

EMA6: OFFICE ALARM VISUAL AND AUDIBLE EQUIPMEN

EMA6-01-000 OFFICE ALARM VISUAL AND AUDIBLE EQUIPMEN OFFALARM

EMA7: MERIDIAN BUSINESS SERVICES MENU

EMA7-BSAC-1	BUSINESS SERVICE ATTENDANT CONSOLE	NT4X09BB
EMA7-BSAC-2	BUSINESS SERVICE ATTENDANT CONSOLE	NT4X09BC
EMA7-BSAC-3	SCOPE DIAL U.K. BUSINESS SERV ATTEND CONS	NT4X09BA
EMA7-DATA-1	DATA UNIT FAMILY	NT4X25
EMA7-P-PHONE-2	MDC MERIDIAN BUSINESS SETS (MBS)	P_PHONE
EMA7-POWER-1	PYLON POWER SUPPLY	PYLONPS
EMA7-VMX-1	VOICE MESSAGE EXCHANGE INTERFACE	T_VMX_IF

EMA8: OPERATOR EQUIPMENT MENU

EMA8-ITOPS4-2	ITOPS-PC OPERATOR POSITION KIT	NTZ000AP
EMA8-ITOPS4-3	ITOPS-PC IN-CHARGE POSITION KIT	NTZ000AU
EMA8-ITOPS4-7	ITOPS-PC FRENCH OPERATOR POSITION KIT	NTZ000AV
EMA8-ITOPS4-8	ITOPS-PC FRENCH IN-CHARGE POSITION KIT	NTZ000AW
EMA8-NACD-1	NACD SYSTEM	NTMX96AA
EMA8-TUTOR-1	TOPS TUTOR 3B TRAINING ADAPTOR	NT4X77AA
EMA8-03-001	TOPS IWS ISA POSITION	IWS_PLATFORM
EMA8-98-000	PROVISIONABLE KEYCAPS	MS4X76AE
EMA8-99-TOPSMP	IBM-DA KEYBOARD PC KIT	NT0M36AK

EMA9: CELLULAR MOBILE SUBSYSTEMS MENU

EMA9-01-PMTC-3 PMTC COMMON CP FILL NT7X52DF

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EMA9-01-000	MOBILE TELEPHONE EXCHANGE MINI	NTZX04
EMA9-02-CSC-1	CELL SITE CONTROLLER COMMON CP FILL	NT6X16BC
EMA9-02-CSC-2	ENHANCED CELL SITE CONTROLLER CP FILL	NT6X16BB
EMA9-02-CSC-3	CELL SITE CONTROLLER COMMON CP FILL	NT6X16BE
EMA9-02-CSC-4	CELL SITE CONTROLLER COMMON CP FILL	NT6X16BF
EMA9-02-CSC-5	CELL SITE CONTROLLER COMMON CP FILL	NT6X16BG
EMA9-02-CSC-6	CELL SITE CONTROLLER COMMON CP FILL	NT6X16BH
EMA9-02-000	DUPLEX CELL SITE EQUIPMENT FRAME	NT6X15AB
EMA9-03-EDSPM-1	FLD UPG KIT: DSPM SHELF (DICP OR MDSP) T	NTAX75KA
EMA9-03-EDSPM-2	FLD UPG KIT: EDSPM SHELF ADDITION TO DIC	NTAX82ZD
EMA9-03-000	DIGITAL INTELLIGENT CELLULAR PERIPHERAL	NTAX75AA
EMA9-04-000	NOVATEL COMMON EQUIPMENT FRAME FOR CSC	NT3P60AB
EMA9-07-000	NOVATEL COMMON EQUIPMENT FRAME	NT3P60AD
EMA9-08-000	NOVATEL RADIO FREQUENCY FRAME	NT3P61AB
EMA9-09-000	NOVATEL RADIO FREQUENCY FRAME	NT3P61AC
EMA9-10-ICRM-1	ICRM UNIT AND FSP	NTAX86AA
EMA9-10-ICRM-2	ICRM EXPANSION SHELF	NTAX86AC
EMA9-10-ICRM-3	ICRM COMMON CP	NTAX86AB
EMA9-10-000	NOVATEL COMMON EQUIPMENT FRAME	NT3P64AA
EMA9-10-001	CE1 DR OMNI W/O RCMI, RMC	NT3P64AD
EMA9-11-000	NOVATEL COMMON EQUIPMENT FRAME (CE2)	NT3P64BA
EMA9-12-000	NOVATEL COMMON EQUIPMENT FRAME (CE2)	NT3P68BA
EMA9-13-000	NOVATEL COMMON EQUIPMENT FRAME (CE2)	NT3P68BB
EMA9-13-001	CE2 ICP OTSR W/O RCMI	NT3P68BC
EMA9-14-000	CE1 DR OMNI W/O RCMI	NT3P62AB
EMA9-15-000	MERIDIAN DIGITAL SIGNAL PROCESSOR	NTAX82AA
EMA9-16-000	COMPACT CE01 FRAME	NT3P64CA
EMA9-17-000	COMPACT RF FRAME	NT3P63FA
EMA9-18-000	COMPACT CE02 FRAME	NT3P66CA
EMA9-19-000	NT800DR CE1 ICP OMNI W/O RMC	NT3P62AA
EMA9-20-000	NT800DR CE1 ICP SECTORED W/O RMC	NT3P64AB
EMA9-21-000	NT800DR CE1 ICP SECTORED W/O RCMI	NT3P64AC
EMA9-22-000	MERIDIAN ENHANCED DIGITAL SIGNALING PROC	NTAX82AB
EMA9-99-CSC-1	CSC INCREASED MEMORY PRODUCT CHANGE KIT	NT6X15AT
EMA9-99-CSC-2	CSC ENHANCED MESSAGING PRODUCT CHANGE KI	NT6X15AU
EMA9-99-CSC-3	9600 BAUD HDLC PRODUCT CHANGE KIT	NT6X15AS
EMA9-99-CSC-4	CSC ENHANCED PROCESSOR PRODUCT CHANGE KI	NT6X15AW
EMA9-99-ICP-1	DICP XPM PLUS PACKFILL CHANGE KIT	NTAX75ZB

EMA10: MERIDIAN CABINET EQUIPMENT MENU

EMA10-MACB-3	MERIDIAN APPLICATIONS CABINET BAY 1	NT1M41CG
EMA10-MACB-4	MERIDIAN APPLICATIONS CABINET BAY 2	NT1M41CH
EMA10-MACLA-1	MERIDIAN AUXILIARY CABINET FOR RAISED FL	NT1M41BL
EMA10-MACUA-1	MERIDIAN AUXILIARY CABINET	NT1M41AB
EMA10-MASC-1	MERIDIAN APPLICATIONS STORAGE CABINET	NT1M40AN
EMA10-01-000	MCAM-3, MERIDIAN CABINET AUXILARY MODULE	NTNX37AD
EMA10-02-IDTC-1	MERIDIAN IDTC COMMON CP FILL	NTNX33TA
EMA10-02-IDTC-4	INTERNATIONAL DTC COMMON CP	NTNX33FC
EMA10-02-I00	MERIDIAN CABINET TRUNK MODULE FRAME	NTNX33DA
EMA10-02-I01	MERIDIAN CABINET TRUNK MODULE	NTNX33FA
EMA10-03-ELM-1	MERIDIAN CABINET LINE MODULE UPPER ENHAN	NTNX38LB
EMA10-03-ELM-2	LOWER ENHANCED LINE MODULE COMMON CP	NTNX38LA
EMA10-03-000	MERIDIAN CABINET LINE MODULE FRAME	NTNX38AA

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EMA10-08-DSN-3	MCNM LOWER NUMBERED NETWORK PACKFILL	NTNX40LC
EMA10-08-DSN-4	MCNM HIGHER NUMBERED NETWORK PACKFILL	NTNX40LD
EMA10-08-000	MERIDIAN CABINET NETWORK MODULE FRAME	NTNX40AA
EMA10-10-MCRM-2	MERIDIAN CABINET REMOTE MODULE COMMON CP	NTNX17BD
EMA10-10-MCRM-3	MCRM PACKFILL	NTNX17BF
EMA10-11-MCPM-2	MERIDIAN CABINET POWER MODULE	NTNX24LB
EMA10-12-MCAM-1	MCAM COMMON CP FILL	NTNX37NF
EMA10-12-MCAM-2	MCAM COMMON CP FILL	NTNX37NB
EMA10-12-MCAM-3	MCAM COMMON CP FILL	NTNX37NC
EMA10-12-MCAM-4	MCAM COMMON CP FILL	NTNX37NG
EMA10-12-MCAM-5	MCAM COMMON CP FILL	NTNX37NH
EMA10-12-MCAM-6	MCAM STM PACKFILL	NTNX37NK
EMA10-12-MCAM-7	MCAM MTM PACKFILL	NTNX37NR
EMA10-12-000	MERIDIAN CABINET AUXILIARY MODULE FRAME	NTNX37AB
EMA10-13-000	MERIDIAN MODULE GENERAL MODULE FRAME	NTNX47BA
EMA10-14-001	MERIDIAN CABINET SPARE STORAGE	NTNX22BA
EMA10-15-MCEM-1	MERIDIAN EIOC MEMORY MODULE	NTNX35MA
EMA10-15-000	MERIDIAN EIOC MEMORY MODULE FRAME	NTNX35AA
EMA10-16-MCEP-1	MCEP COMMON CP FILL	NTNX31MA
EMA10-16-000	MERIDIAN EIOC PROCESSOR MODULE FRAME	NTNX31AA
EMA10-17-MCEX-1	MCEX COMMON CP FILL	NTNX32MA
EMA10-17-MCEX-2	MCEX COMMON CP FILL	NTNX32NA
EMA10-17-000	MERIDIAN EIOC EXTENSION MODULE FRAME	NTNX32AA
EMA10-18-MCOR-1	MERIDIAN CORE MODULE COMMON CP FILL	NTMX42NA
EMA10-20-CPCI-4	DTC/DTCI/LTC/LTCI COMMON CP (LOWER MODUL	NTNX33NL
EMA10-20-CPCI-5	DTC/DTCI/LTC/LTCI COMMON CP (UPPER MODUL	NTNX33NM
EMA10-20-ICPC-1	DTC/DTCI/LTC/LTCI COMMON CP (LOWER MODUL	NTNX33NQ
EMA10-20-ICPC-2	DTC/DTCI/LTC/LTCI COMMON CP (UPPER MODUL	NTNX33NN
EMA10-20-ICPC-3	PDTC/PLGC/PLTC COMMON PACKFILL (LOWER &	NTNX33NR
EMA10-20-000	MERIDIAN CABINET TRUNK MODULE - ISDN	NTNX33CA
EMA10-21-MLNK-1	MERIDIAN LINK MODULE COMMON CP FILL	NTMX44NA
EMA10-21-000	MERIDIAN LINK MODULE	NTMX44AA
EMA10-22-MSB7-2	INTERNATIONAL MSB7 (LOWER MODULE) CP FIL	NTNX12PA
EMA10-24-PWR-1	MERIDIAN CABINET MISC. POWER ASSEMBLY	NTNX9601
EMA10-24-PWR-2	MERIDIAN CABINET MISC. POWER ASSEMBLY	NTNX9606
EMA10-24-000	MERIDIAN CABINET MISCELLANEOUS	NTNX96AA
EMA10-25-MSB6-1	MSB6 (LOWER MODULE) COMMON CP FILL	NTNX34PA
EMA10-27-LCME-1	MCLM-E ISDN 2B1Q COMMON CP (LOWER MODULE	NTNX38LE
EMA10-27-LCME-2	MCLM-E ISDN 2B1Q COMMON CP (UPPER MODULE	NTNX38LF
EMA10-27-000	MERIDIAN CABINET LINE MODULE ENHANCED IS	NTNX38CA
EMA10-29-000	INTELLIGENT PERIPHERAL EQUIPMENT COLUMN	NTND04AA
EMA10-29-001	INTELLIGENT PERIPHERAL EQUIP MODULE ASSY	NTND03AA
EMA10-29-002	IPE PEDESTAL/TOP CAP ASSEMBLY, AC	NTND04BA
EMA10-29-003	IPE MODULE ASSEMBLY, AC	NTND03BA
EMA10-30-000	MPDC BOTTOM FEED	NTNX16AA
EMA10-31-000	MPDC TOP FEED	NTNX16BA
EMA10-32-001	MERIDIAN CABINET REMOTE MODULE - SONET	NTNX17AC
EMA10-34-RLCC-2	RLCC COMMON PACKFILL	NTNX14LC
EMA10-34-RLCC-3	MCRU PACKFILL KIT	NTNX14LD
EMA10-34-000	REMOTE LINE CONCENTRATING CABINET	NTNX14AA

EMA11: MAINTENANCE AND TEST EQUIPMENT MENU

EMA11-01-COMM-1	DMS-100F COMMUNICATION MODULES	DMS100COM

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EMA11-01-NKSU-0	NORSTAR KEY SYSTEMS	NORSTAR
EMA11-01-NKSU-1	NORSTAR KEY SYSTEM UNIT (NKSU) KIT	NTZX18AB
EMA11-01-PRT-8	MAP PRINTER (DEC LA30N-CA)	LA30
EMA11-01-PRT-9	MAP PRINTER (DEC LA400-CA)	LA400
EMA11-01-VDU-3	DEC VT-420 SERIES VDUS	VT-420
EMA11-01-VDU-4	MAP VDU (DEC VT-340GA)	VT340
EMA11-01-000	MAINTENANCE AND ADMINISTRATION POSITION	NT0X57
EMA11-01-001	MAP AREA EQUIPMENT	MAP_EQUIP
EMA11-02-DRTU-2	NSSD MODEL 3704 DIG REMOTE TEST UNIT BRO	NT0J04EB
EMA11-02-FPL-1	3703-03 LOCAL CONTROL FRONT PANEL BROWN	NT0J04BQ
EMA11-02-RTU-16	RTU/AMH 16-TRUNK (CALRS)	NTAN11AA
EMA11-02-RTU-4	RTU/AMH 4-TRUNK (CALRS)	NTAN10AA
EMA11-02-000	MODEL 3703-03 LOCAL TEST CABINET (BROWN)	NT0J6_BA
EMA11-03-000	DATA PHONES	DATAPHON
EMA11-04-000	CENTRALIZED OPERATIONS ADMINISTRATION AN	NT4G13

EMA12: (RESERVED FOR FUTURE USE) MENU

EMA13: MISCELLANEOUS SUBSYSTEMS MENU

EMA13-01-BIX-1	BIX SHELF	TCS 1800B-1 L1
EMA13-01-CDA-1	COOK DIVISION DIGITAL ANNOUNCER	NT7M00__
EMA13-01-CDA-3	COOK DIGITAL ANNOUNCER (CDA) NT5M-SERIES	NT5M0N__
EMA13-01-DSM-2	RM42000 DATA SET MODULE	905-5222-00N
EMA13-01-DSM-4	RM70 DATA SET MODULE 120VAC	905-5098-001
EMA13-01-DTH-0	DTH-ROTL SPARES KIT (NT7F18AD)	NT7F19AC
EMA13-01-DTH-3	DIGITAL TEST HEAD REMOTE OFFICE TEST LIN	NT7F18AD
EMA13-01-DTH-4	DTH-DIGITAL TRUNK TEST (DTT)	NT7F18BA
EMA13-01-DTH-5	DIGITAL TEST HEAD-ROTL/DTT	NT7F18CA
EMA13-01-DTH-6	PRODUCT CHANGE KIT NT7F20AA/18AA/18AB-CA	NT7F38AB
EMA13-01-DTH-7	PRODUCT CHANGE KIT NT7F18AD-CA .TOPIC2	NT7F38BA
EMA13-01-DTH-8	DTH-DTT SPARES KIT (NT7F18BA)	NT7F19BA
EMA13-01-DTH-9	DTH-ROTL/DTT SPARES KIT (NT7F18CA)	NT7F19CA
EMA13-01-FPX-1	AUXILIARY FUSE PANEL FOR TOPS AND ESAC	NT5X98AA
EMA13-01-FSP-1	MISCELLANEOUS EQUIPMENT FSP	NT0X88AB
EMA13-01-FSP-2	REMOTE SERVICE EQUIPMENT FSP	NT0X88AD
EMA13-01-FSP-3	10 AMP FILTER MISCELLANEOUS EQUIPMENT FS	NT0X88AE
EMA13-01-FSP-4	HOST/REMOTE MISCELLANEOUS EQUIPMENT FSP	NT0X88AF
EMA13-01-GDC-1	GDC DATA SET MODULE	T_GDC_MOD
EMA13-01-HDW-02	CHINA PACKAGING HARDWARE KITS	NT0X71CB
EMA13-01-MISC-1	MISCELLANEOUS APPLIQUE EQUIPMENT SHELF	NT5X95AA
EMA13-01-MLTS-1	MLT APPLIQUE SHELF	NT3J00BA
EMA13-01-RCT-1	LYNCH AUTOMATIC PROTECTION SWITCH	B302MA09
EMA13-01-TL-1	TELLABS 292BR-1 CONFERENCE SYSTEM	292BR-1
EMA13-01-UDS-1	UDS DATA SET MODULE SHELF (RM16M)	62005220
EMA13-01-000	MISCELLANEOUS EQUIPMENT FRAME	NT0X02AB
EMA13-01-002	CABINETIZED REMOTE MISCELLANEOUS EQUIPME	NTRX31EA
EMA13-01-003	MODEL B MISCELLANEOUS EQUIPMENT CABINET	NTRX56AA
EMA13-01-1A2-1	1A2 LINE CARD SHELF	TCS 1800A-1 L1
EMA13-02-000	MAINTENANCE SPARE STORAGE FRAME	NT0X85AA
EMA13-03-HWK-1	MISCELLANEOUS HARDWARE KIT	NT0X58AE
EMA13-03-HWK-10	MISCELLANEOUS HARDWARE KIT	NT0X58AP
EMA13-03-HWK-2	MISCELLANEOUS HARDWARE KIT	NT0X58AF

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EMA13-03-HWK-3	MISCELLANEOUS HARDWARE KIT	NT0X58AG
EMA13-03-HWK-4	MISCELLANEOUS HARDWARE KIT	NT0X58AH
EMA13-03-HWK-5	MISCELLANEOUS HARDWARE KIT	NT0X58AJ
EMA13-03-HWK-6	MISCELLANEOUS HARDWARE KIT	NT0X58AK
EMA13-03-HWK-7	MISCELLANEOUS HARDWARE KIT	NT0X58AL
EMA13-03-HWK-8	MISCELLANEOUS HARDWARE KIT	NT0X58AM
EMA13-03-HWK-9	MISCELLANEOUS HARDWARE KIT	NT0X58AN
EMA13-04-PM-1	DMS PACKING MATERIAL	D9000
EMA13-04-001	CABINETIZED MISC SPARE STORAGE - MODEL B	NTRX49BA
EMA13-99-PWR-1	POWER CONVERTER PRODUCT CHANGE KIT	NT2X70AZ
EMA13-99-PWR-2	NT2X70AF POWER CP AND LABEL	NT2X70AY

EMA14: TABLES MENU

EMA14-01-000	TABLE A - TRUNK MODULE PROVISIONABLE CAR	TABLE A
EMA14-02-000	TABLE B - I/O CONTROLLER MODULE PROV CAR	TABLE B
EMA14-03-000	TABLE C - LINE DRAWER PROVISIONABLE CARD	TABLE C
EMA14-04-000	TABLE D - FSP, INV, CU, AXU INCLUDED CAR	TABLE D
EMA14-05-000	OPD VERSABLOCK CTB AND NON-CTB	T_OPD_VERSABLK
EMA14-06-000	TELZON TERMINAL BLOCK CTB AND NON-CTB	T_TELZON
EMA14-07-000	OPD ROTATING TERMINAL BLOCK	T_OPD_ROTATING
EMA14-08-000	RSC-SONET PROVISIONING AND CONFIGURATION	TABLE H
EMA14-26-000	DMS 100 MODEM PROVISIONING RTP	TABLE Z
EMA14-27-000	BCS34 SOFTWARE TO HARDWARE CROSS-REFEREN	T_BCS34_XREF
EMA14-27-001	BCS35 SOFTWARE TO HARDWARE XREF	T_BCS35_XREF
EMA14-27-003	BCS 36 SOFTWARE TO HARDWARE CROSS-REFERE	T_BCS36_XREF
EMA14-27-004	NA002 SOFTWARE FUNCTIONALITY REQUIRED HA	NA002_HDW
EMA14-27-005	NA003 SOFTWARE FUNCTIONALITY REQUIRED HA	NA003_HDW
EMA14-27-006	NA004 SOFTWARE FUNCTIONALITY REQUIRED HA	NA004_HDW
EMA14-27-007	NA005B SOFTWARE FUNCTIONALITY REQUIRED H	NA005B_HDW
EMA14-27-008	NAVB002 SOFTWARE FUNCTIONALITY REQUIRED	NAVB002_HDW
EMA14-27-009	NAVB003 SOFTWARE FUNCTIONALITY REQUIRED	NAVB003_HDW
EMA14-27-010	NAVB004 SOFTWARE FUNCTIONALITY REQUIRED	NAVB004_HDW
EMA14-27-012	NA006B SOFTWARE FUNCTIONALITY REQUIRED H	NA006B_HDW
EMA14-27-013	NA007 SOFTWARE FUNCTIONALITY REQUIRED HA	NA007_HDW
EMA14-27-014	NA008 SOFTWARE FUNCTIONALITY REQUIRED HA	NA008_HDW
EMA14-27-015	NA009 SOFTWARE FUNCTIONALITY REQUIRED HA	NA009_HDW
EMA14-27-030	NON-CM SOFTWARE COMPATIBILITY MATRIX	NON_CM_MTRX

EMA15: COMMON SYSTEM EQUIPMENT MENU

EMA15-01-000	FRAMEWORK ASSEMBLY	NT0X25
EMA15-01-001	FRAME COMMON ASSEMBLY	NT0X07
EMA15-01-002	FRAME DOORS	NT0X71
EMA15-01-003	FRAME END GUARD ASSEMBLY	NT0X73
EMA15-01-004	LIGHT FIXTURE ASSEMBLY	NT0X49
EMA15-02-000	EARTHQUAKE PROTECTION	EARTHPROT
EMA15-03-000	ELECTROMAGNETIC INTERFERENCE (EMI)	NT0X32
EMA15-04-000	PATLON ELECTROMAGNETIC STATIC DISCHARGE	PATLONESD
EMA15-04-ESD-1	PATLON ESD STATIC DISSIPATIVE FLOOR MAT	PA-3238-NT
EMA15-04-ESD-2	PATLON ESD STATIC DISSIPATIVE FLOOR MAT	PA-32340-NT
EMA15-04-ESD-3	PATLON ESD ANTI FATIGUE/STATIC	PA-3338-NT
EMA15-04-ESD-4	PATLON ESD ANTI FATIGUE/STATIC	PA-33340-NT
EMA15-04-ESD-5	PATLON FIELD SERVICE KIT	PA2500-3

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EMA15-04-ESD-6	PATLON UNIVERSAL HARDWARE KIT	PA075
EMA15-05-001	CABINETIZED COSMETIC DMS ENDGUARDS	NTRX73
EMA15-05-002	CABINETIZATION MODEL B SYSTEM	NTRX70
EMA15-06-000	DMS-500 GENERAL DESCRIPTION	DMS-500

EMA16: POWER REQUIREMENTS MENU

EMA16-01-000	BATTERY FEEDS	BATFEEDS
EMA16-01-001	CURRENT DRAIN	CURDRAIN
EMA16-01-002	PDC FUSING REQUIREMENTS	PDC_FUSE
EMA16-01-003	XPM POWER CONSUMPTION	T_XPM_PWR
EMA16-01-004	CPDC FUSING REQUIREMENTS	CPDC_FUSE
EMA16-02-000	POWER DISTRIBUTION CENTRE FRAME	NT0X42AA
EMA16-02-001	U.L. LISTED POWER DISTRIBUTION CENTERS	NT0X42UA
EMA16-02-FP-1	ISDN FUSE PANEL ASSEMBLY	NT0X42AU
EMA16-02-FPA-1	FUSE PANEL "A" FEED	NT0X42AB
EMA16-02-FPB-1	FUSE PANEL "B" FEED	NT0X42AC
EMA16-02-UFPA-1	U.L. LISTED FUSE PANEL "A" FEED	NT0X42UB
EMA16-02-UFPB-1	U.L. LISTED FUSE PANEL "B" FEED	NT0X42UC
EMA16-03-000	-48V DC DISTRIBUTION PANEL	NT4X75AA
EMA16-03-BAT	BATTERY PROVISIONING	BATTERY
EMA16-03-INV	LORAIN INVERTER PROVISIONING	INVERTER
EMA16-03-LOR-1	LORAIN POWER BOARD PROVISIONING	1231A2
EMA16-03-LOR-2	LORAIN POWER BOARD PROVISIONING	1290A1
EMA16-03-LOR-3	LORAIN POWER BOARD PROVISIONING	1231H1
EMA16-03-NTI-1	NTI POWER BOARD PROVISIONING	NT5C91
EMA16-03-NTI-2	NTI POWER BOARD PROVISIONING	NT6C26AA
EMA16-03-NTI-3	NTI POWER BOARD PROVISIONING	NT6C26BA
EMA16-03-NTI-4	NTI POWER BOARD PROVISIONING	NT6C26CA
EMA16-03-REC-1	NTI RECTIFIER PROVISIONING	NTIRECT
EMA16-03-REC-2	LORAIN RECTIFIER PROVISIONING	LORRECT

EMA17: GROUNDING REQUIREMENTS MENU

EMA17-01-000	ISOLATED SYSTEM GROUNDING (NON-EMI)	NT0X00BB
EMA17-01-001	ISOLATED SYSTEM GROUNDING FOR DMS-100F R	NT0X00DA
EMA17-02-000	SYSTEM GROUNDING (EMI)	NT0X00CA
EMA17-03-000	CABINETIZED POWER AND GROUNDING	NTZX16CA

EMA18: CABLES MENU

EMA20: PEC INDEX

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SECTION EMA1

INTRODUCTION

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INTRODUCTION

General

This practice provides all the necessary information and guidelines in configuring the DMS-100 Family switches based on office requirements. The document does not replace or displace any standard documentation but rather supplements them from an engineering point of view.

The information contained in the Engineering Manual is derived from DMS standard documentation. This section consolidates the most important aspects of DMS equipment structure into a compact handbook form to provide easy access to information. The Engineering Manual is intended to summarize, not replace the standard documentation and in the event of conflict, the standard documentation supercedes.

Practice Application

The information contained in this practice is applicable to DMS-100 Family equipment which has been made generally available to the customers of Northern Telecom. Engineering Manual Retired Equipment (EMR) should be referred to for Northern Telecom equipment that is no longer classed as "generally available" (Retired, A&M, etc.).

Issue Control:

The Engineering Manual's Release number is of the form XX.YY, where XX is incremented for each major yearly release and YY is incremented to show each minor quarterly release of that year.

Reason For Reissue

- | This practice has been reissued to reflect the changes to date in the DMS-100 Family office configuration. Change bars ("|") have been included in sections classed as "Release 01.01" to show changes from Release 07.01.
- | Change bars in all other sections reflect changes from their previous release. These change bars do not reflect any changes resulting from Release 01.01.

Module Structure Organization

a) Module Structures

The information in the Engineering Manual Active Equipment is broken down into the following subsystems from a functional viewpoint:

- EMA1 : Introduction
- EMA2 : Peripheral Modules
- EMA3 : Digital Network Subsystems
- EMA4 : Central Control Subsystems
- EMA5 : Input/Output Subsystems
- EMA6 : Office Alarm Visual and Audible Equipment
- EMA7 : Meridian Business Services Equipment
- EMA8 : Operator Equipment
- EMA9 : Cellular Mobile Subsystems
- EMA10 : Meridian Cabinet Equipment
- EMA11 : Maintenance and Test Equipment
- EMA12 : DMS-100P Packaged Switch Equipment
- EMA13 : Miscellaneous Subsystems
- EMA14 : Tables
- EMA15 : Common System Equipment
- EMA16 : Power Requirements
- EMA17 : Grounding Requirements
- EMA18 : Cables
- EMA19 : Multimedia Subsystems
- EMA20 : Index

The information contained within each section (as listed above) is organized into module structures. A module structure may be a frame and mountable equipment, a shelf assembly and mountable equipment, or a functional grouping of circuit packs. Module structures appear in the section immediately following the frame on which the module structure can be mounted. Module structures that can be mounted on more than one type of frame will appear in only one place within the section. Different versions of the same frame are listed together.

b) Section Numbering

The section numbering reflects the organization of the module structures as mentioned above. A section number looks like the following:

EMAn-AAAAA

where:

EMAn = section of the Engineering Manual Active Equipment (as listed above).

AAAAA = module structure number

- i) If the module structures are organized into frames and modules (as in peripheral modules - EMA2), then the numbering structuring is as follows:

AAAAA = FR-BBBB

where:

FR = a two digit frame number.

BBBB = a three digit version number of a frame.
(For example, an RLM frame has three versions

FR = 04 for the RLM frame number
BBBB = 000 for NT0X45BH
001 for NT0X45BJ
002 for NT0X45BK)

Note: I00 would represent a frame used for international applications.

or BBBB = a three or four character alphanumeric with a one digit version number for a module.

ex. BBBB = DCM-2

The 3-4 character alphanumeric is closely tied to the functional name of the module structure. The one digit version number distinguishes between module structures with the same 3-4 character alphanumeric. A 3-4 character alphanumeric beginning with the letter "I", indicates that the module

structure is used for international applications.

NOTE: The identifier BBBB is ordered alphabetically within each frame. International module structures are listed last within each frame.

- ii) If the module structures are organized into functional modules (as in Meridian Business Services - EMA7), then the numbering structure is as follows:

AAAAA = CCCC

where:

CCCC = a three or four character alphanumeric with a one digit version number

ex. CCCC = COAX-1

The 3-4 character alphanumeric is closely tied to the functional name of the module structure. The one digit version number distinguishes between module structures with the same 3-4 character alphanumeric.

NOTE: The identifier CCCC is ordered alphabetically within each subsystem.

c) Examples

1. EMA2-04-002
Section EMA2 - Peripheral Modules section
Frame 04 - RLM Frame
Frame Version 002 - RLM Frame (Bay 1) NT0X45BK
2. EMA2-06-I00
Section EMA2 - Peripheral Modules section
Frame 06 - LGE/DTE/LTE Frame
Frame Version I00 - International LGE/DTE Frame NT6X01BA
3. EMA2-01-DCM-3
Section EMA2 - Peripheral Modules section
Frame 01 - TME Frame
Module DCM - Digital Carrier Module
Version 3 - NT2X31AB

4. EMA7-BSAC-2

Section 4 - Module Structure Equipment
Subsection 3 - Active Subsystems
Subsystem H - IBN
Module BSAC - Business Service Attendant Console
Version 2 - BSAC with French descriptions on the
face plate - NT4X09AH

Information Organization

a) Title Line

Each module structure within the Equipment Module Structure section begins with a title line.

Example

REMOTE LINE MODULE FRAME NT0X45BH

The title shows the standard name given to the module and its Product Engineering Code (PEC).

b) Header

The following information is contained in the headers:

RATING
ABBREVIATION NAME
ENGINEERING DESCRIPTION
REFERENCE DOCUMENTATION

i) RATING

RATING contains information on the status of the module structure. The following ratings are applicable to each module structure:

- "Check application date for NT0X45BH"

The user should verify whether or not this module is ready to order for the job to which the module will be applied before the user orders the module. This rating is usually applied to new modules.

- "Replaces NT0X45BE"

Indicates that the module is a replacement (newer version) of an existing module. The user should verify the application date before ordering the new module. The possibility of Field Retrofitting must also be investigated by the user.

- "To be rated MD"

Indicates that the module will be rated MD. The user is to verify the date when this module is to be no longer ordered.

- "To be replaced by NT0X45BL"

Indicates that the module will be replaced by a newer version or a different application. The user is to verify the date when this module is to be ordered. The possibility of Field Retrofitting must also be investigated by the user.

- "MD. Replaced by NT0X02AB"

Indicates that the module has been rated MD and has been replaced by the module indicated.

- "Rating Change Pending"

This rating acts as a warning to the user that one of the above ratings will be applied to the module in the near future.

- "Standard"

Indicates standard equipment where its application dates will not affect its application in jobs currently being engineered by the user.

- "MD"

Indicates that the module has been rated Manufacture Discontinued (MD).

- "A&M"

Indicates that the module may be ordered for additions or maintenance purposes on existing offices only. The module rated A&M cannot be ordered for new offices or offices where this module does not already exist.

ii) ABBREVIATION NAME

The standard NT short forms for the module structure is indicated here. This short form will be used in the writing of manufacturing specifications.

iii) ENGINEERING DESCRIPTION

A brief description of the module structure from a functional viewpoint is contained here.

iv) REFERENCE DOCUMENTATION

Reference to standard NT documents from which relate to the modular structure is listed here.

c) Equipment List

The equipment that is mounted on the module structure is listed in a table with the following headings:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE

where:

EQUIPMENT = standard equipment title

PEC = Product Engineering Code assigned to the equipment. An appearance of "AR" (as required) indicates that there is more than one possible choice of equipment required.

ABBR = standard abbreviation for the equipment and unit number where applicable

QTY = quantity of the equipment to be provided

SHF POS = the shelf position of the equipment on a frame

CP POS = the circuit pack position of the equipment on a shelf. The appearance of an "R" with the position number indicates that the equipment is mounted on the shelf back plane.

RULE = the provisioning rule reference number (an "AP" in this column indicates that the equipment is Always Provided with the module structure)

The information in this table is listed from the top of the frame to the bottom when the module structure refers to a frame, or it is listed from the left of a shelf to the right when the module structure is a shelf. Lines within this table are used to group the equipment into functional modules. Double lines are used to indicate information that applies to several functional modules (or none at all).

A single character flag could appear in the left most column adjacent to the standard equipment title to which it applies. These characters may be one of: #, \$, %, &, *, !, r

These flags are present to indicate a special rating which is applied to the PEC to which it is adjacent. This rating will be indicated at the end of the Equipment List. Possible ratings are the same as those for the Rating section of the header (see section b) item i) above).

d) Notes

This section contains general information which will aid the user in understanding the application of the module structure and in assigning equipment to the module structure. The "NOTES" section does not appear in all module structure sections.

e) Rule

The rules as referenced in the "RULE" column of the equipment list are listed in this section. Each rule outlines the conditions or rules that govern the assignment of the equipment to the module structure.

References

For further information on the DMS-100 Family equipment pertaining to this Engineering Manual Active Equipment, refer to the following References:

Informative References

DOCUMENT NUMBER	TITLE
EMR	Engineering Manual Retired Equipment
EMB	Engineering Manual Building Block Active Equipment
EMC	Engineering Manual Building Block Retired Equipment
MS_X____	Modular Structure Documents
NTP 297-1001-001	Master Index of Northern Telecom Practices
NTP 297-1001-450	DMS-100 Family Provisioning

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EMA2-01-AXU-1	ALARM X-CONNECT UNIT	NT3X89CA
EMA2-01-EMS-1	THIS FILE IS A TEMPORARY PLACEHOLDER FIL	EMS001
EMA2-01-EMS-2	THIS FILE IS A TEMPORARY PLACEHOLDER FIL	EMS002
EMA2-01-ISM-1	CABINETIZED ISM EQUIPMENT	NTFX40AA
EMA2-01-ISM-2	FRAME ISM EQUIPMENT	NTFX40BA
EMA2-01-ISM-3	ISM SHELF ASSEMBLY	NTFX4101
EMA2-01-MTA-1	CABINETIZED METALLIC TEST ACCESS (CMTA)	NTFX40EA
EMA2-01-MTA-2	METALLIC TEST ACCESS EQUIPMENT (MTAE)	NTFX40FA
EMA2-01-MTM-11	MAINTENANCE TRUNK MODULE	NT2X58CA
EMA2-05-001	REMOTE CONTROLLER EQUIPMENT KIT .TOPIC2	NT6X10AH
EMA2-06-DTC-7	FXPM ENHANCED DTC COMMON CP (DMS250)	NT6X02LF
EMA2-06-DTC-8	DIGITAL TRUNK CONTROLLER COMMON CP	NT6X02CZ
EMA2-06-DTCI-1	FXPM ISDN ENHANCED DTC COMMON CP (DMS250)	NT6X02RF
EMA2-06-FFP-1	FILLER FACE PLATE PACKAGE	NT6X02AB
EMA2-06-ILGC-1	INTERNATIONAL LINE GROUP CONTROLLER MOD.	NT6X02KF
EMA2-06-ILGC-8	UNIVERSAL ILGC/IDTC COMMON CP FILL	NT7X02BP
EMA2-06-IXPM-3	INTERNATIONAL DTC/LGC COMMON CIRCUIT PAC	NT6X02JB
EMA2-06-IXPM-5	CABINETIZED FIBER INTERNATIONAL LGC/DTC	NTRX47AC
EMA2-06-IXPM-7	INTERNATIONAL DTC/LGC COMMON CIRCUIT PAC	NT6X02JH
EMA2-06-I00	INT'L LINE GROUP/DIGITAL TRUNK EQUIP FRA	NT6X01BA
EMA2-06-LGC-1	LINE GROUP CONTROLLER COMMON CP FILL	NT6X02LC
EMA2-06-LTC-1	LINE TRUNK CONTROLLER COMMON CP FILL	NT6X02MC
EMA2-06-RX46BB	CIPE COMMON CIRCUIT PACK	NTRX46BB
EMA2-06-RX46CE	CIPE COMMON PACKFILL	NTRX46CE
EMA2-06-RX46CF	CIPE COMMON PACKFILL	NTRX46CF
EMA2-06-SMA-4	SUBSCRIBER CARRIER MODULE-100 ACCESS COM	NT6X02TJ
EMA2-06-SMS-8	SUBSCRIBER MODULE - SLC-96	NT6X02DV
EMA2-06-SMSR-6	SUBSCRIBER MODULE - SLC-96 REMOTE	NT6X02PL
EMA2-06-SMU-7	ESMU PACKFILL	NT6X02CX
EMA2-06-SMU-8	SMU PACKFILL	NT6X02EU
EMA2-07-ILCM-4	INTERNATIONAL LCM COMMON CP	NT6X04BC
EMA2-07-ILD-1	LINE DRAWER (INTERNATIONAL)	NT6X05BA
EMA2-07-ILDR-2	ISDN LINE DRAWER REMOTES	NT6X05DA
EMA2-07-LCEC-1	CLCE DOMESTIC COMMON CP FILL-MOD B	NT6X04MD
EMA2-07-LCEC-3	CLCE INTERNATIONAL COMMON CP FILL-MOD B	NT6X04ND
EMA2-07-LCM-2	LCM FILLER KIT	NT6X04AX
EMA2-07-LCM-3	LINE CONCENTRATING MODULE COMMON CP	NT6X04AD
EMA2-07-LCM-4	LCM COMMON CP	NT6X04AE
EMA2-07-LD-1	LINE DRAWER	NT6X05AA
EMA2-07-LDPB-3	LCM LINE DRAWER, PROVISIONABLE BIC	NT6X05EA
EMA2-07-PCKIT-1	PRODUCT CHANGE KIT	NTEX37AA
EMA2-07-PPKIT-1	1-MEG MODEM SERVICE PATCH PANEL KIT	NTEX45AA
EMA2-07-000	LINE CONCENTRATING EQUIPMENT FRAME	NT6X03AA
EMA2-09-000	SIGNALLING TERMINAL 7 EXTENSION FRAME	NT6X09AA
EMA2-10-000	DATA MODEM EXTENSION FRAME	NT6X29AA
EMA2-11-MSB7-5	INTERNATIONAL CMS7 MSB7 COMMON CP	NTRX48AC
EMA2-11-000	MESSAGE SIGNALLING 7 FRAME	NT6X31AA
EMA2-12-LIS-3	LINK INTERFACE UNIT SHELF COMMON CP FILL	NT9X72BA

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EMA2-12-003	LINK INTERFACE MODULE ENHANCED CABINET	NT9X70BB
EMA2-12-004	SINGLE SHELF LPP(FLIS) IN C42 CABINET	NTEX01AB
EMA2-12-005	ENHANCED LINK PERIPHERAL PROCESSOR CABIN	NT9X70CA
EMA2-13-BCU-1	BATTERY CHARGING UNIT COMMON CP FILL	NT8X03AA
EMA2-13-LCM-3	LCM COMMON CP	NT8X04AC
EMA2-13-LCM-5	LCM COMMON CP	NT8X04BD
EMA2-13-001	OPM OUTSIDE PLANT MODULE (256)	NT8X01BC
EMA2-13-002	OUTSIDE PLANT MODULE 640	NT8X01AC
EMA2-13-100	OUTSIDE PLANT ACCESS CABINET	NTRX60AA
EMA2-13-200	INTL OPAC.	INTRX60AA
EMA2-14-FSP-1	RLCM FRAME SUPERVISORY PANEL	NT6X25AA
EMA2-14-FSP-2	RLCM FRAME SUPERVISORY PANEL	NT6X25BA
EMA2-14-HIE-3	HOST INTERFACE EQUIPMENT COMMON CP FILL	NT6X11EB
EMA2-14-HIE-4	HIE COMMON CP FILL (CHINA)	NT6X11KA
EMA2-14-HIE-5	HOST INTERFACE EQUIPMENT COMMON CP INTER	NT6X11BC
EMA2-14-RMM-1	REMOTE MAINTENANCE MODULE COMMON CP FILL	NT6X13AB
EMA2-14-RMM-2	REMOTE MAINTENANCE MODULE COMMON CP FILL	NT6X13BA
EMA2-14-RMM-3	REMOTE MAINTENANCE MODULE COMMON CP FILL	NT6X13DA
EMA2-14-000	REMOTE LINE CONCENTRATING MODULE	NT6X14AA
EMA2-15-RCC2-1	REMOTE SWITCHING CENTER - SONET	NTMX89FA
EMA2-15-RCC2-2	REMOTE SWITCHING CENTER - SONET	NTMX89FB
EMA2-15-RCC2-3	REMOTE SWITCHING CENTER - SONET	NTMX89FC
EMA2-15-003	REMOTE MAINTENANCE MODULE EQUIPMENT FRAM	NT6X10DA
EMA2-18-CPC-1	ISDN COMMON PERIPHERAL CONTROLLER CP FIL	NT6X02NA
EMA2-18-100	COMMON PERIPHERAL CONTROLLER EQUIPMENT F	NT6X01AD
EMA2-19-ELD-1	ISDN ENHANCED (2B1Q) LINE DRAWER	NTBX32BA
EMA2-19-FFP-1	LCMI FILLER FACEPLATE FILL	NTBX31AB
EMA2-19-LCME-3	ISDN ENHANCED LINE CONCENTRATING MODULE	NTBX31BC
EMA2-19-LCME-4	LCME CIRCUIT PACKFILL	NTBX31BD
EMA2-19-LCMI-1	ISDN LINE CONCENTRATION MODULE CP FILL	NTBX31AA
EMA2-19-LCMI-2	ISDN LINE CONCENTRATION MODULE CP FILL	NTBX31AC
EMA2-19-PCKIT-2	LCME PACKFILL UPGRADE KIT	NTBX31PB
EMA2-19-000	ISDN LINE CONCENTRATING EQUIPMENT FRAME	NTBX30AB
EMA2-20-ILGC-6	INTERNATIONAL LGC/DTC COMMON CP	NTFX33BH
EMA2-20-ILGC-7	INTERNATIONAL LGC/DTC COMMON CP	NTFX33BJ
EMA2-20-ILGC-8	INTERNATIONAL LGC/DTC COMMON CP	NTFX33BE
EMA2-20-IMTM-2	INTERNATIONAL MTM-DRA SHELF	NT2X58BD
EMA2-20-IPTM-1	IPTM WITH OAU COMMON CIRCUIT PACK	NTFX37BA
EMA2-20-IPTM-2	IPTM COMMON CIRCUIT PACK FOR ICAM	NTFX37BB
EMA2-20-LGCI-10	LGCI/DTCI COMMON CIRCUIT PACK (OFFSHORE)	NTFX33CG
EMA2-20-LGCI-2	INTERNATIONAL CIDC LGC/DTC FIBER COMMON	NTRX46AC
EMA2-20-LGCI-4	LGCI/DTCI COMMON CIRCUIT PACK (OFFSHORE)	NTFX33CE
EMA2-20-LGCI-9	LGCI/DTCI COMMON CIRCUIT PACK (OFFSHORE)	NTFX33CF
EMA2-20-000	INTERNATIONAL CABINET TRUNK MODULE FIBER	NTFX33AA
EMA2-20-001	OFFSHORE LINE TRUNK EQUIPMENT ISDN MODUL	NTFX33CA
EMA2-21-LTCI-1	LGC/DTC OFFSHORE COMMON CP	NT6X02UB
EMA2-21-000	OFFSHORE COMMON PERIPHERAL	NT6X01AC
EMA2-22-RMM-1	REMOTE MAINTENANCE MODULE COMMON CP	NT6X13EA
EMA2-23-SRU-1	SRU COMMON CP FILL	NT8X NT8X95AQ
EMA2-23-SRU-2	SRU-240 COMMON CP FILL	NT8X95AX
EMA2-23-000	SMALL REMOTE UNIT (SRU)	N NT8X95AB
EMA2-23-001	SMALL REMOTE UNIT 60 LINE (SRU60)	NTSX02AA
EMA2-24-GPP-1	GLOBAL PERIPHERAL PLATFORM (GPP)	NTMX90AB
EMA2-24-MVI-1	CABINETIZED MULTI-VENDOR INTERFACE	NTMX90BA

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EMA2-24-MVI-3	MULTI-VENDOR INTERFACE EQUIPMENT FRAME	NTQX90AA
EMA2-24-RC2-1	REMOTE SWITCHING CENTER EQUIPMENT (RSCE)	NTMX89GA
EMA2-24-RSCM-1	REMOTE SWITCHING CENTER-MULTI ACCESS	NTMX90AC
EMA2-25-001	C28B MECHANICAL ASSEMBLY MODEL B	NTRX25AA
EMA2-26-SDM-1	SUPERNODE DATA MANAGER CABINET	NTRX50BA
EMA2-26-SDM-2	SUPERNODE DATA MANAGER STANDALONE SYSTEM	NTRX50CA
EMA2-26-SDM-3	STANDALONE TO CABINETIZED SDM02 KIT	NTRX5082
EMA2-26-SDM-4	VME SUPERNODE DATA MANAGER	NTRX50DA
EMA2-26-SDM-5	CABINETIZED SUPERNODE DATA MANAGER	NTRX50FA
EMA2-27-SPM	SPECTRUM PERIPHERAL MODULE	NTLX50AA
EMA2-96-AS	SERIES I PERIPHERAL CHANGE KIT FOR EN	NT2X31AS
EMA2-97-LCM-2	LCM PROCESSOR CP CHANGE KIT	NT6X04ZY
EMA2-97-LCM-3	LCM PROCESSOR CP CHANGE KIT	NT6X04ZX
EMA2-97-LCME-3	ISDN LCMI TO LCME UPGRADE KIT	NTBX30BC
EMA2-97-LCMI-1	LCMI PROCESSOR MEMORY UPGRADE KIT	NTBX31AD
EMA2-99-ECC-1	2 PROCESSOR BKP NL XPM+ ECHO CANCELLER UP	NT6X01XG
EMA2-99-ECC-2	ECC UPGRADE KIT FOR FRAME (NO CABLE FILT	NT6X01XK
EMA2-99-ECC-3	ECC CABLE SUPPORT BRACKET KIT (FRAMES)	NT6X01XJ
EMA2-99-IAE-1	IAE SP MEMORY UPGRADE KIT	NTBX40BD
EMA2-99-ISDN-3	PRODUCT CHANGE KIT NT6X01AA EQUIPPED FOR	NT6X02YS
EMA2-99-LGC-4	LGC/LTC/DTC COMMON CIRCUIT PACK PC KIT	NT6X02ZP
EMA2-99-OPM-1	4-PIN STUBLESS PROTECTOR BLK ASSY LINE U	NT8X09AB
EMA2-99-OPM-2	5-PIN PROTECTOR BLK ASSY WITH 50' STUB U	NT8X09AC
EMA2-99-OPM-3	5-PIN PROTECTOR BLK ASSY LINE UPGRADE	NT8X09AD
EMA2-99-RCC-10	NT6X10AC/AD TO NT6X10DA PC KIT	NT6X10ZA
EMA2-99-RLM-1	RLM CONTROL SHELF MUX KIT	NT2X14AZ
EMA2-99-SMR-2	SMR PACKFILL CHANGE KIT	NT6X02CU
EMA2-99-SMS-2	SMS PRODUCT CHANGE KIT	NT6X02DK
EMA2-99-SMS-6	SMR TO SMS KIT	NT6X02YB
EMA2-99-SMU-5	SMU COMMON CP KIT	NT6X02CM
EMA2-99-SMU-6	NTAX78AB UPGRADE KIT	NT6X02CY
EMA2-99-SMU-7	NT6X80BB PRODUCT CHANGE KIT	NT6X02WE
EMA2-99-SMU-8	SMR TO SMU KIT	NT6X02YA
EMA2-99-TM8-1	TM8 PRODUCT CHANGE KIT	NT2X52AU
EMA2-99-XPM-1	EXPANDED SIGNALING PROCESSOR PC KIT	NT6X02ZJ
EMA2-99-XPM-12	NT6X86AB CHANGE KIT	NT6X02WC
EMA2-99-XPM-14	REMOTE XPM PLUS PACKFILL FIT	NT6X02XG
EMA2-99-XPM-15	NT6X69AD PRODUCT CHANGE KIT	NT6X02WB
EMA2-99-XPM-16	XPM+ PADDLECARD UPGRADE KIT	NTMX70AB
EMA2-99-XPM-17	NT7X05AA PRODUCT CHANGE KIT	NT6X02WF
EMA2-99-XPM-18	N5 SIGNALLING KIT	NTRX4653
EMA2-99-XPM-20	NT6X80BB/86AB PRODUCT CHANGE KIT	NT6X02WG
EMA2-99-XPM-21	ENHANCED 3P BACKPLANE XPM+ UPGRADE KIT	NT6X03DE
EMA2-99-XPM-3	FXPM PC KIT	NT6X02BQ
EMA2-99-XPM-4	XPM PC KIT	NT6X02EQ
EMA2-99-XPM-5	XPM PC KIT	NT6X02ER
EMA2-99-XPM-7	XPM TO XPM PLUS PRODUCT CHANGE KIT	NT6X02XC
EMA2-99-000	PROV. TABLE FOR PROD CHG KITS ON CPC FIL	PCKLGC

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ALARM X-CONNECT UNIT

PEC CODE: NT3X89CA

CPC CODE: B0238928

RATING: STD

REPLACES: NT3X89BA

REPLACED BY: Not Applicable

ABBREVIATION NAME: AXU

ENGINEERING DESCRIPTION: The AXU NT3X89CA is a cross connect panel which mounts in a frame or C28 cabinet (for example, in the ISME or CISM). The panel is used for cross connection of alarm circuits and alarm scanners of the office alarm system.

REFERENCE DOCUMENTATION: MS3X89CA 01 02

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA

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

| MAIN CONTACT: Mark Sorrell Dept. 3471 (PPK)

NT3X89CA EMA2-01-AXU-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 01 24	ECM 557 06	Introduces NT3X89CA
95 03 02	ECM 557 07	Brief description added
96 04 23	ECM 557 23	Correct per RR62065, remove reference to note 01.

The ALARM X-CONNECT UNIT is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Quad Data Link Daughter Board CP	NT3X8906					1
Quad data link daughter Board CP for 60v market	NT3X8907					2
Screw	P0180922		2			3
Helical Washer	P0182948		2			3
Flat Washer	P0284139		2			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 manufac-
tured and cannot be ordered.

NOTES:

RULES:

- AP 1) When PEC NT3X89CA is ordered, these items are provided.
- RUL1 1) Provide one NT3X8906 when provisioning for -48v markets
(non- German).
- RUL2 1) Provide one NT3X8907 when provisioning for -60v Germany ap-
plications.

RUL3 1) Provide (2) P0180922, (2) P0182948, and (2) P0284139 for mounting NT3X8906 or NT3X8907.

ENGINEERING MANUAL SECTION - GENERAL TEMPLATE

PEC CODE: EMS001

CPC CODE: (CPC of product)

RATING: (STD, LTD, A&M or MD)

REPLACES: (PEC of product replaced by the subject product)

REPLACED BY: (PEC of product replacing the subject product)

ENGINEERING DESCRIPTION: (Brief description of subject product)

REFERENCE DOCUMENTATION: SLXXXXX nn.nn
MSXXXXX nn.nn

ABBREVIATION NAME: (Product Abbreviation)

MARKETS: Applicable markets:

CANADA
US
CALA
Europe
Asia/Pacific

ISSUE AUTHOR: James Marsden Dept. 3471 (PPK)

MAIN CONTACT: James Marsden Dept. 3471 (PPK)

2.0 CHANGE HISTORY

The change history of this document is given in the following table:

CHANGE HISTORY		
Date	Document	Reason for change
1997 11 14	ECM 002 03	Initial release
1997 11 24	ECM 002 04	Minor corrections
1997 11 25	ECM 002 05	Minor corrections and system test

EQUIPMENT LIST							
	Equipment	PEC	Abbr	Qty	Shf Pos	CP Pos	Rule
	Name of Comprising Item 1	NTXXXXXX	ABC	n			AP
	Name of Comprising Item 2	NTXXXXXX	DEF	n			AP-01
#	Name of Comprising Item 3	NTXXXXXX	GHI	n			RUL1
	Name of Comprising Item 4	NTXXXXXX	JKL	n			RUL2
	Name of Comprising Item 5	NTXXXXX		n			RUL3
	Name of Comprising Item 6	NTXXXXX		n			RUL4
	Name of Comprising Item 7	NTXXXXX		n			RUL5
	Name of Comprising Item 8	NTXXXXX		n			RUL6
	Name of Comprising Item 9	NTXXXXX		n			RUL7
	Name of Comprising Item 10	NTXXXXX		n			RUL8
	Name of Comprising Item 11	NTXXXXX		n			RUL9
	Name of Comprising Item 12	NTXXXXX		n			RUL10
	Name of Comprising Item 13	NTXXXXX		n			RUL11
	Name of Comprising Item 14	NTXXXXX		n			RUL12

Name of Comprising Item 15	NTXXXXXX		n			RUL13
Name of Comprising Item 16	NTXXXXXX		n			RUL14
Name of Comprising Item 17	NTXXXXXX		n			RUL15
Name of Comprising Item 18	NTXXXXXX		n			RUL16
Name of Comprising Item 19	NTXXXXXX		n			RUL17
Name of Comprising Item 20	NTXXXXXX		n			RUL18
Name of comprising item 21	NTXXXXXX		n			RUL19
Name of comprising item 22	NTXXXXXX		n			RUL20

EQUIPMENT FLAGGED #		
PEC	Rating	Replaced by PEC
NTXXXXXX	MD	NTXXXXXX

2.1 NOTES:

1. Write notes relating to the equipment list here.

2.2 PROVISIONING RULES:

AP

1. When PEC (Subject Product PEC) is ordered, these items are provided.

AP-01

1. This PEC is always provided on the (Subject product PEC) and is shown here for completeness.

RUL1

1. Use the numbered list style to write rules regarding the provisioning of the corresponding item in the equipment list table above

RUL2

1. Use the numbered list style to write rules regarding the provisioning of the corresponding item in the equipment list table above

RUL3

1. Use the numbered list style to write rules regarding the provisioning of the corresponding item in the equipment list table above

RUL4

1. Use the numbered list style to write rules regarding the provisioning of the corresponding item in the equipment list table above

RUL5

1. Use the numbered list style to write rules regarding the provisioning of the corresponding item in the equipment list table above

RUL6

1. Use the numbered list style to write rules regarding the provisioning of the corresponding item in the equipment list table above

RUL7

1. Use the numbered list style to write rules regarding the provisioning of the corresponding item in the equipment list table above

RUL8

1. Use the numbered list style to write rules regarding the provisioning of the corresponding item in the equipment list table above

RUL9

1. Use the numbered list style to write rules regarding the provisioning of the corresponding item in the equipment list table above

RUL10

1. Use the numbered list style to write rules regarding the provisioning of the corresponding item in the equipment list table above

RUL11

1. Use the numbered list style to write rules regarding the provisioning of the corresponding item in the equipment list table above

RUL12

1. Use the numbered list style to write rules regarding the provisioning of the corresponding item in the equipment list table above

RUL13

1. Use the numbered list style to write rules regarding the provisioning of the corresponding item in the equipment list table above

RUL14

1. Use the numbered list style to write rules regarding the provisioning of the corresponding item in the equipment list table above

RUL15

1. Use the numbered list style to write rules regarding the provisioning of the corresponding item in the equipment list table above

RUL16

1. Use the numbered list style to write rules regarding the provisioning of the corresponding item in the equipment list table above

RUL17

1. Use the numbered list style to write rules regarding the provisioning of the corresponding item in the equipment list table above

RUL18

1. Use the numbered list style to write rules regarding the provisioning of the corresponding item in the equipment list table above

RUL19

1. Use the numbered list style to write rules regarding the provisioning of the corresponding item in the equipment list table above

RUL20

1. Use the numbered list style to write rules regarding the provisioning of the corresponding item in the equipment list table above

ENGINEERING MANUAL SECTION - CHANGE KIT TEMPLATE

PEC CODE: EMS002

CPC CODE: (CPC of Change Kit)

RATING: (STD, LTD, A&M or MD)

REPLACES: PEC of product replaced by subject Change Kit

REPLACED BY: PEC of product replacing the subject Change Kit

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: (Brief description of Change Kit)

REFERENCE DOCUMENTATION: SLXXXXX nn.nn
MSXXXXX nn.nn

MARKETS: Applicable markets:

CANADA
US
CALA
Europe
Asia/Pacific

ISSUE AUTHOR: James Marsden Dept. 3471 (PPK)

MAIN CONTACT: James Marsden Dept. 3471 (PPK)

2.0 CHANGE HISTORY

The change history of this document is given in the following table:

CHANGE HISTORY		
Date	Document	Reason for change
1997 11 06	ECM 001 03	Initial release

EQUIPMENT LIST							
ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Signaling Processor	NT6X46AB		2	XX	11	
REMOVE	Des Strip (NT6X46AB)	P0668442		2	XX		RUL1
ADD	SP Memory Plus CP	NT6X46AC		2	XX	11	AP
ADD	Des Strip (NT6X46AC)	P0696600		2	XX		RUL1

2.1 NOTES:

1. Note pertaining to the table above.

2.2 PROVISIONING RULES:

AP

1. When (subject product PEC and name) is ordered, these items are provided.

RUL1

1. Rule for provisioning corresponding item

CABINETIZED ISM EQUIPMENT

PEC CODE: NTFX40AA

CPC CODE: B0237194

RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: CISM

ENGINEERING DESCRIPTION: The Cabinetized ISM Equipment houses four ISM Shelves or three ISM Shelves and one AXU, an MSP shelf and a cooling unit in a Model B Cabinet.

REFERENCE DOCUMENTATION: SLFX40AA 01 03
MSFX40AA 01 06 and 07

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA

ISSUE AUTHOR: Steve Martin Dept. 3471 (PPK)

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

NTFX40AA EMA2-01-ISM-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 05 06	ECM 557 01	Initial introduction.
94 05 16	ECM 557 02	Re-release for initial intro.
94 06 21	ECM 557 03	EC 018 43094
94 10 21	ECM 557 04	ET 19169. Update NT3X89CA provisioning requirements.
94 11 28	ECM 557 05	ET20379 and EC 18-43840 AXU Daughter Board rules referenced, also ET 20479
95 03 02	ECM 557 07	EC 018 44518, include provisioning rules for VER90
95 04 24	ECM 557 10	Correction to NTFX40DA and NTFX40DB provisioning rules per ET22309.
96 04 23	ECM 557 23	Clean-up of EMS (remove qty. from rules), clarify RUL14 per RR62667 to state shelf position of misc.hardware, Fix RUL11 to state these parts only needed for shelf in position 47 per RR61642.
96 09 20	ECM 557 27	Change the wording of RUL4 per SR RR67817. Clarify RUL15 for NTFX40AB Power Kit.
96 10 25	ECM 557 28	Remove AP cables NTFX40DB per iss. 3 of SLFX40AA from positions 05,19. Add AP cables NTFX40HC at positions 05,19 per SLFX40AA. Per EC018-45955 add info regarding IOM.
97 01 17	ECM 557 30	Un-md NTFX40DB due to delay in manufacturing cut-in date.
97 06 23	ECM 557 34	Update EMS per EC018-46961. Add Des. Label for Germany, update rules for IOM and Bulkhead usage. Update RUL1A and RUL2A. Update per EC 018-51054. Provide keybrackets on ISM Shelf at slots 3/4. Add label P0871015 when IOM is provisioned on the ISM Shelf.

The Cabinetized ISM Equipment is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Cabinet Assembly	NTRX25AA					AP
CISM Horizontal Cabling Kit	NTFX40DM					RUL1
CISM Ext. Power Filter Kit	NTFX40DN					RUL1
Designation Label 13 Pos.- (Germany)	P0847107					RUL1
Modular Supervisory Panel Kit	NTFX4011	MSP		61		RUL17
C28 English Label Kit	NTRX3541			61		RUL6
C28 German Label Kit	NTRX3542			61		RUL6
Fan Pwr Control Module (-48V)	NTRX54BA			61	19	RUL8
Desig Label (NTRX54BA)	P0741680			61	19	RUL8
Fan Pwr Control Module (-60V)	NTRX54AA			61	19	RUL8
Desig Label (NTRX54AA)	P0741735			61	19	RUL8
Fuse 5 Amp Green	A0205205			61		RUL16
Fuse 3 Amp Blue	A0205204			61		RUL16
Fuse Block Designation 5A	P097P238			61		RUL16
Fuse Block Designation 3A	P097P237			61		RUL16
Fuse Dummy	A0205210			61		RUL16
Alarm X-connect Unit	NT3X89CA	AXU		47R		RUL2
Filler Panel	P0575239			47		RUL2
Personality Plate(AXU)	P0715586			47		RUL2
EAS Label	P0749661			61		RUL2
ISM DS-30 Cable Assy	NTFX40DC			33		RUL12
OAU/AXU Cable Assy	NTFX40DD			47R		RUL12
ISM MDF Cable Assy	NTFX40DG			47R		RUL12
AXU/MDF T/R Cable Assy	NTFX40DJ			47R		RUL12
AXU/ISM(2) Cable Assy	NTFX40DS			47R		RUL12
AXU/Bulkhd Cable Assy	NTFX40DV			47R		RUL12
AXU T01 Cable Assy	NTRX32ED			47R		RUL12
AXU T02 Cable Assy	NTRX32EJ			47R		RUL12
AXU T03 Cable Assy	NTRX32EE			47R		RUL12
AXU T04 Cable Assy	NTRX32EF			47R		RUL12
AXU T05 Cable Assy	NTRX32EG			47R		RUL12
AXU T06 Cable Assy	NTRX32EH			47R		RUL12
Ground Cable Assy	NT0X95BY			47R		RUL12
ISM Shelf Assembly	NTFX4101	NOTE 6		47		RUL3
Personality Plate	P0745181			47		RUL3
IOM BH Plate Assy	NTFX39AA			47		RUL19
NTFX39AA Diagram Label	P0871015			47		RUL19

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Connector Key Bracket	P0832926			47		RUL20
DS-30 Cable Assy	NTFX40DA			47	03-17, 21	RUL5
MDF Cable Assembly	NTFX40DB			47		RUL5
MDF Cable Assembly	NTFX40HC			47		RUL5
ISM/ILTA Cable Assy	NTFX40DW	NOTE 5		47		RUL1A
ISM/VER-90 Cable Assy	NTFX40DX	NOTE 5		47		RUL2A
ISM Shelf Assembly	NTFX4101	NOTE 1 NOTE 6	1	33		AP
Personality Plate(AXU/OAU)	P0748848			33		RUL2
Personality Plate	P0745181			33		RUL3
DS-30 Cable Assy	NTFX40DA			33	03-17, 21	RUL5
IOM BH Plate Assy	NTFX39AA			33		RUL19
NTFX39AA Diagram Label	P0871015			33		RUL19
Connector Key Bracket	P0832926			33		RUL20
MDF Cable Assembly	NTFX40DB			33		RUL5
MDF Cable Assembly	NTFX40HC			33		RUL5
ISM/OAU to MDF Cable Assy	NTFX40DT			33		RUL13
ISM/ILTA Cable Assy	NTFX40DW	NOTE 5		33		RUL1A
ISM/VER-90 Cable Assy	NTFX40DX	NOTE 5		33		RUL2A
ISM Shelf Assembly	NTFX4101	NOTE 1 NOTE 6	1	19		AP
IOM BH Plate Assy	NTFX39AA			19		RUL19
Personality Plate(ISM)	P0745181		1	19		AP
NTFX39AA Diagram Label	P0871015			19		RUL19
Connector Key Bracket	P0832926			19		RUL20
MDF Cable Assembly	NTFX40DB			19		RUL5
MDF Cable Assembly	NTFX40HC			19		RUL5
ISM/ILTA Cable Assy	NTFX40DW	NOTE 5		19		RUL1A
ISM/VER-90 Cable Assy	NTFX40DX	NOTE 5		19		RUL2A
ISM Shelf Assembly	NTFX4101	NOTE 1 NOTE 6	1	05		AP
IOM BH Plate Assy	NTFX39AA			05		RUL19
Personality Plate(ISM)	P0745181		1	05		AP
NTFX39AA Diagram Label	P0871015			05		RUL19
Connector Key Bracket	P0832926			05		RUL20
MDF Cable Assembly	NTFX40DB			05		RUL5
MDF Cable Assembly	NTFX40HC			05		RUL5

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
ISM/ILTA Cable Assy	NTFX40DW	NOTE 5		19		RUL1A
37 Pin Filter Adaptor (1000-1600 PF)	A0316599			47, 33, 19		RUL4
37 Pin Filter Adaptor (300-450 PF)	A0316598			33		RUL4
9 Pin Filter Adapter	A0344127			33		RUL4
Washer	P0148330			47, 33		RUL4
Bushing	P0638259			47, 33, 19		RUL4
Screwlock	A0317136			47, 33		RUL4
ISM Test Access Cable Assy	NTFX4015			05		RUL9
ISM Test Access Cable Assy	NTFX40DE			X		RUL9
Shorting Plug	NTFX40DF			X		RUL10
Terminal Ring	A0292996			47		RUL11
Insulation Boot	P0743593			47		RUL11
Bolt Head Cover	P0732389			47		RUL11
Support Bar	P0558644			59R		RUL14
Screw	P097F813			59R		RUL14
9-Pin Cover Plate	P0715809					RUL15
Screw	P0670923					RUL15
10" Cooling Unit	NTRX92AA			00		RUL7
ISM Retrofit Kit for IOM (Cabinet)	NTFX40UA					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) When an Alarm Cross-connect Unit (AXU) is mounted in the Cabinet, The always provided ISM Shelf Assemblies in shelf positions 33 and 19 are used as Primary Alarm ISM Unit, and Secondary Alarm ISM Unit respectively. The Trunk Module Provisionable Card rules given in the Engineering Manual Table A, Section EMA14-01-000, should be applied accordingly. Otherwise, i.e when an AXU is not mounted in the cabinet, these shelves are not used as Primary or Secondary Alarm ISM Units, therefore, Trunk Provisionable Card rules for regular ISM should be applied.
- 2) X = Shelf Position 05,19,33,47.
- 3) Deleted
- 4) The NTFX40AA Cabinetized ISM Equipment has system level provisionable items covering the following:
 - * Seismic Zone provisioning
 - * Grounding options provisioning
 - * Cable routing options provisioning
- 5) Rules identified with suffix 'A' are specific to the Cabinetized Metallic Test Access (CMTA) application of CISM. The CMTA application requires the use of the CMTA, NTFX40EA. Refer to MSFX40EA or Engineering Manual Section NTFX40EA for provisioning information. For offices having

requirements to interface MLT (Multiline Test Trunks), LTD (Local Test Desk) or VER 90 trunks with the CMTA system, the CISM NTFX40AA should be installed adjacent to the directly interfacing CMTA.

- 6) The general abbreviation for the shelf assembly is ISM. However, ISM shelves are labeled with the abbreviation TM8, TM4, TM2 or MTM depending on the shelf function. The ISM functions as either an MTM or TM according to the software load applied.

RULES:

- AP 1) When PEC NTFX40AA is ordered, these items are provided.
- RUL1 1) When CISM requires horizontal power arrangement, provide one (1) NTFX40DM Horizontal Cabling Kit.
- 2) When CISM requires the external power arrangement, provide one (1) NTFX40DN External Power Filter Kit. If CISM is destined for a German market and a German label is required, provide one (1) P0847107 Label.
- RUL2 1) Each office requires one (1) Alarm Cross-connect Unit (AXU), For extensions to existing offices the AXU will be already be equipped.
- 2) For new offices, provide (1) Alarm Cross-connect Unit (AXU), NT3X89CA, and one (1) P0575239 Filler Panel per office. In new offices, the AXU, and the Filler Panel are mounted on the first CISM shelf in position 47. The AXU, is mounted at the back of the shelf and the Filler Panel at the front.
- 3) If an Alarm Cross-connect (AXU), NT3X89CA, is provided (first CISM), provide one (1) Personality Plate P0715586 at Bulkhead position 47 and one (1) Personality Plate P0748848 at Bulkhead position 33.
- 4) When an Alarm Cross-connect Unit (AXU), NT3X89CA, is provided on an ISM cabinet, an ISM Shelf Assembly, NTFX4101, is used as a Primary Alarm ISM Unit at shelf position 33 another ISM Shelf Assembly is used as a Secondary Alarm ISM Unit at shelf position 19. The AXU, the Primary Alarm Unit and the Secondary Alarm Units form a functional trio on the same cabinet. Both Primary and Secondary Alarm Units shall be powered from the Power Board.

- 5) Provide (2) two EAS Label, P0749661, if an Alarm Cross-connect (AXU), NT3X89CA, is provided in shelf position 47. One label is placed on the front and the other on the rear of the MSP.
- 6) NT3X89CA contains provisionable daughter boards. Refer to MS3X89CA for Quad Data Link CP daughter board provisioning information.
- 7) When AXU Shelf is provisioned in position 47, IOM CPs can only be provided in ISM NTFX4101 Shelf at position 05.

RUL3 1) If shelf position 47 is not occupied by an Alarm Cross-connect Unit (AXU), NT3X89CA, provide one (1) NTFX4101 Shelf Assembly in shelf position 47 in addition to the ISM Shelf Assemblies, NTFX4101, always provided in shelf positions 05, 19 and 33.

- 2) When an ISM Shelf Assembly is provided at shelf position 47, according to RUL3 1), provide two (2) Personality Plates, P0745181 and two (2) NTFX39AA IOM Bulkheads at bulkhead positions 33 and 47.

RUL4 1) For each Personality Plate P0748848 provided, provide six (6) A0344127 9-Pin Filter Adaptors to connector positions T01-T06. Provide eight (8) A0316598 37-Pin Filter Adaptors to connector positions C43-C44, F01A, F01B, F00A, F00B, SL00 and SL10. Provide seven (7) 37 Pin Filter Adaptors, A0316599 to connector positions C05-C11.

- 2) Except where ISM/ILTA Cable Assy(s), NTFX40DW, or ISM/VER 90 Cable Assy, NTFX40DX, are provided on the corresponding shelf (refer to RUL1A and 2A), for each Personality Plate P0745181 in position 47 and 33, provide twelve (12) A0316599 37-Pin Filter Adaptors to connector positions C09-C20. For the Personality Plate P0745181 in position 19 BKHD position C16 and C11, provide two (2) A0316599 Filter Adaptor, four (4) A0317136, and eight (8) P0148330.

- 3) For ISM Shelf positions 47 or 33 where ISM/ILTA Cable Assy(s), NTFX40DW, and/or ISM/VER 90 Cable Assy(s) NTFX40DX are provided, the number of A0316599 37-Pin Filter Adaptors provided is 12 minus the sum of the number of ISM/ILTA Cable Assy, NTFX40DW and ISM/VER 90 Cable Assy, NTFX40DX. Refer to RUL1A and 2A respectively for NTFX40DW and NTFX40DX provisioning information. Assign Filter Adaptors, A0316599, to connector positions as follows:

QTY OF NTFX40DW + NTFX40DX	FILTER ADAPTOR ASSIGNMENTS	SHLF POS
1	C05-C15, C17-C20	47
2	C05-C10, C12-C15 C17-C20	47
3	C05-C15, C17-C20	33
4	C05-C10, C12-C15 C17-C20	33
5	C05-C15, C17-C20	19
6	C05-C10, C12-C15 C17-C20	19

- 4) For each Personality Plate P0745181 in positions 47 or 33, provide (4) 37 Pin Filter Adaptors, A0316598, to connector positions SL00, SL10, SL01, SL11.
- 5) For positions 47 or 33, provide four (4) sets of Mounting Hardware, P0148330, and four (4) sets of Screwlocks, A0317136 for each Filter Adaptor, A0316598, A0316599, and A0344127, provided.
- 6) Provide two (2) Bushing, P0638259 for each NTFX40DW ISM/ILTA Cable Assy and each NTFX40DX, ISM/VER 90 Cable Assy provided.
- 7) If IOM is provided in any shelf positions 47,33,19, or 05, do not provide four (4) A0316599 Filter Adaptors in position C05, C06, C07, and C08.

- RUL5
- 1) Provide one (1) DS-30 Cable Assembly, NTFX40DA, and one (1) MDF Cable Assembly, NTFX40DB or NTFX40HC, for each shelf position 47 and 33, if the AXU is not mounted in the cabinet. Use MDF Cable Assembly, NTFX40HC, if IOM is provisioned in the shelf.
 - 2) Provide one (1) MDF Cable Assembly, NTFX40DB or NTFX40HC, for each shelf position 19 and 05. Use MDF Cable Assembly, NTFX40HC, if IOM is provisioned in the shelf.
 - 3) The DS-30 cables, if provided, run from ISM Shelves in position 47,33,19 and 05, slots 3-17 and 21, to SL00, SL01,

SL10 and SL11 at bulkhead position 47,33,19 and/or 05 respectively. The NTFX40DA Cable Assembly provides a maximum of fifteen DS-30 connections to the network plane 0 and 1. Note that slots 18,19 and 20 do not have DS-30 connections to the network. These slots, therefore, cannot be used for PM Service Circuits.

- 4) Any DS-30 connections, to slots 3 thru 4, which are not required, should be tied back, and not connected. DS-30 connections are not required when the corresponding slot is assigned to a non-PM type service circuit.

Any DS-30 connections to the NTFX31AA Paddleboard in slots 03R or 04R should be tied back (future use).

- 5) The MDF Cable Assy, NTFX40DB, if provided, runs from ISM Shelf in position 47,33,19 and 05, slots 5-20, to C05-C20 at bulkhead position 47,33,19, and 05 respectively.
- 6) The MDF Cable Assy, NTFX40HC, if provided, runs from ISM Shelf in position 47,33,19 and 05, slots 3,4, to C05-C08 at bulkhead for IOM and slots 9-20, to C09-C20 at bulkhead for MDF for shelf position 47,33,19, and 05 respectively.
- 7) Provide two (2) Bushing, P0638259, for each ISM/ILTA Cable Assy, NTFX40DW, provided.

RUL6 1) Provide one (1) NTRX3541 English Label Kit for all applications except German applications.

- 2) Provide one (1) NTRX3542 German Label Kit for German applications.

RUL7 1) Provide one (1) NTRX92AA Cooling Unit per cabinet. This includes Cooling Unit NTRX91AA, associated hardware and cables.

RUL8 1) Provide one (1) Fan Power Control Module, NTRX54BA, and one (1) Designation Label, P0741680, if system power is -48V and fan (sophometric) noise control is not required.

- 2) Provide one (1) Fan Power Control Module, NTRX54AA, and one (1) Designation Label, P0741735, if system power is -60V or if sophometric noise control is required if system power is either -60V or -48V

RUL9 1) When ISM Shelves are configured as TM8 in a DMS 300 Office, and AXU Shelf is not provided in the same cabinet, provide three (3) Test Access Cable Assy, NTFX40DE per CISM. Also,

provide one (1) NTFX4015, ISM Test Access Cable Assy providing connection from shelf position 05 to connector TA at the top of the cabinet.

RUL10 1) When an ISM Shelf is configured for TM8 in non-DMS 300 offices, provide one (1) Shorting Plug, NTFX40DF per ISM/TM8 Shelf provided located at TA.A on the backpanel between slots 20 and 21. Provide cover plate per RUL15.

RUL11 1) Provide one (1) Terminal Ring, A0292996, per ISM Shelf provided in position 47.

2) Provide ten (10) Insulation Boot, P0743593, per ISM Shelf provided in position 47.

3) Provide ten (10) Bolt Head Cover, P0732389, per ISM Shelf provided in position 47.

RUL12 1) Provide one (1) ISM DS-30 Cable Assy, NTFX40DC, if AXU is provided in the CISM. Cable runs from shelf 33 slot positions 3 - 9 and 21 to SL00 and SL10 at bulkhead position 33. Any DS-30 connections to slots 3-9 which are not required should be tied back and not connected. DS-30 connections not required when the corresponding slot is assigned to a non-PM type service circuit.

2) Provide one (1) OAU/AXU Cable Assy, NTFX40DD, if AXU is provided in the cabinet. Cable runs from Shelf 47, A00 to A08, to shelf 33 slot positions 12-19.

3) Provide one (1) ISM MDF Cable Assy, NTFX40DG, if AXU is provided in the cabinet. Cable runs from Shelf 47, C03-C22 to C03-C22 at bulkhead position 47.

4) Provide one (1) AXU/MDF T/R Cable Assy, NTFX40DJ, if AXU is provided in the cabinet. Cable runs from Shelf 47, F01A and F01B to F01A and F01B at bulkhead position 33.

5) Provide one (1) AXU/ISM(2) Cable Assy, NTFX40DS, if AXU is provided in the cabinet. Cable runs from G00, shelf 47 to shelf position 19, slot 19.

6) Provide one (1) AXU T01 Cable Assy, NTRX32ED, if AXU is provided in the cabinet. Cable runs from Shelf 33, Terminal Block TB1 to T01, at bulkhead position 33.

7) Provide one (1) AXU T02 Cable Assy, NTRX32EJ, if AXU is provided in the cabinet. Cable runs from Terminal Block TB1 to T02, at bulkhead position 33.

- 8) Provide one (1) AXU T03 Cable Assy, NTRX32EE, if AXU is provided in the cabinet. Cable runs from Shelf 33, Terminal Block TB1 to T03, at bulkhead position 33.
 - 9) Provide one (1) AXU T04 Cable Assy, NTRX32EF, if AXU is provided in the cabinet. Cable runs from Shelf 33, Terminal Block TB1 to T04, at bulkhead position 33.
 - 10) Provide one (1) AXU T05 Cable Assy, NTRX32EG, if AXU is provided in the cabinet. Cable runs from Shelf 33, Terminal Block TB1 to T05, at bulkhead position 33.
 - 11) Provide one (1) AXU T06 Cable Assy, NTRX32EH, if AXU is provided in the cabinet. Cable runs from Shelf 33, Terminal Block TB1 to T06, at bulkhead position 33.
 - 12) Provide one (1) Ground Cable, NT0X95BY, if AXU is provided in the cabinet. Cable runs from Shelf position 47 Terminal Block TB1 to Ground Stud, PCL+, on shelf backplane in position 33.
 - 13) Provide one (1) AXU/Bulkhd Cable Assy, NTFX40DV, if AXU is provided in the cabinet. Cable runs from shelf position 47, C00, C01, F00A, F00B, C43, and C44 to bulkhead position 33, C00, C01, F00A, F00B, C43, and C44, respectively.
- RUL13 1) Provide one (1) ISM/OAU to MDF Cable Assy, NTFX40DT, if AXU is provided in the cabinet. The cable runs from shelf 33, slots 5 thru 11 to C05 thru C11 at bulkhead position 33.
- RUL14 1) Provide one (1) Support Bar P0558644 and two (2) Screws P097F813 at shelf position 59R if ISM Shelf NTFX4101 is provided in position 47.
- RUL15 1) Provide one (1) 9-Pin Cover Plate, P0715809, and two (2) Screws, P0670923, at TA connector position on the NTFX40AB Power Filter Kit, if test access is not required. NOTE-The NTFX40AB is in the stocklist of the NTFX40DN. See RUL1.
- RUL16 1) If ISM Shelf NTFX4101 is provided in position 47, i.e. when AXU is not in position 47, provide two (2) Fuse 5 Amp Green, A0205205, and two (2) Fuse Block Designation, P097P238, in MSP fuse locations 8F05 and 9F05. Also provide one (1) Fuse 3 Amp Blue, A0205204, and one (1) Fuse Block Designation, P097P237, in MSP fuse location 9F01.
- 2) If AXU is provided in shelf position 47, i.e. ISM Shelf NTFX4101, is not provided in position 47, provide three (3)

Fuse Dummy, A0205210, in MSP fuse positions 8F05, 9F01, and 9F05.

RUL17 1) Provide one (1) Supervisory Panel Kit, NTFX4011, per Cabinetized Integrated Services Module, NTFX40AA, provided.

RUL18 1) Provide one (1) ISM Retrofit Kit for IOM Cabinet, NTFX40UA, for each ISM Shelf in the field to be used for IOM CPs. The NTFX40UA is not to be provided for ISM Shelf in position 33 if an AXU is provided in position 47. The NTFX40UA is not to be provided for ISM Shelves equipped with ILTA CPs NTFX44AA in ISM Shelf position 06.

RUL19 1) Each ISM Shelf with IOM in CISM s will have an NTFX39AA BH Plate Assy mounted to positions C05, C06, C07 and C08. NTFX39AA Diagram Label is also provided to be applied to the cabinet door. Service Circuit Packs in slot 05 thru 08 requiring I/O connections to C05 thru C08 cannot be provisioned. The following classes of CPs can be provisioned in slots 05 thru 08: TTUs and TTTs, 2X48--DF/MF Receivers, EDTU NT4X45, EDRAM NT1X80AA/BA, Conference trunks, DModems, CTM NT1X81AA/BA.

RUL20 1) Provide two (2) Connector Key Brackets P0832926 for each ISM Shelf slots 3 and 4. Do not provide if IOM is provisioned in the shelf.

CABINETIZED METALLIC TEST ACCESS (CMTA) APPLICATION

RUL1A 1) The ISM/ILTA Cable Assemblies, NTFX40DW, are required for provisioning of MLT (Multi Line Test) or LTD (Local Test Desk) interface used in the CMTA application. Each NTFX40DW Cable Assy interconnects the F (bottom connector) of four slots assigned to Incoming/Outgoing Test Trunk CPs to the F Connector of an adjacent single slot assigned to the Improved Loop Test Access CP. To accommodate NTFX40DW, ISM/ILTA Cable Assy(s), the F Connectors of the ISM/MDF Cable Assy at the slots connected to the ISM/ILTA Cable Assy(s) are disconnected and tied back. Refer to RUL4, 3.

2) Provide one (1) ISM/ILTA Cable Assy, NTFX40DW for each group of four (4) external loop test circuits required for interfacing either MLT or LTD. A maximum of two (2) ISM/ILTA Cable Assy, NTFX40DW, may be provided at shelf position 47, a maximum of two (2) NTFX40DW at shelf position 33, and a maximum of two (2) NTFX40DW at shelf position 19. Slot allocations for Cable Assy NTFX40DW are as follows:

SHELF POS	TEST ACCESS GROUP	CABLE ASSY	SLOT	
			ILTA	IC/OG TRK
47	1	1	16	17-20
	2	2	11	12-15
33	3	3	16	17-20
	4	4	11	12-15
19	5	5	16	17-20
	6	6	11	12-15

- 3) The use of ISM/ILTA Cable Assemblies., NTFX40DW, imposes a special CMTA configuration of CPs within the affected ISM Shelves. Refer to design document MSFX4101 or Engineering Manual Section NTFX4101 for ISM Shelf provisioning information.
- 4) Deleted
- 5) Do not provision test access ISM/ILTA Cable Assys NTFX40DW in CISM which includes an AXU, NT3X89CA. That is, do not provide ILTA test access in the CISM which includes an AXU.
- 6) A maximum of 24 External Loop Test Trunks (horizontal) can be supported in a single CISM.
- 7) When dedicated and/or rover LTU/MTUs are to be allocated Test Access Group 6 cannot be used.

- RUL2A
- 1) The ISM/VER 90 Cable Assy, NTFX40DX, is required for provisioning of Verification Board (VER 90) interface used in the CMTA application. Each NTFX40DX Cable Assy interconnects the E (top connector) of four slots assigned to Incoming/Outgoing Test Trunk CPs to the F Connector of an adjacent single slot assigned to the Improved Loop Test Access CP. To accommodate NTFX40DX, Cable Assy(s), the E Connectors of the ISM/MDF Cable Assy at the slots connected to the ISM/VER 90 Cable Assy(s) are disconnected and tied back. Refer to RUL4, 3a.
 - 2) Provide one (1) ISM/VER 90 Cable Assy, NTFX40DX, for each group of four (4) VER 90 trunks. A maximum of two (2) ISM/VER 90 Cable Assy, NTFX40DX, may be provided at shelf position 47, a maximum of two (2) NTFX40DX may be provided

at shelf position 33, and a maximum of two (2) NTFX40DX at shelf position 19. Slot allocations for ISM/VER 90 Cable Assy, NTFX40DX, are as follows:

SHELF POS	TEST ACCESS GROUP	CABLE ASSY	SLOT	
			ILTA	IC/OG TRK
47	1	1	16	17-20
	2	2	11	12-15
33	3	3	16	17-20
	4	4	11	12-15
19	5	5	16	17-20
	6	6	11	12-15

- 3) The use of ISM/VER 90 Cable Assy, NTFX40DX, imposes a special CMTA configuration of CPs within the affected ISM Shelves. Refer to design document MSFX4101 or Engineering Manual Section NTFX4101 for ISM Shelf provisioning information.
- 4) Deleted
- 5) Do not provision test access ISM/VER 90 Cable Assy, NTFX40DX, in CISM which includes an AXU, NT3X89CA. That is, do not provide ILTA test access in the CISM which includes an AXU.
- 6) A maximum of 24 External Loop Test Trunks (horizontal) can be supported in a single CISM.
- 7) When dedicated and/or rover LTU/MTUs are to be allocated Test Access Group 6 cannot be used.

INTEGRATED SERVICES MODULE EQUIPMENT

PEC CODE: NTFX40BA

CPC CODE: B0238581

RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: ISME

ENGINEERING DESCRIPTION: The frame ISM Equipment (ISME) houses an MSP shelf, four ISM Shelves or three ISM Shelves and one AXU.

REFERENCE DOCUMENTATION: SLFX40BA 01 04
MSFX40BA 01 06 and 07

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA

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NTFX40BA EMA2-01-ISM-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 05 06	ECM 557 01	Initial introduction.
94 05 16	ECM 557 02	Re-release for initial introduction
94 06 15	ECM 557 03	Change abbreviation from FISM to ISME. Incorporates EC 018-43094
94 12 06	ECM 557 05	EC 018 43738 ISM/ILTA Cables added. Reference to AXU Daughter Board provisioning added.
95 03 02	ECM 557 07	EC 018 44518, Include provisioning rules for VER90
95 10 05	ECM 557 16	Correct RUL9 and RUL11 typos.
96 03 04	ECM 557 21	Clarify RUL10 to answer SR-RR61250.
96 04 23	ECM 557 23	Clarify RUL10 to show shelf position 65R. Clarify RUL1 part 4 per RR62668 for daughter board hardware provisioning.
96 09 20	ECM 557 27	Redo rules to help with readability per POPS team. (Equipment renumbered)
96 10 25	ECM 557 28	Add filler panel at position 04 per stocklist. Per EC018-45955 add info concerning IOM field upgrades.
97 06 23	ECM 557 34	Update per EC 018-46961. Update RUL1A and RUL2A subsection 2,5, and add subsection 6. Update per EC 018-51054. Provide keybrackets on ISM Shelf at slots 3/4.

The Integrated Services Module Equipment is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Framework Assembly						RUL8
Grill (3")	P0558295		1			AP-01
Modular Supervisory Pnl Kit	NTFX4010	MSP		71		RUL12
EAS Label	P0749661			71		RUL1
Fuse 3 Amp Blue	A0205204			71		RUL2
Fuse 5 Amp Green	A0205205			71		RUL2
Fuse Block Designation 3A	P097P237			71		RUL2
Fuse Block Designation 5A	P097P238			71		RUL2
Fuse Dummy	A0205210			71		RUL2
ISME MSP Fuse Label	P0831475			71		RUL6
Alarm X-connect Unit	NT3X89CA	AXU		53R		RUL1
Support Bar	P0558644			65R		RUL2
Screw	P097F813			65R		RUL2
Filler Panel	P0575239			53		RUL1
Washer	P0284154			53R		RUL1
Lockwasher	P0183220			53		RUL1
Screw	P097F813			53		RUL1
AXU/ISM(2) Cable Assy	NTFX40DS			53R		RUL1
Ground Cable Assy	NT0X95BY			53R		RUL1
OAU/AXU Cable Assy	NTFX40DD			53		RUL1
Primary Alarm ISM Unit	NTFX4101	OAU		39		RUL1
Secondary Alarm ISM Unit	NTFX4101	OAU		21		RUL1
ISM Shelf Assembly	NTFX4101	NOTE 5		07		RUL1
ISM Shelf Assembly	NTFX4101	NOTE 5		X		RUL2
ISM/ILTA Cable Assy	NTFX40DW	NOTE 4		53, 39		RUL1A
ISM/VER-90 Cable Assy	NTFX40DX	NOTE 4		53, 39		RUL2A
Filler Panel	P0746719			04		AP-01
Filler Panel	P0575239			X		RUL3
ISM Test Access Cable Assy	NTFX40DE			53, 21		RUL4
ISM Test Access Cable Assy	NTFX40DU			21		RUL4
Shorting Plug	NTFX40DF			X		RUL5
Terminal Ring	A0292996			X		RUL2
Insulation Boot	P0743593			X		RUL2
Bolt Head Cover	P0732389			X		RUL2
Connector Key Bracket	P0832926			X		RUL9
ISM Retrofit Kit for IOM (Frame)	NTFX40UB			X		RUL7

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) When an Alarm Cross-connect Unit (AXU) is mounted in the frame, the ISM Shelf Assemblies in shelf positions 39 and 21 are used as Primary Alarm ISM Unit, and Secondary Alarm ISM Unit respectively. The Trunk Module Provisionable Card rules given in the Engineering Manual Table A, Section EMA14-01-000, should be applied accordingly. Otherwise, i.e when an AXU is not mounted in the cabinet, these shelves are not used as Primary or Secondary Alarm ISM Units, therefore, Trunk Provisionable Card rules for regular ISM should be applied.
- 2) X = Shelf Position 07,21,39,53.
- 3) Refer to NT0X25
- 4) Rules identified with suffix 'A' are specific to the Metallic Test Access (MTAE) application of ISME. The MTAE application requires the use of the MTAE, NTFX40FA. Refer to MSFX40FA or Engineering Manual Section NTFX40FA for provisioning information. For offices having requirements to interface MLT (Multiline Test Trunks), LTD (Local Test Desk) or VER 90 trunks with the MTAE system, the ISME NTFX40BA should be installed adjacent to the directly interfacing MTAE.
- 5) The general abbreviation for the shelf assembly is ISM. However, ISM shelves are labeled with the abbreviation TM8, TM4, TM2 or MTM depending on the shelf function. The ISM

functions as either an MTM or TM according to the software load applied.

RULES:

- AP 1) When PEC NTFX40BA is ordered, these items are provided.
- AP-01 1) This item is always provided with the Frame ISM Equipment, NTFX40BA, and is shown here for completeness.
- RUL1 1) For new offices provide one (1) Alarm Cross-connect (AXU) Shelf NT3X89CA in the first ISME of the office (ISME is used instead of TME). If the job is an extension, the AXU is provisioned in the existing configuration.
- 2) When an Alarm Cross-connect Unit (AXU), NT3X89CA, is provided on an ISME, provide one (1) ISM Shelf Assembly, NTFX4101, for use as a Primary Alarm ISM Unit at shelf pos. 39 and one (1) ISM Shelf Assembly for use as a Secondary Alarm ISM Unit at shelf pos. 21. The AXU, the Primary Alarm Unit and the Secondary Alarm Units form a functional trio on the same frame. Both Primary and Secondary Alarm Units must be powered directly from the Power Board.
- 3) If an Alarm Cross-connect Unit (AXU), NT3X89CA, is provided on an ISME, if required, provide ISM Shelf Assembly, NTFX4101, at shelf position 07. Each ISM Shelf provides slot positions to mount up to sixteen (16) service/trunk CPs and two (2) IOM CPs. Refer to EMA2-01-ISM-3 and EMA14-01-000 for detailed provisioning rules.
- 4) NT3X89CA contains provisionable daughter boards. Refer to EMS NT3X89CA for Quad Data Link CP daughter board provisioning information. Provide Quad Link Daughter Board CPs and hardware as follows: Provide (1) NT3X8906 when provisioning for -48 volt markets or provide (1) NT3X8907 when provisioning for -60 volt markets. Provide (2) Screws P0180922, (2) Helical Washers P0182948, and (2) Flat Washers P0284139 for each NT3X8906 or NT3X8907 provisioned.
- 5) Provide two (2) EAS Label, P0749661, if AXU, NT3X89CA is provided in shelf pos. 53. Apply labels to the MSP, NTFX4010, front and rear.
- 6) Provide one (1) Filler Panel, P0575239 if AXU, NT3X89CA, is provided in shelf pos. 53R. (The panel is fitted to the front of the frame in shelf pos. 53.)

- 7) Provide two (2) Washers, P0284154, two (2) Lockwashers, P0183220, and eight (8) Screws, P097F813, if AXU is provided in shelf pos. 53R.
 - 8) Provide one (1) AXU/ISM(2) Cable Assy, NTFX40DS, if AXU is provided in the frame. (Cable runs from G00, shelf pos. 53 to shelf pos. 21, slot 19.)
 - 9) Provide one (1) OAU/AXU Cable Assy, NTFX40DD, if AXU is provided in the frame. (Cable runs from A00 thru A08, shelf pos. 53, to slots 12 thru 19, shelf pos. 39.)
 - 10) Provide one (1) Ground Cable, NT0X95BY, if AXU is provided in the frame. (Cable runs from shelf pos. 53 Terminal Block TB1 to Ground Stud on shelf backplane in position 39.)
- RUL2
- 1) If the ISME does not contain an Alarm Cross- connect Unit (AXU), provide one (1) to four (4) NTFX4101 ISM Shelves per frame at shelf positions 07, 21, 39 and 53 as required. Provision ISM Shelves starting from the bottom position. Each ISM Shelf provides slot positions to mount up to sixteen (16) service/trunk CPs and two (2) IOM CPs. Refer to EMA2-01-ISM-3 and EMA14-01-000 for detailed provisioning rules. Generally, provision circuit pack starting from the lowest shelf and ending with the topmost shelf.
 - 2) Provide one (1) Fuse 3 Amp Blue, A0205204, and two (2) Fuse 5 Amp Green, A0205205 for each ISM Shelf Assembly, NTFX4101 provisioned in the frame. Locate fuses in the MSP, NTRX40AA, at designations shown in the following table.
 - 3) Provide one (1) Fuse Block Designation Blue, P097P237, and two (2) Fuse Block Designation Green P097P238 for each ISM Shelf Assembly, NTFX4101 provisioned in the frame. Locate Fuse Block Designation in the MSP, NTRX40AA, at positions shown in the following table.

- 4) Provide three (3) Fuse Dummy, A0205210, for each shelf position not occupied by an ISM Shelf Assembly, NTFX4101. Locate Fuse Dummy in the MSP, NTRX40AA, according to the following table. For example, if shelf pos. 07 is not occupied by an ISM Shelf Assembly, Fuse Dummies are located at the MSP in positions designated 8F04, 8F08, and 9F08. This is obtained by reference to the last column in the table, ISM 0 POS 07 and substituting Fuse Dummies for 3 Amp and 5 Amp fuses.

PART	DESCRIPTION	ISM 3 POS 53	ISM 2 POS 39	ISM 1 POS 21	IS POS
A0205204	3A FUSE (FLT)	9F01	8F02	9F03	8F
P097P237	DESIG DISK	9F01	8F02	9F03	8F
A0205205	5A FUSE (SP1)	9F05	8F06	9F07	8F
P097P238	DESIG DISK	9F05	8F06	9F07	8F
A0205205	5A FUSE (SP2)	8F05	9F06	8F07	9F
P097P238	DESIG DISK	8F05	9F06	8F07	9F

- 5) Provide one (1) Terminal Ring, A0292996, per ISM Shelf.
- 6) Provide ten (10) Insulation Boots, P0743593, per ISM Shelf.
- 7) Provide ten (10) Bolt Head Covers, P0732389, per ISM Shelf.
- 8) Provide one (1) Support Bar P0558644 and two (2) Screws P097F813 in position 65R when ISM Shelf NTFX4101 is provisioned in shelf position 53.

RUL3 1) Provide one (1) Filler Panel, P0575239, for each unoccupied ISM Shelf position.

- 2) Provide one (1) Washer, P0284154, one (1) Lockwasher, P0183220, and four (4) Screws, P097F813, for each Filler Panel, P0575239, provided.

RUL4 1) When ISM Shelves are configured as TM8 in a DMS 300 Office, and AXU Shelf is not provided in the same frame, provide two (2) ISM Test Access Cable Assy, NTFX40DE per ISME. Also provide one (1) ISM Test Access Cable Assy, NTFX40DU per ISME.

- RUL5 1) When an ISM Shelf is configured for TM8 in non-DMS 300 offices, provide one (1) Shorting Plug, NTFX40DF per ISM/TM8 Shelf provided located at TA.A on the backpanel between slots 20 and 21.
- RUL6 1) Provide one (1) ISM MSP Fuse Label P0831475 when providing NTFX4101 ISM Shelves to the field. One (1) P0831475 Label can accommodate up to 4 ISM Shelves.
- RUL7 1) Provide one (1) ISM Retrofit Kit for each NTFX4101 ISM Shelf when field upgrades are required for mounting IOM CPs in ISME.
- RUL8 1) Provide one (1) Framework Assembly according to rules given in MS0X25.
- RUL9 1) Provide two (2) Connector Key Brackets P0832926 for each ISM Shelf slots 03F and 04F. Do not provide if IOM is provisioned in the shelf.
- RUL10 1) Deleted
- RUL11 1) Deleted
- RUL12 1) Provide one (1) Modular Supervisory Panel Kit, NTFX4010, per ISME, NTFX40BA provided.

METALLIC TEST ACCESS EQUIPMENT (MTAE) APPLICATION

- RUL1A 1) The ISM/ILTA Cable Assemblies, NTFX40DW, are required for provisioning of MLT (Multi Line Test) or LTD (Local Test Desk) interface used in the MTAE application. Each NTFX40DW Cable Assy interconnects the F (lower connector) of four slots assigned to Incoming/Outgoing Test Trunk CPs to the F Connector (lower) of an adjacent single slot assigned to the Improved Loop Test Access CP. To accommodate NTFX40DW, ISM/ILTA Cable Assy(s), the F Connectors of the ISM/MDF switchboard cable, at the slots connected to the ISM/ILTA Cable Assy(s), are disconnected and tied back.

- 2) Provide one (1) ISM/ILTA Cable Assy, NTFX40DW for each group of four (4) external loop test circuits required for interfacing either MLT or LTD. (One type of cable is all that is required for each grouping. See RUL2A for usage of other cable NTFX40DX.) A maximum of three (3) ISM/ILTA Cable Assy, NTFX40DW, may be provided at shelf position 53. A maximum of three(3) ISM/ILTA Cable Assy, NTFX40DW, may be provided at shelf position 39. Slot allocations for Cable Assy NTFX40DW are as follows:

SHELF POS	TEST ACCESS GROUP	CABLE ASSY	SLOT	
			ILTA	IC/OG TRK
53	1	1	16	17-20
	2	2	11	12-15
	3	3	06	07-10
39	4	4	16	17-20
	5	5	11	12-15
	6	6	06	07-10

- 3) The use of ISM/ILTA Cable Assemblies., NTFX40DW, imposes a special MTAE configuration of CPs within the affected ISM shelves. Refer to design document MSFX4101 or Engineering Manual Section NTFX4101 for ISM shelf provisioning information.
- 4) Do not provision test access ISM/ILTA Cable Assys NTFX40DW in ISME which includes an AXU, NT3X89CA. That is, do not provide ILTA test access in the ISME which includes an AXU.
- 5) A maximum of 24 External Loop Test Trunks (horizontal) can be supported in a single ISME.
- 6) When dedicated and/or rover LTU/MTUs are to be allocated Test Access Group 6 cannot be used.

- RUL2A 1) The ISM/VER 90 Cable Assy, NTFX40DX, is required for provisioning of VER 90 interface used in the MTAE application. Each NTFX40DX Cable Assy interconnects the E (top connector) of four slots assigned to Incoming/Outgoing Test Trunk CPs to the F Connector (lower) of an adjacent single slot assigned to the Improved Loop Test Access CP. To accommodate NTFX40DX, Cable Assy(s), the E Connectors of the ISM/MDF switchboard cable, at the slots connected to the ISM/ILTA Cable Assy(s), are disconnected and tied back.

- 2) Provide one (1) (1) ISM/VER 90 Cable Assy, NTFX40DX, for each group of four (4) VER 90 trunks. (One type of cable is all that is required for each grouping. See RUL1A for usage of other cable NTFX40DW.) A maximum of three (3) ISM/VER 90 Cable Assy, NTFX40DX, may be provided at shelf position 53. A maximum of three (3) ISM/VER 90 Cable Assy, NTFX40DX, may be provided at shelf position 39. Slot allocations for ISM/VER 90 Cable Assy, NTFX40DX, are as follows:

SHELF POS	TEST ACCESS GROUP	CABLE ASSY	SLOT	
			ILTA	IC/OG TRK
53	1	1	16	17-20
	2	2	11	12-15
	3	3	06	07-10
39	4	4	16	17-20
	5	5	11	12-15
	6	6	06	07-10

- 3) The use of ISM/VER 90 Cable Assy, NTFX40DX, imposes a special MTAE configuration of CPs within the affected ISM Shelves. Refer to design document MSFX4101 or Engineering Manual Section NTFX4101 for ISM Shelf provisioning information.
- 4) Do not provision test access ISM/VER 90 Cable Assy, NTFX40DX, in ISME which includes an AXU, NT3X89CA. That is, do not provide ILTA test access in the ISME which includes an AXU.
- 5) A maximum of 24 External Loop Test Trunks (horizontal) can be supported in a single ISME.
- 6) When dedicated and/or rover LTU/MTUs are to be allocated Test Access Group 6 cannot be used.

ISM SHELF ASSEMBLY

PEC CODE: NTFX4101

CPC CODE: B0237196

RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: ISM

ENGINEERING DESCRIPTION: The Integrated Service Module (ISM) Shelf Assembly houses an ISM DC Converter, an ISM Processor CP and a total of 18 slots for provisionable service/trunk CPs and IOM CPs.

REFERENCE DOCUMENTATION: SLFX4101 01 03
ADFX4101 01 03
MSFX4101 01 08 and 10

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA

ISSUE AUTHOR: Steve Martin Dept. 3471 (PPK)

MAIN CONTACT: Steve Martin Dept. 3471 (PPK)

NTFX4101 EMA2-01-ISM-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 05 06	ECM 557 01	Initial introduction.
94 05 16	ECM 557 02	Re-release for initial introduction
94 06 22	ECM 557 03	EC 018 43130
94 10 21	ECM 557 04	ET 10169. Add NT3X68__ to shelf provisioning. Correct NT3X82 provisioning.
94 11 28	ECM 557 05	ET20379, ET20459,
95 01 24	ECM 557 06	Incorporate EC 018-43738 and ET61453
95 03 02	ECM 557 07	EC 018 44518, Include provisioning rules for VER-90
95 03 17	ECM 557 08	EC 018 44113 Introducing NT4X45AA EDTU
95 05 02	ECM 559 04	Add exec lineup info for EDTU in ISM
95 08 07	ECM 557 13	Include provisionable pack NT3X02AA previously omitted, re PSFX4001 Issue 05. Also resolve ET 27049
95 08 24	ECM 557 14	Resolve ET 28599, by NT2X48BA, BB, CA, CB and CC Circuit Pack to module application information. Also incorporate EC 018-44113 to alter NT2X47 and 56 configuration rules
95 10 14	ECM 557 17	Fix typos in Table 4 for NT2X47 and 56
96 03 04	ECM 557 21	Correct slot mounting positions for NT3X08AB on ISM Shelf per SR-RR60236. (added RUL5)
96 04 23	ECM 557 23	Remove requirement for Bal. Netwrk. on NT5X30BA from Table 4, 1d rule per RR63058.
96 06 20	ECM 557 25	Show the MD of NT5X04AA and NT5X25AA per EC#018-46775.
96 09 20	ECM 557 27	MD NTFX45AA per EC018-45462.
96 10 25	ECM 557 28	Correct typo of NT3X06 in Table 4. Per EC018-45955 add changes for Input/Output Module (IOM). Change legal slot positions of CTM CP. Corrected CPs replace by NT4X45AA per Design and SR RR6A134.
97 01 02	ECM 557 29	Remove NT2X48AB from Table 4 as this CP not supported by ISM. Removed * from NT2X48CC in Table 4 as this is a single slot CP. Enhance notes for assignment of the EDTU CP NT4X45AA, and correct pecs

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 01 31	ECM 557 31	in flaglist that are replaced by this. Clarify rule for SEC/PRI alarm shelf CP mounting.
97 05 09	ECM 557 33	Correct slot mounting positions for NT3X08AB on ISM Shelf per SR-RR70854. (added RUL11)
97 06 23	ECM 557 34	Update per EC 018-51204 to add CPs NT1X80BA and NT1X81BA for Japan use. Correct slot width of NT3X82AJ in Table 4 per SR RR73758.
97 08 04	ECM 557 35	Update per EC 018-46961. Add Des.Label for NTFX32DA. Add Cables NTFX40UC/UD/UE/UF for IOM. Update per EC 018-51045. Add des. label info. to RUL5, add note 27, edit RUL12 and 13 to indicate cable required from IOM Smart Connector to I/O device.
97 09 08	ECM 557 36	MD NT3X82AF per EC 018-49762. MD NT3X82AG per EC 018-47985. MD NT1X00AA/AB/AC/AD/AE/AF/AG/AH/KA per EC 018-51285. MD NT2X71AB, NT2X72BB, NT2X95BB per EC 018-51320. MD NT2X57AB per EC 018-51378. Correct Table 4 for NT1X81 1st slt. Per Design, changed PM1 and PM2 to PM on NT1X80/81 CPs in Table 4. Per Design, changed 1 to '-' for 'NO CKT' on Table 4 for NTFX30/32AA. Per Design, add definition for '#' in 'NO CKT' column for Table 4.

The ISM Shelf Assembly is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
ISM Backpanel Assembly	NTFX4102		1	X		AP-01
ISM DC Converter	NTFX43AA			X	01	RUL1
Filler Plate (Power Conv.)	NT0X50AG			X	01	RUL1
Designation Label (NTFX43AA)	P0745439					RUL1
Filler Face Plate 1.12	NT0X50AC			X	03-21	RUL2
ISM Processor CP	NTFX42AA			X	21	RUL3
Designation Label (NTFX42AA)	P0745438					RUL3
Misc. Scanner	NT0X10AA			NOTE 23	6-20	RUL4
		NOTE 20				RUL1B
# 102 Test Tone CP	NT1X00AA			NOTE 23	6-20	RUL4
# 102 Test Tone CP	NT1X00AB			NOTE 23	6-20	RUL4
# Receiver Off Hook Tone	NT1X00AC			NOTE 23	6-20	RUL4
# Receiver Off Hook Tone	NT1X00AD			NOTE 23	6-20	RUL4
# ROH Tone Int'l 102 Tst Trk	NT1X00AE			NOTE 23	6-20	RUL4
# ROH Tone 102/10db Tst Trk	NT1X00AF			NOTE 23	6-20	RUL4
# ROH Tone 102/20db Tst Trk	NT1X00AG			NOTE 23	6-20	RUL4
# ROH Tone 102/15db Tst Trk	NT1X00AH			NOTE 23	6-20	RUL4
# 102 Test Trunk (China)	NT1X00KA			NOTE 23	6-20	RUL4
Enhanced Digital Recorded Announcement Machine (EDRAM) CP	NT1X80AA			NOTE 23	5-17	RUL4
Enhanced Digital Recorded Announcement Machine (EDRAM16) CP	NT1X80BA			NOTE 23	5-17	RUL4
Conference Trunk Module (CTM) CP	NT1X81AA			NOTE 23	3-17	RUL4
Conference Trunk Module (CTMJ) CP Japan	NT1X81BA			NOTE 23	3-17	RUL4
# Test Signal Generator	NT1X90AA			NOTE 23	8-20*	RUL4
Test Signal Generator A-Law	NT1X90BA			NOTE 23	8-20*	RUL4
AIOD Trunk CP	NT2X01AA			NOTE 23	7-19	RUL4
Multi-line Test Unit	NT2X10BB			NOTE 23	5-19**	RUL4
Multi-line Test Unit	NT2X11BA			NOTE 23	6-20*	RUL4
# TTU Control Processor	NT2X47AD			NOTE 23	8-20*	RUL4
Trans Test Ctrl (A-Law)	NT2X47BA			NOTE 23	8-20*	RUL4
Digital 4 Chan MF Receiver	NT2X48BA			NOTE 23	7-20	RUL4
Digital 4 Chan DTMF Receiver	NT2X48BB			NOTE 23	7-20	RUL4
Digital MF Receiver A Law	NT2X48CA			NOTE 23	7-20	RUL4
DTMF Receiver (British Tel)	NT2X48CB			NOTE 23	7-20	RUL4
DTMF Receiver - A Law	NT2X48CC			NOTE 23	7-20	RUL4
# Trans Test Mod Dig. Filter	NT2X56AB			NOTE 23	7-19**	RUL4
Trans Test Filter (A-Law)	NT2X56BA			NOTE 23	7-19**	RUL4
SD Card I	NT2X57AA			NOTE 23	6-20	RUL4

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
		NOTE 20				RUL1B
# SD Card I with OAU MON	NT2X57AB			NOTE 23	6-20	RUL4
		NOTE 20				RUL1B
Transmission Termination Trk	NT2X71AA			NOTE 23	6-20	RUL4
# Term Trans Flash Test Trk	NT2X71AB			NOTE 23	6-20	RUL4
Loop Around Test Line	NT2X75AA			NOTE 23	6-20	RUL4
# PCM Level Meter TTT	NT2X96AA			NOTE 23	7-19**	RUL4
PCM Level Meter (A-Law) TTT	NT2X96BA			NOTE 23	7-19**	RUL4
TOPS Cont Processor	NT3X02AA			NOTE 23	8-20*	RUL4
Dial up Auto/TOPS Cont Proc	NT3X02BA			NOTE 23	8-20*	RUL4
TOPS DGTL Signal Processor	NT3X03AA			NOTE 23	7-19**	RUL4
Coin Detection Circuit	NT3X08AB			NOTE 23		RUL11
8X8 Metallic Test Access CP	NT3X09BA			NOTE 23	6-20	RUL4
Perm Sig. & Conf. Tone Gen.	NT3X68AA			NOTE 23	7-20	RUL4
MF Dual Tone Gen.	NT3X68AB			NOTE 23	7-20	RUL4
AUTOVON Tone Gen.	NT3X68AC			NOTE 23	7-20	RUL4
Perm Sig. & Conf. Tone Gen.	NT3X68BA			NOTE 23	7-20	RUL4
MF Dual Tone Gen.	NT3X68BB			NOTE 23	7-20	RUL4
Call Waiting Tone Gen.	NT3X68BC			NOTE 23	7-20	RUL4
		NOTE 20, 24				RUL1B
		NOTE 20, 24				RUL1B
# OAS Dead SYS w Common AUD	NT3X82AG			NOTE 23	6-20	RUL4
		NOTE 20, 24				
OAS Dead SYS w Common AUD	NT3X82AH			NOTE 23	6-20	RUL4
		NOTE 20, 24				RUL1B
OAS Dead SYS w Common AUD	NT3X82AJ			NOTE 23	6-20	RUL4
		NOTE 20, 24				RUL1B
OAS Dead SYS w Common AUD	NT3X82AK			NOTE 23	6-20	RUL4
		NOTE 20, 24				RUL1B
# OAS Dead SYS w Unique AUD	NT3X82AF			NOTE 23	6-20	RUL4
		NOTE 20, 24				
OAS Alarm Transfer	NT3X83AC			NOTE 23	6-20	RUL4
		NOTE 20, 24				RUL1B
OAS Alarm Transfer	NT3X83AD			NOTE 23	6-20	RUL4
		NOTE 20, 24				RUL1B
OAS Alarm Sending	NT3X84AB			NOTE 23	6-20	RUL4
		NOTE 20				RUL1B
OAS Alarm Grouping	NT3X85AB			NOTE 23	6-20	RUL4
		NOTE 20				RUL1B
# DTU BERT Unit CP	NT4X23AA			NOTE 23	6-20	RUL4
# Enhanced Digital Test Unit	NT4X45AA	EDTU		NOTE 23	7-20	RUL4
MTU Controller	NT4X97AA			NOTE 23	6-20*	RUL4
MTU Analog (International)	NT4X98BC			NOTE 23	5-19**	RUL4
CCIS Continuity Checker	NT5X29AA			NOTE 23	20	RUL4
Audio Ans Detect Digitone MF	NT5X29AC			NOTE 23	20	RUL4

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
A-Law ATD Tone Generator	NT5X29BA			NOTE 23	20	RUL4
# Improved Signature Accessory	NTFX45AA	ISA		NOTE 23	3,4,5	RUL4
Jack Ended Trunk	NT1X54AA			NOTE 23	6-20	RUL4
CAMA Pos Sign Trk	NT2X65AA			NOTE 23	6-20	RUL4
CAMA CW Susp LP Trk	NT2X66AA			NOTE 23	6-20	RUL4
4W E&M Type D1 600 I/F	NT2X72AA			NOTE 23	6-20	RUL4
4W E&M Type D1 600 E SUPR CONT	NT2X72AB			NOTE 23	6-20	RUL4
4W E&M 600 L GN E SUPR CONT	NT2X72AC			NOTE 23	6-20	RUL4
4W DC5A Tie Trunk	NT2X72BA			NOTE 23	6-20	RUL4
# 4W CAIA 600 ohm Trunk	NT2X72BB			NOTE 23	6-20	RUL4
Comp bal netwk 900 OHM	NT2X77AA			NOTE 23		RUL4
Comp bal netwk 600 OHM	NT2X77AB			NOTE 23		RUL4
Comp bal netwk 900 OHM fixed	NT2X77AC			NOTE 23		RUL4
Comp bal netwk 600 OHM fixed	NT2X77AD			NOTE 23		RUL4
# 4W INC/OG (2600 Hz) MF/DP	NT2X78AA			NOTE 23	6-20	RUL4
Precision bal netwk -H88	NT2X80AA			NOTE 23		RUL4
2W E&M 900 2WY INC/OG MF/DP	NT2X81AA			NOTE 23	6-20	RUL4
2W E&M 600 2WY INC/OG MF/DP	NT2X81AB			NOTE 23	6-20	RUL4
2W DC5A Tie Trunk	NT2X81BA			NOTE 23	6-20	RUL4
2W LP 900 INC REV BAT MF/DP	NT2X82AA			NOTE 23	6-20	RUL4
2W LP 900 OG REV BAT MF/DP	NT2X83AA			NOTE 23	6-20	RUL4
Earth Calling Trunk	NT2X84BA			NOTE 23	6-20	RUL4
RCDG COMPL TRK H-L Coin	NT2X85AA			NOTE 23	6-20	RUL4
Toll SW 3RD W Coin FX Ring	NT2X86AA			NOTE 23	6-20	RUL4
4W INC/OG 600 E&M MF/DP	NT2X88AA			NOTE 23	6-20	RUL4
INC/OG TEST TRK	NT2X90AD			NOTE 23	6-20	RUL4
		NOTE 19				RUL1A
2W LP 900 OG REV BAT MF	NT2X92AA			NOTE 23	6-20	RUL4
2WY PBX TRK DID/DOD	NT2X95AA			NOTE 23	6-20	RUL4
Direct Dial Inward Trunk	NT2X95BA			NOTE 23	6-20	RUL4
# 2W JUSMAG 600 ohm DDO Trunk	NT2X95BB			NOTE 23	6-20	RUL4
2W INC 900 DP RB SLV CONT	NT2X98AA			NOTE 23	6-20	RUL4
INC TST from AECO LTD	NT3X04AA			NOTE 23	6-20	RUL4
2W OGT TRK to AE/3CL CO-LO	NT3X06AA			NOTE 23	6-20	RUL4
2W INC TRK to AE/3CL CO-LO	NT3X07AA			NOTE 23	6-20	RUL4
REM OFF. TST Line I/F TRK	NT3X91AA			NOTE 23	6-20	RUL4
CCITT R1 Trk 101 Tst Ln	NT5X03AA			NOTE 23	6-20	RUL4
DMS-306-20						
# CCITT #5 Trk	NT5X04AA			NOTE 23	6-20	RUL4
CCITT #5 Trk	NT5X04AB			NOTE 23	6-20	RUL4
CCITT #6 Trk	NT5X06AA			NOTE 23	6-20	RUL4
# 1WY CO TRK OG GRD ST or INC LP	NT5X25AA			NOTE 23	6-20	RUL4

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
101 Comm Test Line	NT5X30AA			NOTE 23	6-20	RUL4
101 Comm Test Line UK	NT5X30BA			NOTE 23	6-20	RUL4
Improved Loop Test Accessory	NTFX44AA	ILTA		NOTE 23	6,11,16	RUL10
		NOTE 19				RUL1A
		NOTE 22				RUL1C
IOM Main Controller CP (Note 25)	NTFX30AA	IOC		X	3,4	RUL5
IOM Paddleboard Assy	NTFX31AA			X	3R,4R	RUL5
Paddleboard Insertion Guide	P0749586			X	3R,4R	RUL5
IOM Main Controller CP Kit	NTZZ40AK			X	3,4	RUL5
IOM Storage Media CP	NTFX32AA	SMC		X	4	RUL6
Designation Label (NTFX32AA)	P0831733			X	4	RUL6
IOM Storage Media CP Kit	NTZZ40AJ			X	4	RUL6
Connector Key Bracket	P0832228			X		RUL6
DDU Plug-In Module	NTFX32BA	DDU		X	4:0,1	RUL6
Designation Label (NTFX32BA)	P0831474			X	4:0,1	RUL6
DAT Plug-In Module	NTFX32CA	DAT		X	4:1	RUL6
Designation Label (NTFX32CA)	P0831732			X	4:1	RUL6
Plug-In Module Filler Plate	NTFX32DA			X	4:0,1	RUL6
Designation Label NTFX32DA	P0843602			X	4:0,1	RUL6
DAT/IOM Pdbd. SCSI Cbl Assy	NTFX40HB			X		RUL6
IOM RS232 Smart Conn. Assy	NTFX34AA			X		RUL7
IOM V.35 Smart Conn. Assy	NTFX35AA			X		RUL7
V.35 Adapter Cable Assy	A0300753			X		RUL7
IOM PERTEC Smart Conn. Assy	NTFX36AA			X		RUL7
Current Loop Smart Conn Assy	NTFX38AA			X		RUL7
512Kbps V.35 Comp. Smart Asy	NTFX35BA			X		RUL7
Smart Conn. Extension Cable	NTFX40UC			X		RUL11
Smart Conn. DB25F Gender	NTFX40UD			X		RUL12
Adapter Cable						
Smart Conn. Rollover Cable	NTFX40UE			X		RUL13
Male/Female						
Smart Conn. Rollover Cable	NTFX40UF			X		RUL13
Female/Female						
ISM Retrofit Kit for IOM (Cabinet)	NTFX40UA			X		RUL8
ISM Retrofit Kit for IOM (Frame)	NTFX40UB			X		RUL8

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Designation Label IOC 00-19	P0831731			X		RUL9

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT1X00AA	MD	NT1X00AB
NT1X00AB	MD	NT1X80AA
NT1X00AC	MD	NT1X00AD
NT1X00AD	MD	NT1X80AA
NT1X00AE	MD	NT1X80AA
NT1X00AF	MD	NT1X80AA
NT1X00AG	MD	NT1X80AA
NT1X00AH	MD	NT1X80AA
NT1X00KA	MD	NT1X80AA
NT4X45AA	DEV	Check availability before ordering
NT4X23AA	STD	2 rep by NT4X45AA
NT1X90AA	STD	4 rep by NT4X45AA
NT2X47AC/AD	STD	4 rep by NT4X45AA
NT2X96AA	STD	4 rep by NT4X45AA
NT2X56AB	STD	4 rep by NT4X45AA
NT5X04AA	MD	NT5X04AB
NT2X78AA	MD	See Note 21 below.
NTFX45AA	MD	No Replacement
NT5X25AA	MD	No Replacement
NT3X82AF	MD	NT3X82AH
NT3X82AG	MD	NT3X82AJ
NT2X71AB	MD	No Replacement
NT2X72BB	MD	No Replacement
NT2X95BB	MD	No Replacement
NT2X57AB	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 manufac-
tured and cannot be ordered.

NOTES:

- 1) For CISM Cabinet NTFX40AA, X = Shelf Position 05,19,33,47.
For ISM Frame NTFX40BA, X = Shelf Position 07,21,39,53.
- 2) * = Even numbered slots
** = Odd numbered slots
- 3) In the ISM Shelf, the circuit pack slots are numbered in ascending order from left to right when viewed from the front. However, the circuit numbering, determined by the arrangement of backplane electrical design, are numbered from right to left in ascending order. Refer to the following diagram for details of this arrangement. Note that slots 3,4, and 5 have no trunk circuit enable signal connections.

SLOT NUMBER																				
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	2
NTFX 43AA	I O M	I O M	C O M P A N I O N	TE 02	TE 04	TE 06	TE 08	TE 08	TE 08	TE 14	TE 08	TE 08	TE 08	TE 08	TE 08	TE 08	TE 08	TE 08	TE 16	N T F X 4 2 A A
P W R								29	27	25	29	21	19	17	15	13	11	09	15	2
C O N V E R T E R			C C T				29	27	25	23	T	20	18	16	14	12	10	08		
						29	28	26	24	22	H	18	16	14	12	10	08	06	T	T
						29	28	26	24	22	R	17	15	13	11	09	07	05	R	R
						29	28	26	24	22	U	16	14	12	10	08	06	04	U	U
						29	28	26	24	22		15	13	11	09	07	05	03		
						28	26	24	22	20	18	16	14	12	10	08	06	04	00	0
29 —————																			00	
																			ENABLE/CIRCUITS	

TE = Trunk Enables (totals accessible per slot)

Table 1, ISM Shelf Slot and Enable/Circuits Assignment

- 4) The ISM Shelf backpanel PCB provides 16 slots, slot 05 to slot 20 for service circuits and two universal slots 03 and 04. The 15 slots in the ISM are backwards compatible with slots in the TM/MTM for the support of service circuits according to the provisioning rules given below.
- 5) The ISM backplane is designed to access up to 30 circuit enable signals. Each provisionable ISM CP slot has access to a number of these enable signals as shown in Table 1
- 6) The slot to circuit number relationship in the ISM requires that circuit packs are provisioned from right to left, that is, the highest numbered slots are provisioned first starting from slot 20 on the right hand end of the shelf (viewed from the front).
- 7) In Table 1, the numbers captioned ENABLE/CIRCUIT identifies the enable/circuits that are available in the corresponding slots.

- 8) The enable signals on the backplane are arranged to allow 2-circuit cards to be placed in adjacent slots, 4-circuit cards to be placed in alternating slots, 8-circuit cards to be placed in every fourth slot, and 16 circuit cards to be placed every eighth slot. CPs that use fewer than the total available enables for their assigned slots will access the lowest numbered available enables in the corresponding slot.

Certain card types, as noted, do not violate the reserved slot requirements of multi-circuit cards. This is usually true for one member of CPs operating as functional pairs.

PM Service Circuit CPs do not require access to circuit enables on the ISM backplane and can therefore occupy any slot having the required power supplies.

- 9) The universal slots 03 and 04 support independent PM (Peripheral Module) Service Circuits, that require no supporting service from the backplane other than -48V battery feed. The universal slots do not support PM Service Circuits that require power supplies other than -48V battery feed.
- 10) Slot 5, which provides support for an Independent PM Service Circuit, may also be used for service circuits in limited application. It may be used for the companion circuit of a pair of service circuits which work as a functional pair. It only supports those companion circuits that do not require a direct connection, via the backplane, to the ISM Processor, for example MTU, where the NT4X97 is the companion circuit, assigned to slot 05, and NT4X96 is the main circuit, assigned to slot 06.
- 11) Slot 20 is the only slot on the shelf that has access to 16 enable signals. This means that for cards which can use up to 16 circuits, e.g., NT5X29, full use of the card capacity can only be achieved when these cards are assigned to slot 20. These 8 slot 16 circuit cards can be assigned to slots having access to fewer than 16 enables, however the full capability of these cards would not be used in these instances. The assignment of less than 16 enables to a 16 circuit 8 slot card leaves more room in the ISM for occupation by other card types. Care should be taken to ensure that the ISM software load is compatible with the required card mixture. Refer to Table 2.
- 12) The functional characteristics of an ISM, is determined, to some extent, by the related PM (Peripheral Module) software

load. The PM load used depends upon the module function and the type of switch in which the PM resides. Table 2 correlates the PM load name with switch type and PM type.

PM TYPE	DMS 100 /IBN	DMS 200 /TOPS	DMS 250	DMS 300 GATEWAY	MTX CELLULAR	SL 100 /IBN
TM2, 4, 8	BTMKA02	BTMKA02	BTMKA02	BTMKA02	BTMKA02	BTMKA02
T8A	KTMA02	N/A	N/A	TTMNA01	N/A	KTMA02
PTM	N/A	N/A	RMTMKA01	N/A	N/A	N/A
STM	N/A	N/A	RMTMKA01 MTMKA02	N/A	N/A	N/A
MTM	MTMKA02	MTMKA02	RMTMKA01 MTMKA02	MTMKA02	MTMKA02	MTMKA02
OAU	MTMKA02	MTMKA02	N/A	N/A	MTMKA02	N/A
TAN	MTMKA02	MTMKA02	MTMKA02	MTMKA02	MTMKA02	MTMKA02

Table 2, PM Loads - PM Type to Office Type Cross Reference

The information given in the above table is subject to change upon release of new PM software loads. Refer to the latest Peripheral Module Release Document for PM load information. par

The ISM does not replace either OAU or TAN functions.

- 13) The functional characteristics of an ISM is determined, overall, by the PM load applied. At load time, a PM load exec further defines the functional characteristics of the host ISM. The characteristics, defined by the PM load exec, impose configuration restrictions on the service circuits which reside in the host ISM. Table 3 correlates ISM Function with PM load and PM load Exec name. In the 'Comment' column there is a description of the types of service circuit which may be used with the ISM Function and associated PM load/Exec line up. This table is applicable to ISMs and their service circuit PCBs. They are not applicable to the PCBs which operate as PMs, e.g. EDRAM and CTM PCBs.

PM TYPE	HARDWARE REQUIRED	PM LOAD	EXEC LINE UP	COMMENT
TM2		BTMKA02	TM2EX	2 WIRE POTS TRUNK
TM4		BTMKA02	TM4EX	2/4 WIRE POTS TRUNK
TM8	NT ONLY	FSTMDA02 TSTMKA02	TM8EX	FEATURE SIMULATOR L
TM8		BTMKA02	TM8EX	2, 4, 8 WIRE ANALOG TRUNKS
MTM		MTMKA02	MTMEX or MTMDT *	BASIC MTM+TTT+LTU+P RECEIVERS+SD, SC+DEA SYSTEM ALM+DRAM+EDT
IMTM		MTMKA02	IMTMEX or IMTMDT *	BASIC MTM+TTT+LTU+P RECEIVERS+SD, SC+DEA SYSTEM ALM+DRAM+EDT
MTM		MTMKA02	DDLCEX	BASIC MTM+DDL
MTM		MTMKA02	OAUEX	SD, SC POINTS & DEAD ALM
MTM		MTMKA02	AMTMEX	BASIC MTM+DTMF SEND SV06S-V(5X29AB)+3X6

Continued..

* If TTT function is performed by the EDTU,
exec linup MTMDT linup is required for MTM
and IMTMDT is required for IMTM.

Table 3, EXEC Line up - PM Load and Type (sheet 1)

PM TYPE	HARDWARE REQUIRED	PM LOAD	EXEC LINE UP	COMMENT
MTM	5X29AC 0X70AC	RMTMKA01	AMTMATD	BASIC MTM+RECEIVERS DTMF & ATD
MTM	4X65AB	RMTMKA01	AMTMTT	MAINTENANCE CCTS,DR (CANADIAN MARKET ON
MTM DMS 250	0X70AC	RMTMKA01	MTM250	RECEIVERS (MF,DTMF ACD)+AIOD FEATURES
MTM DMS 250	0X70AC	MTMKA02	MTMTT	MAINTENANCE CCTS,DR
PTM	0X70AC	RMTMKA01	TM250P	MTC.& SERVICE CCT F PACKAGED SWITCHES
STM	0X70AC	RMTMKA01	MTM250 MTMTT MTMEX	RECEIVERS(MF,DTMF,A AIOD FEATURE MAINTENANCE CCTS MTX CCTS
TAN		MTMKA02	TANEX	TEST ACCESS NTWK WI METALLIC TEST PATH TESTING SATELLITE T
OAU		MTMKA02	OAUEX	SD,SC POINTS & DEAD ALARMS

Table 3, EXEC Line up - PM Load and Type

The information given in the above table is subject to change upon release of new PM software loads. Refer to the latest Peripheral Module Release Document for PM load information.

- 14) Table 4 provides information required for determining allowed configurations of PCBs with an ISM in consideration of their physical and electrical characteristics.

PEC	BAL NET	NO CKT	NO SLT	LST SLT	PRD CRD	PWR DIS	TYPE	TM				MTM	
								T M 2	T M 4	T M 8	T 8 A	M T M	O A U
NT0X10AA		2	1	06		2	SC					*	*
NT1X00AA		2	1	06		4	SC					*	
NT1X00AB		2	1	06		4	SC					*	
NT1X00AC		2	1	06		4	SC					*	
NT1X00AD		2	1	06		4	SC					*	
NT1X00AE		2	1	06		4	SC					*	
NT1X00AF		2	1	06		4	SC					*	
NT1X00AG		2	1	06		4	SC					*	
NT1X00AH		2	1	06		4	SC					*	
NT1X00KA		2	1	06		4	SC					*	
NT1X54AA		2	1	06		0.5	SC		*	*		*	
NT1X80AA		29#	1	05		9	PM					*	
NT1X80BA		29#	1	05		5	PM					*	
NT1X81AA		29#	1	03		5	PM					*	
NT1X81BA		29#	1	03		5	PM					*	
NT1X90AA		-	1	08	1RE	6	SC					*	
NT1X90BA		-	1	08	2RE	9	SC					*	
NT2X01AA		4	2	07		19	SC					*	
NT2X10BB		-	1	05	5LO	15	SC					*	
NT2X11BA		2	1	06	5RE	9	SC					*	
NT2X47AD		1	1	08	4RE	8.7	SC					*	
NT2X47BA		1	1	08	8RE	8.7	SC					*	
NT2X48BA		4	2	07			SC	*	*	*		*	
NT2X48BB		4	2	07			SC	*	*	*		*	
NT2X48CA		4	2*	07		16	SC			*		*	
NT2X48CB		4	2*	07		16	SC			*		*	
NT2X48CC		4	2	07		16	SC			*		*	
NT2X56AB		-	1	07	4LO	12.9	SC					*	
NT2X56BA		-	1	07	8LO	12.9	SC					*	
NT2X57AA		2	1	06		4.5	SC					*	
NT2X57AB		2	1	06		4.5	SC					*	
NT2X65AA	*	1	1	06		1	SC			*	*		
NT2X66AA		1	1	06		1	SC	*	*	*			
NT2X71AA		1	1	06		3	SC					*	
NT2X71AB		1	1	06			SC					*	

Continued...

Table 4, ISM Provisionable Card Characteristics (Sheet

PEC	BAL NET	NO CKT	NO SLT	LST SLT	PRD CRD	PWR DIS	TYPE	TM				MTM	
								T M 2	T M 4	T M 8	T 8 A	M T M	O A U
NT2X72AA		2	1	06		1	SC			*			
NT2X72AB		2	1	06		1	SC			*			
NT2X72AC		2	1	06		1	SC			*			
NT2X72BA		2	1	06		1	SC			*			
NT2X72BB		2	1	06		1	SC			*			
NT2X75AA		2	1	06		1	SC					*	
NT2X81AA	*	2	1	06			SC			*			
NT2X81AB	*	2	1	06			SC			*			
NT2X81BA	*	2	1	06			SC			*			
NT2X82AA	*	2	1	06			SC	*	*	*			
NT2X83AA	*	2	1	06			SC	*	*	*			
NT2X84BA		1	1	06			SC	*	*	*			
NT2X85AA	*	1	1	06			SC	*	*	*			
NT2X86AA	*	1	1	06			SC	*	*	*			
NT2X88AA		2	1	06		1	SC			*			
NT2X90AD	*	1	1	06		1.5	SC			*			
NT2X92AA	*	2	1	06			SC	*	*	*			
NT2X95AA	*	1	1	06			SC	*	*	*			
NT2X95BA	*	1	1	06			SC	*	*	*			
NT2X95BB	*	1	1	06			SC	*	*	*			
NT2X96AA		1	1	07	1LO	6	SC					*	
NT2X96BA		1	1	07	2LO	6	SC					*	
NT2X98AA		2	1	06			SC		*	*			
NT3X02AA		4	2	08	6RE	6	SC					*	
NT3X02BA		4	2	08	6RE	8	SC					*	
NT3X03AA		-	1	07	6LO	5	SC					*	
NT3X04AA		2	1	06		28	SC			*			
NT3X06AA				06			SC		*	*			
NT3X07AA	*	2	1	06			SC			*			
NT3X08AB		8	4	09		15	SC					*	
NT3X09BA		1	1	06		11.5	SC					*	

Continued...

Table 4, ISM Provisionable Card Characteristics (Sheet

PEC	BAL NET	NO CKT	NO SLT	LST SLT	PRD CRD	PWR DIS	TYPE	TM				MTM	
								T M 2	T M 4	T M 8	T 8 A	M T M	O A U
NT3X68AA		4	2	07		3	SC					*	
NT3X68AB		4	2	07		3	SC					*	
NT3X68AC		4	2	07		3	SC					*	
NT3X68BA		4	2	07		3	SC					*	
NT3X68BB		4	2	07		3	SC					*	
NT3X68BC		4	2	07		3	SC					*	
NT3X82AF		1	2*	19		4	SC					*	
NT3X82AG		1	2*	19		4	SC					*	
NT3X82AH		1	2*	19		4	SC					*	
NT3X82AJ		1	2	19		4	SC					*	
NT3X82AK		1	2*	19		4	SC					*	
NT3X83AC		1	1	17		13	SC					*	
NT3X83AD		1	1	17		13	SC					*	
NT3X84AB		1	1	17		2	SC					*	
NT3X85AB		1	1	14		5	SC					*	
NT3X91AA		2	1	06			SC			*			
NT4X23AA		2	1	06		10	SC					*	
NT4X45AA		4	2	07			SC					*	
NT4X97AA		2	1	06	7RE	9	SC						
NT4X98BC		-	1	05	7LO	15	SC						
NT5X03AA		2	1	06			SC				*		
NT5X04AA		2	1	06			SC				*		
NT5X04AB		2	1	06			SC				*		
NT5X06AA		2	1	06			SC				*		
NT5X25AA		2	1	06			SC						
NT5X29AA		16	8	20		3.5	SC					*	
NT5X29AC		16	8	20		3.5	SC					*	
NT5X29BA		16	8	20		3.5	SC					*	
NT5X30AA	*	1	1	06		3	SC	*	*	*	*		
NT5X30BA		1	1	06		3	SC	*	*	*	*		
NTFX30AA		-	1	03			PM						
NTFX32AA		-	2	04			PM						
NTFX44AA		4	1	06			SC						
NTFX45AA		4	1	03			SC						

Table 4, ISM Provisionable Card Characteristics (Sheet 3)

The following notes provide an explanation of the table given in Table 4.

1. An asterisk in the BAL NET column indicates that the corresponding card is a 2-wire trunk which requires the

provisioning of an associated compromise balanced network card (daughter board) as follows:

- a. One Balance Network plug-in (daughter board) must be provisioned for each 2-wire trunk circuit on each card.
- b. For H88 loaded cable select Precision Balance Network - H88, NT2X80AA,
- c. For other loaded or non-loaded arrangements select Compromise Balance Network, NT2X77 as follows:

DISTANCES	TRUNK IMPEDANCE	
	600 OHM	900 OHM
UP TO		
750 feet	NT2X77AD	NT2X77AC
9000 feet	NT2X77AB	NT2X77AA

- d. For International applications, select the following Balanced Networks:

PEC	DESCRIPTION	BAL NET
NT2X81BA NT2X95BA NT2X95BB	2W DCS5A Tie Trunk Direct Dial Inward Trunk JUSMAG 2W 600 ohm DDO Trunk	NT2X77BA

2. The number in the NO. CKT column, indicates the number of circuits the corresponding card contains. This number is equal to the number of circuit enable signal lines required for the full use of all circuits on the card. A '-' indicates that the corresponding card has no assignable circuit. A '#' indicates that no trunk enable circuits exist for the CP.
3. The number of enable circuits available to the card depends upon its slot position in the ISM and upon the configuration and type of card installed in slots to the right of the card considered. For example, referring to Table 1., if a card with 4 circuits is installed in slot 19, 8 circuit enables are accessible but because the card has 4 circuits, only enables 02 thru 05 are consumed. A 4 circuit card in slot 19

leaves enables 06 thru 11 available in slot number 18, However, if a 4 circuit card is placed in slot 18, only two of its circuits are useable because only circuit enables 04 thru 07 are accessible to it and of these enables, 04 and 05, are consumed by the 4-circuit card in slot 19. A two circuit pack in slot position 18 would not be usable, because the circuit enables required, i.e. 04 and 05 would be consumed by the 4 circuit card in slot 19. When slot 19 is occupied by a 4 circuit card, the first slot to the left of 19 which may be usefully used by either a one or two circuit card is slot 17, on condition that there are no cards in slot 18.

4. The NO.SLT column contains the indicate the number of slots required for full utilization of the corresponding card. For example, the 16 circuit card NT5X29AA effectively occupies 8 ISM slots because it requires sole access to 16 circuit enables for full utilization. The asterisk in the NO SLT column indicates that the corresponding card has a faceplate which prohibits occupancy of the slot adjacent on the right of the slot occupied by the card
5. The LST SLT column contains the number of the last slot, in descending order, that the corresponding card can occupy physically and still have access to sufficient circuit enables for utilization of all its circuits.
6. The PRD CRD column indicates whether or not the corresponding CP is one CP of a functional pair of CPs. The CPs which operate as a functional pair are always mounted in adjacent slots. The characters in this column are made up of three elements, The first is a number, this is followed by two alphabetical characters. The meaning of these three elements is as follows:
 - * 1st number - gives the pair or group number, Refer to the table below.
 - * 1st alpha character - gives configuration, L (left) or R (right) with respect to the partner CP.
 - * 2nd alpha character - gives permitted slot numbers, for O (odd) number slots and E for even numbered slots.

GROUP	CP PAIR	ORIENTATION	SLOT ₇
1	NT1X90AA NT2X96AA	Right Left	Even Odd
2	NT1X90BA NT2X96BA	Right Left	Even Odd
3	NT2X47BA NT2X56BA	Right Left	Even Odd
4	NT2X47AD NT2X56AB	Right Left	Even Odd
5	NT2X11BA NT2X10BB	Right Left	Even Odd
6	NT3X02AA NT3X03AA	Right Left	Even Odd
7	NT3X02BA NT3X03AA	Right Left	Even Odd
8	NT4X97AA NT4X98BC	Right Left	Even Odd
9	NT2X47AB/BA NT2X56BA	Right Left	Even Odd

7. The PWR DIS column gives the maximum expected power dissipation for the corresponding CP. The maximum dissipation permitted in the ISM is 150 watt. Therefore, the sum of the power dissipation given for all CPs in the ISM shall not exceed 150 watt.
8. The seven rightmost columns form a matrix in which asterisks indicate in which module type(s) the corresponding cards are applicable.
- 15) The ISM shelf, may be configured to perform the same function as any of the following TMs (Trunk Module) and MTMs (Maintenance Trunk Module):

TM Related Codes	MTM Related Codes
2X5201 2X52AD-T8A	2X5808
2X5202 2X52AE-TM2	2X5809
2X5208 2X52AF-TM4	2X5815 2X58AF
2X5221 2X52AG-TM8/T8A	2X5824 2X58AT-IMTM
2X5224 2X52AP-TM8/T8A	2X5825 2X58AU(*)-IMTM
2X5226 2X52AR-T8A	2X5825 2X58CA-MTM
2X5228 2X52BB-ITM8	2X5830 2X58CB(*)-MTM
2X5222	2X5839 2X58AL-MTM
2X5229-TM8	2X5841 2X58AM(*)-MTM
2X5231-IT8A	2X58AP
2X5232-ITM8	2X58AX
2X5233-T8A	2X58AY
2X5220 2X52AN-TM4	2X58AZ
2X5220 2X52AM-TM2	2X58CL
2X52AK	2X58CN
2X52AL	2X58CP
2X52BB	2X58BB
2X52CA	2X58DB
2X52CB	
2X52CC	

* The shelves indicated are DRAM shelves which are replaced by the NT1X80AA EDRAM circuit pack.

- 16) The ISM Shelf provides eighteen (18) slot positions (03-20) for service circuits. All eighteen slots can be used for PM type service circuit packs. Only fifteen (15) slots (slots 06-20) can be used for non-PM service circuit packs. The additional slot 05 can be used for a non-PM service circuit pack that must work as a functional pair with another service circuit, such as MTU. In the latter case, both slot 05 and slot 06 should be used for the service circuit pair.

The maximum number of PM type service circuits that can be installed in the ISM is restricted by the number of available DS30 links between the ISM and the network. The ISM can accommodate a maximum of 15 DS-30 links in slot positions 03 thru 17 for use by PM type service circuits and 03 thru 04 for IOM (reserved for future use). One DS-30 link, at slot position 21, is required for the ISM Processor CP which is required for network interface to non-PM type service circuits in the ISM. This DS-30 link to the processor

brings the total maximum number of DS-30 links to the ISM to 16.

- 17) The provisioning rules given below are shelf level rules. Refer to NTP 297-1001-450 and Engineering Manual Table-A for frame/ cabinet and system level provisioning rules.
- 18) All ISM Circuit Packs occupy one physical slot position with the exception of the Power Converter NTFX43AA and CPs having double width face plates. Refer to Table 4. for double face plate CP identities.
- 19) Rules identified with suffix 'A' are specific to the Cabinetized Metallic Test Access (CMTA) applications of CISM. The CMTA application requires the use of the CISM, NTFX40AA and CTMA, NTFX40EA. Refer to MSFX40AA and MSFX40EA, respectively, or Engineering Manual Sections NTFX40AA and NTFX40EA, respectively, for provisioning information.
- 20) Rules identified with suffix 'B' are specific to the Office Alarm System application of ISM.
- 21) 4W INC/OG (2600 Hz) MF/DP, NT2X78AA, is at MD status. Use DE4E Channel Bank with provisionable QPP601E card instead.
- 22) Rules identified with suffix 'C' are specific to the Metallic Test Access Equipment (MTAE) applications of ISME. The MTAE application requires the use of the ISME, NTFX40BA and MTAE, NTFX40FA. Refer to MSFX40BA and MSFX40FA, respectively, or Engineering Manual Sections NTFX40BA and NTFX40FA, respectively, for provisioning information.
- 23) The shelf positions of circuit packs are determined by their application. Refer to application dependent rules in this document and to NTP 297-1001-450 and Engineering Manual Table-A for frame/cabinet and system level provisioning rules.

EDTU NOTE

The EDTU CP may be installed in any slot number higher than 6 on an ISM Shelf. The slot to its immediate LEFT must either be left vacant or else equipped with a CP that seizes no trunk enables, such as an EDRAM or CTM.

- 24) NT3X82AF,AG,AH,AJ, and AK are equivalent to NT3X82AA,AB,AC,AD and AE respectively. NT3X82AA,AB,AC,AD

and AE are used in the MTM and shall not be used in the ISM. Also, NT3X83AC and AD are equivalent to NT3X83AA and AB respectively. NT3X83AA and AB are used in MTM and shall not be used in the ISM.

- 25) IOM CPs can now mount in slots 03-05 on the ISM Shelf. Relocate the following CPs IF mounted in slots 03-05 to accommodate IOM: NT1X80AA/BA, NT1X81AA/BA, NT2X10BB, NT4X98BC, NT2X56AB, NT2X56BA, NT2X10BB. DS30 ports also require reconfiguring for NT1X80AA/BA and NT1X81AA/BA cards.

For the CISM NTFX40AA, CPs in ISM Shelf slots 05 thru 08 must be relocated. Each ISM Shelf with IOM in CISM's will have a NTFX39AA Bulkhead Plate assembly mounted to positions C05, C06, C07, and C08. Service Circuit Packs in slots 05 thru 08 requiring I/O connections to C05 thru C08 cannot be provisioned. The following classes of CPs can be provisioned in slots 05 thru 08: TTUs and TTTs, 2X48--DT/MF Receivers, EDTU NT4X45AA, EDRAM NT1X80AA/BA, Conference trunks, Dmodems, and CTM/CTMJ NT1X81AA/BA.

- 26) CTMJ, NT1X81BA CP is for Japan only.

- 27) List of supported I/O devices for IOM and the gender of its connector. Printers and VDUs require DEC H8575-A adapter to convert 6 pin MMJ connector to 25 pin female connector.

Make/Model	CPC	DB25 Conn Gender
Printers		
DEC LA30 (Narrow Carriage) DEC LA400 (Wide Carriage)	A0660002 A0660949	Female Female
Terminals/VDUs		
DEC VT520 DEC VT525	A0661478 A0385880	Female Female
Modems/Data Sets		
GDC MODEMS		
GDC DS-6/R-1 Modem Shelf DC 202S/T DC 9600 RPA DC 596 DC 596 X.25 DC VFAST (R232) 28.8K DC 500G/UXR DC 500F/AXR DC 500A NMS 510/IFP NMS 510 DT VFAST 28.8K V.35	A0602127 A0328522 A0378922 A0351816 A0378945 A0620530 A0632487 A0614226 A0386041 A0605210 A0640834 A0620540	Female Female Female Female Female Female Female Female Female Female Female Female
UDS/MOTOROLA Modems		
UDS RM16M Modem Shelf DC 202S/T 2440 DDS/MRS ADPT DDS/MR1 RS530 V.3229 DU170 RS232 DU170 RS530	A0344310 A0336496 A0360824 A0609600 A0600483 A0600471 A0633604 A0636941	Female Female Female Female Female Female Female Female

RIXON/CASE/OSICOM		
RM4200 Modem Shelf	A0355254	Female
DCM4202	A0355257	Female
DCM4212	A0355260	Female
DCM4229	A0355256	Female
DCM4222	A0351638	Female
DCM4222	A0352027	Female
DCM4296	A0351641	Female
DCM4256	A0385841	Female

RULES:

- AP 1) When PEC NTFX4101 is ordered, these items are provided.
- AP-01 1) This item is always provided with the ISM, NTFX4101, and is shown here for completeness.
- 2) The ISM Backpanel NTFX4102 provides sixteen (16) slots (slot positions 05-20) for service circuits. These sixteen slots can be used for PM type service circuit packs or non-PM service circuit packs. The slot 05 can be used for a non- PM service circuit pack for limited applications. The backpanel provides test access for TM8 applications.
- RUL1 1) The NTFX43AA ISM DC Converter converts the battery feed input to power supplies of +5V, +12V, +25V and -15V DC required by service circuits.
- 2) Provide one (1) ISM DC Converter at slot position 01 when one or more service circuits on the shelf require the power supplies listed in RUL1 1), above. The NTFX43AA ISM DC Converter is a double width card which occupies slot positions 01 and 02.
- 3) Provide one (1) Designation Label (NTFX43AA), P0745439, if ISM DC Converter, NTFX43AA, is provided.
- 4) Provide one (1) Filler Panel, NT0X50AG, if ISM DC Converter, NTFX43AA is not provided.
- RUL2 1) Provide one (1) Filler Face Plate 1.12, NT0X50AC, for each physically unoccupied slot position 03 thru 21.

- RUL3 1) Provide one (1) ISM Processor in the shelf at slot position 21 when one or more service circuits mounted in the shelf require it.
- 2) Provide one (1) Designation Label (NTFX42AA), P0745438, if the ISM Processor NTFX42AA is provided.
- RUL4 1) Refer to Notes 1) to 23) above to determine permissible slot locations in the ISM Shelf for the card considered.
- RUL5 1) Provide one (1) NTFX30AA IOM Main Controller CP per customer requirements, max. two per ISM Shelf. IOM 00 (IOC 00) and IOM 01 (IOC 01) must mount in separate ISM Shelves and in slot 03.
- 2) When NTFX30AA IOM Main Controller CP is provisioned in slot 03 or 04, provide one (1) NTFX31AA IOM Paddleboard which mounts on 03R or 04R and one (1) P0749586 Paddleboard Insertion Guide which mounts on 03R or 04R for each NTFX30AA.
- 3) The maximum number of IOMs is 13 (IOM 00-12) per DMS100 Office and 20 (IOM 00-19) for MTX Office.
- 4) Provide one (1) NTZZ40AK IOM Controller CP Kit to provide one (1) NTFX30AA, one (1) NTFX31AA, one (1) P0749586, and one (1) P0831731 (see RUL9) when ordering via building blocks instead of detail.
- RUL6 1) Provide one (1) NTFX32AA Storage Media CP per customer requirements, one per ISM Shelf, and mount in slot 04. The CP requires two slots, 04 and 05.
- 2) Provide one (1) P0831733 Designation Label per NTFX32AA.
- 3) Provide one (1) NTFX32BA DDU Plug-in Module per customer requirements, max. two per NTFX32AA. The DDU module plugs into slots 00 (labeled P16) and 01 (labeled P17) on the Storage Media CP NTFX32AA.
- 4) Provide one (1) P0831474 Designation Label per NTFX32BA DDU. To be applied to NTFX32AA faceplate to designate slot position.
- 5) Provide one (1) NTFX32CA DAT Plug-in Module per customer requirements, max. one per NTFX32AA. The DAT module plugs into slot 01 on the Storage Media CP NTFX32AA.

- 6) Provide one (1) P0831732 Designation Label per NTFX32CA DAT. To be applied to NTFX32AA faceplate to designate slot position.
 - 7) Provide one (1) NTFX32DA Plug-in Module Filler Face Plate for each slot 00 and 01 on the NTFX32AA Storage Media CP not provisioned with a DDU or DAT CP.
 - 8) Provide one (1) P0843602 Designation Label per NTFX32DA Plug-in Module Filler Face Plate. To be applied to NTFX32AA faceplate to designate slot position.
 - 9) Provide one (1) NTFX40HB DAT/IOM Paddleboard SCSI Cable Assy and one (1) P0832228 Connector Key Bracket per NTFX32AA Storage Media CP. The NTFX40HB connects the Storage Media CP to the IOM Controller CP in the same shelf.
 - 10) Provide one (1) NTZZ40AJ Storage Media CP Kit to provide one (1) NTFX32AA, one (1) NTFX40HB, one (1) P0832228, and one (1) P0831733 when ordering via building blocks instead of detail.
- RUL7
- 1) Provide one (1) NTFX34AA RS-232C Smart Connector assembly per device requiring IOM to RS-232C message protocol conversion circuitry.
 - 2) Provide one (1) NTFX35AA V.35 Smart Connector assembly per device requiring IOM to V.35 message protocol conversion circuitry. Provide one (1) A0300753 Passive Adaptor per NTFX35AA if conversion from 25 pin V.35 connector to 34 pin V.35 connector is required.
 - 3) Provide one (1) NTFX36AA PERTEC Smart Connector assembly per device requiring IOM to PERTEC protocol conversion circuitry for 9 track MTD support. Refer to IOE/CIOE MS Documents for provisioning.
 - 4) Provide two (2) NTFX38AA Current Loop Smart Connector assemblies, which provide 20mA current loop to ISM to AXU connections requiring IOM to Current Loop Protocol conversion circuitry.
 - 5) Provide two (2) NTFX35BA 512Kbps V.35 Compatible Smart Connector assemblies per device requiring MCI specific 512Kbps synchronous communications support on IOM. Supports X.25 links at 512Kbps synchronous speed for up to a maximum of 2 links per IOM. One NTFX35BA acts as a standby for the other connector. Additional I/O devices cannot be deployed on an IOM with 512Kbps interface.

- RUL8 1) Provide one (1) ISM Retrofit Kit for IOM NTFX40UA for each existing ISM Shelf in a CISM that will now house IOM CPs. The NTFX40UA Kit contains one NTFX40HA IOM Port Cable and misc. hardware.

NOTE-An NTFX40UA Kit is NOT to be provisioned for ISM Shelf in position 33 if an AXU is provided in position 47, or when ISM Shelves are equipped with ILTA CPs (NTFX44AA) mounted in shelf position 06.

- 2) Provide one (1) ISM Retrofit Kit for IOM NTFX40UB for each existing ISM Shelf in a ISME that will now house IOM CPs. The NTFX40UB Kit contains misc. hardware.

- RUL9 1) Provide one (1) P0831731 Designation Label IOC 00-19 per office when adding IOM to the office.

- RUL10 1) With the introduction of IOM on ISM Shelves the mounting locations of the NTFX44AA card have changed on CISM and ISME. In the CISM shelf 47 slot 6 is no longer a valid slot for the CP/related cables/ NT2X90 CPs. CISM can have ILTA NTFX44AA CPs and related cables/ NT2X90s in shelf 47, 33, 19, and 05 slots 16 and 11 only. See MSFX40AA and EMS NTFX40AA for more CISM rules and information. ISME can have ILTA NTFX44AA CPs and related cables/NT2X90s in shelf 47,33, and 19 slots 16, 11, and 6. See MSFX40BA and EMS NTFX40BA for more ISME rules and information.

- RUL11 1) Provide one (1) Smart Connector Extension Cable to connect from slot location J16 on the GDC DS6 Modem Shelf to the IOM Smart Connector due to spacing requirements.

- RUL12 1) Provide one (1) Smart Connector DB25F Gender Adapter Cable to connect to modems that have a male RS232 (DB25F) connector. See NOTE 27 for list of cables to I/O devices.

- RUL13 1) Smart Connector Rollover Cable is required to connect the IOM Smart Connectors to the MAP Terminals or printers. Provide one (1) NTFX40UE if a plug (male) end is required or one (1) NTFX40UF if a receptacle (female) end is required. See NOTE 27 for list of cables to I/O devices.

- 2) Smart Connector Rollover Cable is required to connect the RS232 IOM Smart Connector, NTFX34AA, to DPP in the IOE frame/cabinet. For the IOE frame, NTFX40UE cable is required for RS232 Smart Connector to DPP. For the CIOE, NTFX40UF cable is required for RS232 Smart Connector to connection at CIOE bulkhead to DPP.

- RUL14 1) The Coin Detection CP physically occupies one card slot on an ISM. The CDC will use eight time slots and therefore four consecutive card slots are required. A maximum of three NT3X08 CPs can be housed in any ISM (NTFX4101) with placement being in card slots 20, 16, and 12. If desired, the CDC card can be placed on an ISM with other cards provided the next three slots following the NT3X08 are empty and provisioning rules for these other packs are followed.

CABINETIZED METALLIC TEST ACCESS (CMTA) APPLICATION

- RUL1A 1) The following rules apply to ISM used in a Cabinetized Integrated Service Module (CISM) in a Metallic Test Access application.
- 2) The CMTA application uses either one ISM Shelf in position 47 or two additional ISM Shelves in positions 33 and 19, in the Cabinetized Integrated Service Module (CMTA), NTFX40AA, depending on the number of test loops to be served.
- 3) CMTA External Test Access is provided by two CP types, i.e., Improved Loop Test Accessory (ILTA) CP, NTFX44AA, and Incoming/Outgoing Test Trunk, NT2X90AD, CP. One (1) NTFX44AA is provides external loop test interface for one to four (1-4) NT2X90AD, test trunks.
- 4) A maximum of 8 test trunks (horizontal) can be supported in the ISM in position 47, 33, and 19.
- 5) Provide one (1) Incoming/Outgoing Test Trunk, NT2X90AD for each external loop test trunk and each VER-90 (Verification Board) trunk required (Maximum 20).
- Let required test trunks = TOT TT.
- Let required VER-90 trunks = TOT VER90
- 6) Provide quantity of Improved Loop Test Accessory (ILTA) CP, NTFX44AA = TOT TT/4 rounded up + TOT VER90/4 rounded up (max 5).
- 7) Each increment of four test trunk CPs and associated ILTA CP are referred to as an External Loop Test Group (1 to 4 test trunks per group). Each External Loop Test Group may be dedicated to 1 thru 4 external test trunks or to 1 thru 4 VER-90 trunks

- 8) Assign the NTFX44AA and NT2X90AD CPs, provided in 4) and 5) above, to ISM slot positions as follows:

ORDER OF EXT TEST GROUP PROVISIONING	SHLF POS	NTFX44AA ILTA SLOTS	NT2X90AD SLOTS GIVEN IN ORDER OF PROVISIONING
1	47	16	20,19,18,17
2	47	11	15,14,13,12
3	33	16	20,19,18,17
4	33	11	15,14,13,12
5	19	16	20,19,18,17
6	19	16	15,14,13,12

- 9) When dedicated and/or rover LTU/MTUs are to be allocated Test Access Group 6 cannot be used.

OFFICE ALARM SYSTEM APPLICATION

- RUL1B 1) In the Office Alarm System application of the ISM Shelf, the shelves in positions 33 and 19 of the CISM or 39 and 21 of the ISME containing the system AXU are designated as the Primary Alarm shelf and The Secondary Alarm shelves respectively. In the Primary and Secondary Alarm shelves there are specific slot assignments imposed by the AXU/OAU cabling used. Refer to MSFX40AA for alarms based in CISM and MSFX40BA for ISME. The slot assignments are given in the following table:

NOTE Assign these CPs in these slots ONLY when the ISM Shelf is used for Primary or Secondary Alarm Shelf function. No other CPs may be used in these slots when the ISM Shelf is used as an alarm shelf.

SH POS CISM	POS ISME	SLOT	CP	AXU	DESIGNATION
33	39	12	NT0X10	A03	PRIMARY ALM
33	39	13	NT0X10	A02	PRIMARY ALM
33	39	15	NT0X10	A01	PRIMARY ALM
33	39	16	NT0X10	A00	PRIMARY ALM
33	39	14	NT3X85AB	A08	PRIMARY ALM
33	39	17	NT3X83AC/AD	A06	PRIMARY ALM
		or	NT3X84AB	A07	PRIMARY ALM
33	39	18	NT2X57	A04	PRIMARY ALM
33	39	19	NT3X82AH/AJ	A05	PRIMARY ALM
			AK		
19	21	19	NT3X82AH/AJ	G00	SECONDARY ALM
			AK		

METALLIC TEST ACCESS EQUIPMENT (MTAE) APPLICATION

- RUL1C 1) The following rules apply to ISM used in an Integrated Service Module Equipment (ISME) frame in a Metallic Test Access application.
- 2) The MTAE application uses either one ISM Shelf in position 53 or two ISM Shelves in positions 53 and 39, in the Metallic Test Access Equipment (MTAE), NTFX40FA, depending on the number of test loops to be served.
- 3) MTAE External Test Access is provided by two CP types, i.e., Improved Loop Test Accessory (ILTA) CP, NTFX44AA, and Incoming/Outgoing Test Trunk, NT2X90AD, CP. One (1) NTFX44AA provides external loop test interface for one to four (1-4) NT2X90AD, test trunks.
- 4) A maximum of 12 test trunks (horizontal) can be supported in the ISM in each position of 53 and 39.
- 5) Provide one (1) Incoming/Outgoing Test Trunk, NT2X90AD for each external loop test trunk and each VER-90 (Verification Board) trunk required (Maximum 20).

Let required test trunks = TOT TT.

Let required VER-90 trunks = TOT VER90

- 6) Provide quantity of Improved Loop Test Accessory (ILTA) CP, NTFX44AA = $\text{TOT TT}/4$ rounded up + $\text{TOT VER90}/4$ rounded up (max 5).
- 7) Each increment of four test trunk CPs and associated ILTA CP are referred to as an External Loop Test Group (1 to 4 test trunks per group). Each External Loop Test Group may be dedicated to 1 thru 4 external test trunks or to 1 thru 4 VER-90 trunks
- 8) Assign the NTFX44AA and NT2X90AD CPs, provided in 4) and 5) above, to ISM slot positions as follows:

ORDER OF EXT TEST GROUP PROVISIONING	SHLF POS	NTFX44AA ILTA SLOTS	NT2X90AD SLOTS GIVEN IN ORDER OF PROVISIONING
1	53	16	20, 19, 18, 17
2	53	11	15, 14, 13, 12
3	53	6	10, 9, 8, 7
4	39	16	20, 19, 18, 17
5	39	11	15, 14, 13, 12
6	39	6	10, 9, 8, 7

- 9) When dedicated and/or rover LTU/MTUs are to be allocated
Test Access Group 6 cannot be used.

CABINETIZED METALLIC TEST ACCESS (CMTA)

PEC CODE: NTFX40EA

CPC CODE: B0241037

RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: CMTA

ENGINEERING DESCRIPTION: The Cabinetized Metallic Test Access is an EMI compliant cabinet enclosing equipment which provides metallic test access for subscriber lines including ISDN and Datapath lines. The CMTA comprises a Model B Cabinet with Cooling Unit and Modular Supervisory Panel. The Cabinet also contains a Wideband Test Access (WTA) panel

Check availability before ordering.

REFERENCE DOCUMENTATION: SLFX40EA 01 01
MSFX40EA 01 04

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA

ISSUE AUTHOR: Steve Martin Dept. 3471 (PPK)

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

NTFX40EA EMA2-01-MTA-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 06 30	EC 018-43053	Initial introduction.
94 09 21	ECM 559 01	Initial introduction
94 10 27	ECM 559 02	Minor cosmetic changes
95 03 17	ECM 683 15	Clarify provisioning rules for NTFX40DM and NTFX40GN per ET65803.
96 09 20	ECM 557 27	MD NTFX45AA per EC018-45462.
96 10 25	ECM 557 28	Add filler panel at position 65 per SLFX40EA iss. 1. Removed qty. from rule based provisionable items.
		Added blank person. plts. at 05/19 per stocklist.
		Per EC018-45955 MD NTFX45AA, NTFX40GK/GL/GM, add P0832926.
97 06 23	ECM 557 34	Update per EC018-46961. Add German Des. Label.

The Cabinetized Metallic Test Access (CMTA) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Cabinet Assembly	NTRX25AA	NOTE 3				AP-01
CISM Horizontal Cabling Kit	NTFX40DM					RUL1
CMTA Ext. Power Filter Kit	NTFX40GN					RUL1
Designation Label 13 Pos. - (Germany)	P0847107					RUL1
Filler Panel	P0684448		1	65		AP-01
CMTA MSP Kit	NTFX4025	MSP		61		RUL2
C28 English Label Kit	NTRX3541			61		RUL3
C28 German Label Kit	NTRX3542			61		RUL3
Fan Pwr Cntl Mod (-48V)	NTRX54BA			61	19	RUL4
Desig Label (NTRX54BA)	P0741680			61	19	RUL4
Fan Pwr Cntl Mod (-60V)	NTRX54AA			61	19	RUL4
Desig Label (NTRX54AA)	P0741735			61	19	RUL4
Filler Panel	P0575239		1	47		AP-01
Wideband Test Access Panel	NT7X76BA	WTA	1	47R		AP-01
Personality Plate CMTA(WTA)	P0800296		1	47		AP-01
ISM Shelf Assembly	NTFX4101	NOTE 1	1	33		AP-01
Personality Plate	P0800297		1	33		AP-01
# CMTA ISA/WTA (Shelf 33)CA AS	NTFX40GK			33		RUL10
Connector Key Bracket	P0832926			33		RUL11
ISM Shelf Assembly	NTFX4101	NOTE 1	1	19		AP-01
# CMTA ISA/WTA (Shelf 19)CA AS	NTFX40GL			19		RUL10
Connector Key Bracket	P0832926			19		RUL11
Personality Plate (blank)	P0715616		1	19		AP-01
ISM Shelf Assembly	NTFX4101	NOTE 1	1	05		AP-01
# CMTA ISA/WTA (Shelf 05)CA AS	NTFX40GM			05		RUL10
Connector Key Bracket	P0832926			05		RUL11
Personality Plate (blank)	P0715616		1	05		AP-01
10" Cooling Unit	NTRX92AA			00		RUL5
8X8 Metallic Test Access CP	NT3X09BA	MTA		19,33	06-20	RUL6
Multiline Test Unit	NT2X10BB	MTU		05	13,15	RUL7
					17,19	
Multiline Test Unit	NT2X11BA	MTU		05	14,16	RUL7
					18,20	

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Inc/Og Test Trunk	NT2X90AD			05	06-12	RUL8
# Improved Signature Accessory	NTFX45AA	ISA		05,19 33	03-05	RUL9

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NTFX45AA	MD	No Replacement
NTFX40GK	MD	No Replacement
NTFX40GL	MD	No Replacement
NTFX40GM	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 ISM shelves in the CMTA have cables internal to the cabinet which are designed specifically for use in the MTA application. The configuration of circuit packs in the CMTA application of the ISM is fixed according to the rules given below. This makes the circuit pack provisioning rules for ISM shelves in the CMTA different to the rules for the provision of packs in ISM shelves in a CISM, NTFX40AA. Refer to EMS NTFX4101 or MSFX4101 for ISM provisioning information.
- 2) X = Shelf Position 05,19,33
- 3) The NTFX40EA Cabinetized Metallic Access (CMTA) has system level provisionable items covering the following:
 - Seismic Zone provisioning

- Grounding options provisioning
- Cable routing options provisioning
- Cabinet Fail Lamp provisioning
- Cabinet door provisioning
- Endguards and Sidepanels

For details of the above, refer to MSRX25AA, C28 Cabinet Assembly, or EMS NTRX25AA, C28 Cabinet Assembly

RULES:

- AP 1) When PEC NTFX40EA is ordered, these items are provided.
- AP-01 1) This item is always provided with the CMTA, NTFX40EA, and is shown here for completeness.
- RUL1 1) When CMTA requires horizontal power arrangement, provide one (1) NTFX40DM Horizontal Cabling Kit. A horizontal power arrangement is used in Cabinetization Model A lineups. The NTFX40DM horizontal power cable kit may be used when CMTA Cabinets are included in a Model A lineup (i.e. Model B extensions to Model A offices).
- 2) When CMTA requires the external power arrangement, provide one (1) NTFX40GN External Power Filter Kit. A maximum of three (3) Model B Cabinets, including CMTA, with external power arrangements may be configured in a single lineup of Model A Cabinets (i.e. in Model B extensions to Model A offices). If CMTA is destined for a German market and a German label is required, provide one (1) P0847107 label.
- RUL2 1) Provide one (1) CMTA MSP Kit, NTFX4025.
- RUL3 1) Provide NTRX3541 English Label Kit for all applications except German applications.
- 2) Provide NTRX3542 German Label Kit for German applications.
- RUL4 1) Provide one (1) Fan Power Control Module, NTRX54BA, and one (1) Designation Label, P0741680, if system power is -48V and fan (sophometric) noise control is not required.
- 2) Provide one (1) Fan Power Control Module, NTRX54AA, and one (1) Designation Label, P0741735, if system power is -60V or if noise (sophometric) control is required if system power is either -60V or -48V.

- RUL5 1) Provide one (1) NTRX92AA Cooling Unit per cabinet. This includes Cooling Unit NTRX91AA, associated hardware and cables.
- RUL6 1) Provide the required number of 8X8 Metallic Test Access CP, NT3X09BA, according to the following table:

REQ NO OF HORIZONTALS	NUMBER OF VERTICALS *									
	8	16	24	32	40	48	56	64	72	80
UP TO 8	1	2	3	4	5	6	7	8	9	10
UP TO 16	2	4	6	8	10	12	14	16	18	20
UP TO 24 **	3	6	9	12	15	18	21	24	27	30

* The maximum number of verticals that are supported by a single CMTA can be extended by providing additional CMTAs. The maximum limitation is 256 verticals or approximately 75000 lines. For offices larger than 75000 lines, another concept for connecting WTA panels is under design.

** The maximum number of horizontal supported in a single CMTA is 24. However, with additional CMTAs, this may be increased to 48 for the test access system as a whole.

- 2) The order of 8x8 MTA Matrix CP provisioning and specific slot locations for all possible MTA matrix configurations within the cabinet are given in the following table. The information in the following table pertains to the cabinet considered not to the complete MTA system which may comprise more than one cabinet.

MTA* MATRIX	NO OF NT3X09BA CPs	CP SLOT POSITIONS SHLF POS 33	CP SLOT POSITIONS SHLF POS 19
1x1	1	20	-
1x2	2	20, 19	-
1x3	3	20-18	-
1x4	4	20-17	-
1x5	5	20-16	-
1x6	6	20-15	-
1x7	7	20-14	-
1x8	8	20-13	-
1x9	9	20-12	-
1x10	10	20-11	-
2x1	2	20, 10	-
2x2	4	20, 19, 10, 9	-
2x3	6	20-18, 10-8	-
2x4	8	20-17, 10-7	-
2x5	10	20-16, 10-6	-
2x6	12	20-15, 10-6	20
2x7	14	20-14, 10-6	20, 19
2x8	16	20-13, 10-6	20-18
2x9	18	20-12, 10-6	20-17
2x10	20	20-6	20-16
3x1	3	20, 10	15
3x2	6	20, 19, 10, 9	15-14
3x3	9	20-18, 10-8	15-13
3x4	12	20-17, 10-7	15-12
3x5	15	20-16, 10-6	15-11
3x6	18	20-15, 10-6	20, 15-10
3x7	21	20-14, 10-6	20, 19, 15-9
3x8	24	20-13, 10-6	20-18, 15-8
3x9	27	20-12, 10-6	20-17, 15-7
3x10	30	20-6	20-6

* The figures in this column define matrix by MTA car e.g., a 1x1 matrix is a matrix comprising one CP which provides 8 horizontals x 8 verticals.

- RUL7 1) Multiline Test Unit, NT2X10BB and Multiline Test Unit, NT2X11BA form a pair of CPs which operate together to perform the metallic test unit function. Each MTU CP pair has two (2) circuits. Each of these circuits provides line test functions accessed by one horizontal in the MTA matrix formed by 8x8 Metallic Test Access CPs NT3X09BA.
- 2) Provide up to three (3) pairs of MTU CPs dedicated to specific MTA horizontals as required. Locate these dedicated MTU pairs in the ISM in shelf position 05. Place each NT2X10BB CP in the slot adjacent and to left of its companion NT2X11BA CP. Use slots 15 through 20 for the MTU CP pairs. Provision MTU pairs starting from the right hand end of the ISM, i.e., from slot 20.
- 3) Provide one (1) pair of MTU CPs as a 'rover' MTU if required. Provision the rover MTU in ISM shelf position 05 in slot positions 07 and 08.
- RUL8 1) The Inc/0g Test Trunk, NT2X90AD provides an interface for an analog trunk to a horizontal of the MTA matrix formed by NT3X09BA CPs.
- 2) Provide up to five (5) dedicated NT2X90ADs as required, dedicated to connect horizontal 0, respectively, to specific groups of 16 verticals of the MTA matrix. Provision the NT2X90AD CPs in ISM shelf position 05 in slots 8 through 12. Start provisioning in the rightmost slot of this range, i.e., slot 12.
- 3) Provide up to two (2) rover (horizontal 1 and 2 respectively) Inc/0g Test Trunk, NT2X90AD, if required. Provision the rover Test Trunk interface CPs in ISM shelf position 05, slots 6 and 7. Provision starting with slot 7.
- RUL9 1) Provide up to three (3) Improved Signature Accessory (ISA), NTFX45AA, CPs per ISM shelf containing 8x8 Metallic Test Access CPs, used for interfacing test access verticals with co-located pair gain and digital remote systems tested by DRTU(s) (Digital Remote Test Unit).
- 2) Provision the ISA PCs in slots 3 through 5 per requirements in ISM shelf positions 05, 19 and 33. Provision ISA CPs starting from the highest numbered slot position in each shelf.
- RUL10 1) Provide one (1) CMTA ISA/WT A (Shelf 33) Cable Assy, NTFX40GK, per ISA, NTFX45AA, located on ISM Shelf in position 33. Each Cable Assy NTFX40GK runs from connector P5 at

the slot position occupied by the respective ISA CP. to the assigned vertical output connectors P1 to P4 at the WTA. Up to three (3) NTFX40GK may be provided per shelf.

- 2) Provide one (1) CMTA ISA/WTA (Shelf 19) Cable Assy, NTFX40GL, per ISA, NTFX45AA, located on ISM Shelf in position 19. Each Cable Assy NTFX40GL runs from connector P5 at the slot position occupied by the respective ISA CP. to the assigned vertical output connectors P1 to P4 at the WTA.
- 3) Provide one (1) CMTA ISA/WTA (Shelf 05) Cable Assy, NTFX40GM, per ISA, NTFX45AA, and Inc/Og Trunk Test, NT2X90AD are located on ISM Shelf in position 05. Each Cable Assy NTFX40GM runs from connector P5 at the slot position occupied by the respective ISA CP. to the assigned vertical output connectors P1 to P4 at the WTA.
- 4) The general rule for the assignment of vertical output connectors to individual ISA CPs is as follows:

Assign connectors in order starting from the ISA CP occupying the topmost ISM shelf, i.e., shelf position 33, at the rightmost slot, looking from the rear, i.e., slot position 03. Continue across the shelf for all positions, slots 04 and/or 05 occupied by ISA CPs. Using the same rule for each shelf work downwards.

Assign the vertical outputs of the WTA to the ISA/WTA connectors in the order determined by the rule given above. Starting WTA vertical output connector assignment from the first available connector remaining after WTA assignments have been made to NT3X09BA MTA matrix verticals contained on shelf positions 33, 19 and 05.

Where WTA/ISM connectors are assigned on the WTA panel, the always provided WTA/MTA connectors must be disconnected and tied back to permit WTA/ISM connectors to be connected to the WTA panel.

- RUL11 1) Provide two (2) Connector Key Brackets for each ISM Shelf slot 3 and 4, for a total of six (6) for each CMTA NTFX40EA provisioned.

METALLIC TEST ACCESS EQUIPMENT (MTAE)

PEC CODE: NTFX40FA

CPC CODE: B0241507

RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: MTAE

ENGINEERING DESCRIPTION: The Metallic Test Access Equipment provides metallic test access for subscriber lines including ISDN and Datapath lines. The MTAE comprises a standard frame and Modular Supervisory Panel. The frame also contains a Wideband Test Access (WTA) panel

REFERENCE DOCUMENTATION: SLFX40FA 01 02
MSFX40FA 01 02

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA

ISSUE AUTHOR: Steve Martin Dept. 3471 (PPK)

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

NTFX40FA EMA2-01-MTA-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 10 25	ECM 564 01	Initial introduction
96 09 20	ECM 557 27	MD NTFX45AA per EC018-45462.
96 10 25	ECM 557 28	Add filler panel from SLFX40FA iss. 2 at position 4. Per EC018-45955 MD NTFX45AA, NTFX40GK/GR/GS, add P0832926.
97 03 28	ECM 557 32	Per EPSA review, remove NTFX45AA CP and rules, and remove NTFX40GK,GS,GR as these items were never manufactured and info doesn't need to be retained. Enhance rules to help with ordering.

The Metallic Test Access Equipment (MTAE) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Framework Assy						RUL8
MTAE MSP Kit	NTFX4026	MSP		71		RUL1
Filler Panel	P0575239		1	53		AP-01
Wideband Test Access Panel	NT7X76BA	WTA	1	53R		AP-01
ISM Shelf Assembly	NTFX4101	NOTE 1	1	39		AP-01
Connector Key Bracket	P0832926			39		RUL7
ISM Shelf Assembly	NTFX4101	NOTE 1	1	21		AP-01
Connector Key Bracket	P0832926			21		RUL7
ISM Shelf Assembly	NTFX4101	NOTE 1	1	07		AP-01
Connector Key Bracket	P0832926			07		RUL7
Filler Panel	P0746719		1	04		AP-01
8X8 Metallic Test Access CP	NT3X09BA	MTA		21, 39	06-20	RUL2
Multiline Test Unit Analog Card	NT2X10BB	MTU		07	13, 15 17, 19	RUL3
Multiline Test Unit Control Card	NT2X11BA	MTU		07	14, 16 18, 20	RUL3
Inc/Og Test Trunk	NT2X90AD			07	06-12	RUL4
ISM DC Converter	NTFX43AA			X	01	RUL9
Filler Plate (Power Conv.)	NT0X50AG			X	01	RUL9
Designation Label (NTFX43AA)	P0745439					RUL9
Filler Face Plate 1.12	NT0X50AC			X	03-21	RUL10
ISM Processor CP	NTFX42AA			X	21	RUL11
Designation Label (NTFX42AA)	P0745438					RUL11

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NTFX45AA	MD	No replacement
NTFX40GK	MD	No replacement
NTFX40GR	MD	No replacement
NTFX40GS	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 ISM Shelves in the MTAE have cables internal to the frame which are designed specifically for use in the MTA application. The configuration of circuit packs in the MTAE application of the ISM is fixed according to the rules given below. This makes the circuit pack provisioning rules for ISM Shelves in the MTAE different to the rules for the provision of packs in ISM Shelves in a CISM, NTFX40AA. Refer to EMS NTFX4101 or MSFX4101 for ISM provisioning information.
- 2) X = Shelf position 07,21,39.

RULES:

- AP 1) When PEC NTFX40FA is ordered, these items are provided.
- AP-01 1) This item is always provided with the MTAE, NTFX40FA, and is shown here for completeness.

RUL1 1) Provide one (1) MTAE MSP Kit, NTFX4026.

RUL2 1) Provide the required number of 8X8 Metallic Test Access CP, NT3X09BA, according to the following table:

REQ NO OF HORIZONTALS	NUMBER OF VERTICALS *									
	8	16	24	32	40	48	56	64	72	80
UP TO 8	1	2	3	4	5	6	7	8	9	10
UP TO 16	2	4	6	8	10	12	14	16	18	20
UP TO 24 **	3	6	9	12	15	18	21	24	27	30

* The maximum number of verticals that are supported by a single MTAE can be extended by providing additional MTAEs. However, the maximum limitation is 256 verticals or approximately 75000 lines.

(Note: For offices larger than 75000 lines another concept for connecting WTA panels is under design.)

** The maximum number of horizontals supported in a single MTAE is 24. However, with additional MTAEs, this may be increased to 48 for the test access system as a whole.

- 2) The order of 8x8 MTA Matrix CP provisioning and specific slot locations for all possible MTA matrix configurations within the frame are given in the following table. The information in the following table pertains to the frame considered not to the complete MTA system which may comprise more than one frame.

MTA* MATRIX	NO OF NT3X09BA CPs	CP SLOT POSITIONS SHLF POS 39	CP SLOT POSITIONS SHLF POS 21
1x1	1	20	-
1x2	2	20,19	-
1x3	3	20-18	-
1x4	4	20-17	-
1x5	5	20-16	-
1x6	6	20-15	-
1x7	7	20-14	-
1x8	8	20-13	-
1x9	9	20-12	-
1x10	10	20-11	-
2x1	2	20,10	-
2x2	4	20,19,10,9	-
2x3	6	20-18,10-8	-
2x4	8	20-17,10-7	-
2x5	10	20-16,10-6	-
2x6	12	20-15,10-6	20
2x7	14	20-14,10-6	20,19
2x8	16	20-13,10-6	20-18
2x9	18	20-12,10-6	20-17
2x10	20	20-6	20-16
3x1	3	20,10	15
3x2	6	20,19,10,9	15-14
3x3	9	20-18,10-8	15-13
3x4	12	20-17,10-7	15-12
3x5	15	20-16,10-6	15-11
3x6	18	20-15,10-6	20,15-10
3x7	21	20-14,10-6	20,19,15-9
3x8	24	20-13,10-6	20-18,15-8
3x9	27	20-12,10-6	20-17,15-7
3x10	30	20-6	20-6

* The figures in this column define matrix by MTA car
e.g., a 1x1 matrix is a matrix comprising one
CP which provides 8 horizontals x 8 verticals.

- RUL3 1) Multiline Test Unit Analog CP, NT2X10BB, and Multiline Test Unit Control CP, NT2X11BA, form a pair of CPs which operate together to perform the metallic test unit function. Each MTU CP pair has two (2) circuits. Each of these circuits provides line test functions accessed by one horizontal in the MTA matrix formed by 8x8 Metallic Test Access CPs NT3X09BA. One dedicated MTU circuit is required for every 16 verticals.
- 2) Provide up to three (3) pairs of MTU CPs dedicated to specific MTA horizontals as required. Locate these dedicated MTU pairs in the ISM Shelf in position 07. Place each NT2X10BB CP in the slot adjacent to and left of its companion NT2X11BA CP. Use slots 15 through 20 for the MTU CP pairs. Provision MTU pairs starting from the right end of the ISM Shelf, i.e., from slot 20.
- 3) Provide one (1) pair of MTU CPs as a 'rover' MTU if required. Provision the rover MTU in ISM Shelf position 07 in slot positions 13 and 14. The rover MTU CPs should only be provided for the primary MTAE Frame. The primary MTAE Frame is defined as the first frame in each MTA software group. Secondary MTAE Frames must not be equipped with rover MTU CPs.
- RUL4 1) The Inc/Og Test Trunk, NT2X90AD provides an interface for an analog trunk to a horizontal of the MTA matrix formed by NT3X09BA CPs.
- 2) Provide up to five (5) dedicated NT2X90ADs as required, dedicated to connect horizontal 0, respectively, to specific groups of 16 verticals of the MTA matrix. Provision the NT2X90AD CPs in ISM Shelf position 07 in slots 8 through 12. Start provisioning in the right most slot of this range, i.e., slot 12.
- 3) Provide up to two (2) rover (horizontal 1 and 2 respectively) Inc/Og Test Trunk, NT2X90AD, if required. Provision the rover Test Trunk interface CPs in ISM Shelf position 07, slots 6 and 7. Provision starting with slot 7. The rover NT2X90AD CPs should only be provisioned on MTAE Frames equipped with rover MTU CPs.
- RUL5 1) Deleted
- RUL6 1) Deleted

- RUL7 1) Provide two (2) Connector Key Brackets for each ISM Shelf slot 3 and 4, for a total of six (6) for each MTAE NTFX40FA provisioned.
- RUL8 1) Provide one (1) Framework Assembly according to rules given in MS0X25 or EMS NT0X25.
- RUL9 1) The NTFX43AA ISM DC Converter converts the battery feed input to power supplies of +5V, +12V, +25V and -15V DC required by service circuits.
- 2) Provide one (1) ISM DC Converter at slot position 01 when one or more service circuits on the shelf require the power supplies listed in RUL9 1), above. The NTFX43AA ISM DC Converter is a double width card which occupies slot positions 01 and 02.
- 3) Provide one (1) Designation Label (NTFX43AA), P0745439, if ISM DC Converter, NTFX43AA, is provided.
- 4) Provide one (1) Filler Panel, NT0X50AG, if ISM DC Converter, NTFX43AA is not provided.
- RUL10 1) Provide one (1) Filler Face Plate 1.12, NT0X50AC, for each physically unoccupied slot position 03 thru 21.
- RUL11 1) Provide one (1) ISM Processor in the shelf at slot position 21 when one or more service circuits mounted in the shelf require it.
- 2) Provide one (1) Designation Label (NTFX42AA), P0745438, if the ISM Processor NTFX42AA is provided.

MAINTENANCE TRUNK MODULE

PEC CODE: NT2X58CA

CPC CODE: B0222567

| RATING: A&M

REPLACES: NT2X58AC

REPLACED BY: NTFX4101

ABBREVIATION NAME: MTM

ENGINEERING DESCRIPTION: The Maintenance Trunk Module is similar to the TM in operation, however its primary function is to interface service, test and maintenance circuits and scanner and signal distributor cards.

REFERENCE DOCUMENTATION: MS2X58CA 01 08

MARKETS: Applicable markets:

| US (Richardson)

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

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

NT2X58CA EMA2-01-MTM-11 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
----- 95 04 05	----- ECM 601 20	Previous history not available Convert NT2X70AE Power Converter and P0698943 Desig Label to NT2X70AF Power Converter and P0809960 Desig Label per EC 024-93972.
96 09 12	ECM 601 34	MD per EC018-48743.
96 12 11	ECM 601 36	Un-MD per MD Team, change status to A&M for Richardson ordering only.

The Maintenance Trunk Module is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Maint Trk Mod Sh Assy	NT2X5828		1	X		AP
Trunk Card	AR			X	05-16	RUL1
Filler Face Plate 0.875	NT0X50AC			X	05-16	RUL2
Pwr Conv. CP +/- 5V, 12V	NT2X70AF			X	20	RUL3
Designation Label (NT2X70AF)	P0809960			X	20	RUL3
PC Kit to Provide NT0X70AC	NT2X58CH					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) "X" can be one of 04, 18, 32, 51, 65.

2) Provide one (1) MTM/DRA Common CP NT2X58AZ per MTM if:

1. Digital Data Line Card NT3X05AA/AC is not equipped on this MTM.

The NT2X58AZ Common CP Fill replaces the NT2X58AW Common CP Fill.

3) Provide one (1) MTM/DRA Common CP NT2X58AX per MTM if:

1. Digital Data Line Card NT3X05AA/AC is not equipped on this MTM.

2. Audio Tone Detector Card NT5X29AC is equipped on this MTM.

This CP Fill has an enhanced TM processor card (NT0X70AC) and is normally required for DMS-250 or Audio Tone Detector Card applications.

The NT2X58AX Common CP Fill replaces the NT2X58AR Common CP Fill.

- 4) Provide one (1) MTM/DRA Common CP NT2X58CP per MTM if:

1. Digital Data Line Card NT3X05AA/AC is equipped on this MTM.

The NT2X58CP Common CP Fill replaces the NT2X58CK Common CP Fill.

- 5) Provide one (1) MTM/DRA Common CP NT2X58CN per MTM if:

1. Digital Data Line Card NT3X05AA/AC is equipped on this MTM.

2. Audio Tone Detector Card NT5X29AC is equipped on this MTM.

This CP Fill has an enhanced TM processor card (NT0X70AC) and is normally required for DMS-250 or Audio Tone Detector Card applications.

The NT2X58CN Common CP Fill replaces the NT2X58CJ Common CP Fill.

RULES:

- AP 1) When PEC NT2X58CA is ordered, these items are provided.
- RUL1 1) The MTM provides slots to mount up to twelve (12) test line and trunk cards.
- 2) Refer to Table A-2, Section EMA14-01-000, for cards that can be mounted on an NT2X58CA. In particular observe Note 4 of the same section.
- 3) The sum total of the maximum power dissipation per Table A-3 (Section EMA14-01-000) for all cards provisioned on any one shelf shall not exceed 110 watts.

- RUL2 1) When customer requirements specify that Filler Face Plates are to be ordered, provide one (1) NT0X50AC for each location, 05-16, which is not to be equipped with a test line or a trunk card.
- RUL3 1) When MTM/DRA Common CP NT2X58AZ is provided, also provide one (1) Power Converter CP NT2X70AF and one (1) P0809960 Designation Label.
- RUL4 1) If an existing MTM is equipped with MTM/DRA Common CP NT2X58AZ/AW/CP/CK and Audio Tone Detector CP NT5X29AC, provide one (1) PC Kit to Provide NT0X70AC, NT2X58CH for BCS-28 or higher.

REMOTE CONTROLLER EQUIPMENT KIT

PEC CODE: NT6X10AH

CPC CODE: B0235903

RATING: Standard.

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: RMM

ENGINEERING DESCRIPTION: The RMM is a single shelf service module that supports maintenance and service circuits. It mounts on the Remote Controller Equipment (RCE) frame in shelf positions 65.

REFERENCE DOCUMENTATION: MS6X10AC 01 12
SL6X10AH 01 01

MARKETS: Applicable markets:

US
Canada

ISSUE AUTHOR: NTI: Barry Bond Dept. 3471 (PPK)

MAIN CONTACT: NTI: Barry Bond Dept. 3471 (PPK)

NT6X10AH EMA2-05-001 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 10 28	ECM 618 05	Introduce PEC per ECD 011-15507
94 03 21	ECM 618 12	Removed RUL2 provisioning NT0X10AA. PEC not in equipment list.
94 07 05	ECM 618 15	ET 19189 - Change NT6X1301 to NT6X1306 per latest SL6X10AH.

The REMOTE CONTROLLER EQUIPMENT KIT is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
RMM SHELF ASSY	NT6X1306		1	65		AP
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		2	65		AP
3.75IN CABLE BRAID ASSY	NT0X9538		1	65		AP
RMM CABLE ASSEMBLY (-48V SP)	NT6X1438		1	65		AP
RMM Common CP Fill	NT6X13AB			65		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:

RULES:

AP 1) When PEC NT6X10AH is ordered, these items are provided.

RUL1 1) The RMM Common CP fill is always required to provide the basic set of electronics for the shelf.

|

FXPM ENHANCED DTC COMMON CP (DMS250)

PEC CODE: NT6X02LF

CPC CODE: B0239400

RATING: Standard

REPLACES: NT6X02LE

REPLACED BY: Not Applicable

ABBREVIATION NAME: DTC

ENGINEERING DESCRIPTION: The NT6X02LF is the common circuit packfill for FXPM DTC applications on DMS-250 systems.

REFERENCE DOCUMENTATION: SL6X02LF

MARKETS: Applicable markets:

US
Canada
CALA

ISSUE AUTHOR: Steve Martin Dept. 3471 (PPK)

MAIN CONTACT: Steve Martin Dept. 3471 (PPK)

NT6X02LF EMA2-06-DTC-7 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 08 01	ECM 616 37	Introduce NT6X02LF

The FXPM ENHANCED DTC COMMON CP (DMS250) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Face Plate 0.875	NT0X50AA		2	X+14, 24 X		AP
Channel Supervision Mgs CP	NT6X42AA		2	X+14, 20 X		AP
Speech Bus Formatter	NT6X41AA		2	X+14, 21 X		AP
Designation Strip	P0714412		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) Shelf position X = 18 or 51

RULES:

- AP 1) When PEC NT6X02LF is ordered, these items are provided.

DIGITAL TRUNK CONTROLLER COMMON CP

PEC CODE: NT6X02CZ

CPC CODE: B0245482

RATING: Standard

REPLACES: NT6X02IH

REPLACED BY: Not Applicable

ABBREVIATION NAME: DTC

| ENGINEERING DESCRIPTION: NT6X02CZ 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: SL6X02CZ 00 01

MARKETS: Applicable markets:

US
Canada
CALA

ISSUE AUTHOR: Erica Keltner Dept. 3471 (PPK)

MAIN CONTACT: Erica Keltner Dept. 3471 (PPK)

NT6X02CZ EMA2-06-DTC-8 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 03 29	ECM 373 38	Introduce the NT6X02IH DTC Common CP. Answer ET#22259 to correct 'replaces' PEC.
95 04 27	ECM 373 40	
96 04 26	ECM 373 45	EC 024-95240 MDs the NT6X02IH and replaces it with NT6X02CZ.

The Digital Trunk Controller Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Channel Supervision Mgs CP	NT6X42AA		2	X,X+14	20	AP
Speech Bus Formatter	NT6X41AA		2	X,X+14	21	AP
Filler Face Plate 0.875	NT0X50AA		2	X,X+14	24	AP
Designation Strip	P0833750		2	X,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) 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 NT6X02CZ is ordered, these items are provided.

FXPM ISDN ENHANCED DTC COMMON CP (DMS250)

PEC CODE: NT6X02RF

CPC CODE: B0239401

RATING: Standard

REPLACES: NT6X02RE

REPLACED BY: Not Applicable

ABBREVIATION NAME: DTCI

ENGINEERING DESCRIPTION: The NT6X02RF is the common circuit packfill
for FXPM ISDN DTC applications on the
DMS-250 system

REFERENCE DOCUMENTATION: SL6X02RF

MARKETS: Applicable markets:

US
Canada
CALA

ISSUE AUTHOR: Steve Martin Dept. 3471 (PPK)

MAIN CONTACT: Steve Martin Dept. 3471 (PPK)

NT6X02RF EMA2-06-DTCI-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 08 01	ECM 616 37	Introduce NT6X02RF

The FXPM ISDN ENHANCED DTC COMMON CP (DMS250) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Face Plate 0.875	NT0X50AA		2	X+14, 24 X		AP
Channel Supervision Mgs CP	NT6X42AA		2	X+14, 20 X		AP
Speech Bus Formatter	NT6X41AA		2	X+14, 21 X		AP
Designation Strip	P0731301		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) Shelf position X = 18 or 51

RULES:

- AP 1) When PEC NT6X02RF is ordered, these items are provided.

FILLER FACE PLATE PACKAGE

NT6X02AB

RATING: Standard

ABBREVIATION NAME: N/A

| ENGINEERING DESCRIPTION: The NT6X02AB is a Filler Face Plate Package which is designed to fill those shelves on an NT6X01AA/BA frame which are not equipped with a LGC/DTC/LTC/SMS/SMR/SMU/ILGC/IDTC circuit pack fill.

REFERENCE DOCUMENTATION: N/A

The Filler Face Plate Package is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Face Plate 0.875	NT0X50AA		24	X+14	01-24	AP
Filler Face Plate 2.62	NT0X50AE		1	X+14	25	AP
Desig. STrip (NT6X01AA)	P0705708		1	X+14		AP
Filler Face Plate 0.875	NT0X50AA		24	X	01-24	AP
Filler Face Plate 2.62	NT0X50AE		1	X	25	AP
Desig. Strip (NT6X01AA)	P0705708		1	X		AP

NOTE:

- 1) The NT6X02AB can be assigned to shelf mounting positions 65 and 51 (X=51) or shelf mounting positions 32 and 18 (X=18).

RULE:

- AP 1) When PEC NT6X02AB is ordered, these items are provided.

INTERNATIONAL LINE GROUP CONTROLLER CP

PEC CODE: NT6X02KF

CPC CODE: B0229719

| RATING: MD

| REPLACES: NT6X02KB/KD.

| REPLACED BY: N/A

ABBREVIATION NAME: ILGC

ENGINEERING DESCRIPTION: The NT6X02KF is the common circuit pack fill for the Line Group Controller used for China applications. It contains some up-graded Memory CPs.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Asia/Pacific

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

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

NT6X02KF EMA2-06-ILGC-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
----- 95 08 09	----- ECM 383 06	Previous history not available. MD NT6X02KF.

The International Line Group 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 Message Protocol 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 Strip	P0703373		1	X+14		AP
Time Switch	NT6X44AB		1	X+14	7	AP
CPP Message Protocol 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 Strip	P0703373		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 ILGC 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 NT6X02KF is ordered, these items are provided.

UNIVERSAL ILGC/IDTC COMMON CP FILL

NT7X02BP

RATING: Standard

ABBREVIATION NAME: ILGC/IDTC

ENGINEERING DESCRIPTION: The NT6X02BP is the common circuit pack fill for the ILGC/IDTC which is eventually intended to be used universally for international applications. It contains upgraded memory CPs.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA

NT7X02BP EMA2-06-ILGC-8 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-----	-----	Previous history not available

The Universal ILGC/IDTC Common CP Fill is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
CPP Message Protocol CP	NT6X69LA		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
SP 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	P0705350		1	X+14		AP
CPP Message Protocol CP	NT6X69LA		1	X	10	AP
SP Memory Plus CP	NT6X46BA		1	X	13	AP
MP Memory Plus CP	NT6X47AB		1	X	16	AP
SP 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	P0705350		1	X		AP

NOTES:

- 1) One Universal ILGC/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 NT6X02BP is ordered, these items are provided.

INTERNATIONAL DTC/LGC COMMON CIRCUIT PACK

PEC CODE: NT6X02JB

CPC CODE: B0242754

| RATING: MD

REPLACES: Not Applicable

REPLACED BY: NT6X02JH

ABBREVIATION NAME: IDTC
ILGCENGINEERING DESCRIPTION: The NT6X02JB is the common circuit pack
fill for International LGC/DTC applications.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Europe
Asia/Pacific
CALA

ISSUE AUTHOR: Ken Clisso Dept. 3471 (PPK)

MAIN CONTACT: Ken Clisso Dept. 3471 (PPK)

NT6X02JB EMR2-06-IXPM-4 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 03 01	ECM 644 01	ECDs 011-16490, & 011-16850.
95 04 03	ECM 644 17	ECD 024-93969. Introduce NT6X02JB.
95 12 19	ECM 644 23	ECD 024-95247. MD NT6X02JB and replace with NT6X02JH.

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

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Time Switch CP	NT6X44EA		2	X+14,X	7	AP
Filler Faceplate .875	NT0X50AA		2	X+14,X	11	AP
Filler Faceplate .875	NT0X50AA		2	X+14,X	20	AP
Filler Faceplate .875	NT0X50AA		2	X+14,X	24	AP
Power Coverter +-5V +-12V	NT2X70AF		2	X+14,X	25	AP
Designation Label (NT2X70AF)	P0809960		2	X+14,X	25	AP
Designation Strip	P0739124		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 ILGC/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 NT6X02JB is ordered, these items are provided.

CABINETIZED FIBER INTERNATIONAL LGC/DTC COMMON CP

PEC CODE: NTRX47AC

CPC CODE: B0242766

RATING: STD

REPLACES: NTRX47AB

REPLACED BY: None

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The NTRX47AC 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)

NTRX47AC EMA2-06-IXPM-5 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 04 05	ECM 660 05	Introduce NTRX47AC containing NT2X70AF

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	NT2X70AF		2	X+14,X	25	AP
Desig. Label (NT2X70AF)	B0809960		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 NTRX47AC is ordered, these items are provided.

INTERNATIONAL DTC/LGC COMMON CIRCUIT PACK

PEC CODE: NT6X02JH

CPC CODE: B0242857

| RATING: STD

REPLACES: NT6X02JB

REPLACED BY: Not Applicable

ABBREVIATION NAME: IDTC
ILGCENGINEERING DESCRIPTION: The NT6X02JH is the common circuit pack
fill for International LGC/DTC applications.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Europe
Asia/Pacific
CALA

ISSUE AUTHOR: Ken Clisso Dept. 3471 (PPK)

MAIN CONTACT: Ken Clisso Dept. 3471 (PPK)

NT6X02JH EMA2-06-IXPM-7 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 12 19	ECM 644 23	ECD 024-95247. Introduce NT6X02JH.

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

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Power Converter +-5V +-12V	NT2X70AF		2	X+14,X	25	AP
Designation Label (NT2X70AF)	P0809960		2	X+14,X	25	AP
Designation Strip	P0743590		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 ILGC/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 NT6X02JH is ordered, these items are provided.

FRAME LGE/DTE NON-ISDN

PEC CODE: NT6X01BA

CPC CODE: B0218777

RATING: Standard

REPLACES: None

REPLACED BY: None

ABBREVIATION NAME: ILGE, IDTE
PLGE, PDTE

ENGINEERING DESCRIPTION: NT6X01BA is a general purpose Common Peripheral Controller Equipment Frame for international non-ISDN applications which houses two independent dual shelf modules.

Each module may be provisioned as:

- PCM30 Line Group Controller (PLGC), or
- PCM30 Digital Trunk Controller (PDTC),

Or, with DMS100I software in the office, each module may be provisioned as:

- International Line Group Controller (ILGC), or
- International Digital Trunk Controller (IDTC).

NT6X01BA may be Provisioned using EMS NT6X01BA and NTZZ41AA.

REFERENCE DOCUMENTATION: MS6X01BA 00 45

MARKETS: Applicable markets:

Europe
Asia/Pacific
CALA

ISSUE AUTHOR: Deniece land Dept. 3471 (PPK)

MAIN CONTACT: Deniece Land Dept. 3471 (PPK)

NT6X01BA EMA2-06-I00 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 03 01	ECM 644 01	ECDs 011-16490, & 011-16850
93 03 03	ECM 644 02	Correct provisioning quantities of XPM (MP/SP/FP) and Optical Fiber Danger Label.
93 03 11	ECM 644 03	Correct NT6X02GN to read NT6X02GM.
93 04 02	ECM 644 04	Update frame abbreviation name as
93 03 25	API 212 02	Add NT6X01XE XPM+ 3P Upgrade Kit. ILGE, IDTE, PLGE, or PDTE.
93 06 25	ECM 644 05	Updates per ECDs 011-17983 & 011-17458
93 08 10	ECM 644 06	Detail NT0X50AA provisioning for XPM+. Refer to building block provisioning.
93 09 02	ECM 644 10	Correct typos in EQUIPMENT FLAGGED: - NT6X46BA to NT6X46AB and - blank out the RATING column.
94 02 01	ECM 644 11	Update per ECDs: 011-18052 Introduce XPM+, and 018-41629 MD NT6X02BU, and add NT6X02UF, NT6X0251, NT6X0250.
94 03 17	ECM 644 12	Update per ET47593. Clarify Coax panel provisioning location.
94 07 21	ECM 644 14	Delete P0745307, which was introduced prematurely.
95 04 03	ECM 644 17	ECD 024-93969 Change MD'D NT6X02GM and replaced it with NT6X02JB.
95 04 24	ECM 644 18	Changes per ECD 024-93026. Introduce NT6X02WF, NT6X02XH, NTMX70AC, and NT6X01XG kits.
95 08 03	ECM 644 19	MD NT6X69LA as per ECM 581.
95 08 24	ECM 644 21	Return NT6X01ZE to STD Rating.
95 12 19	ECM 644 23	Add NTNX3601, NT6X01XK, and NT6X01XJ to the NT6X01BA per ECD 024-94920. Remove NT6X01XG from the NT6X01BA. MD NT6X02JB packfill and replace with NT6X02JH per ECD 024-95247.
96 02 15	ECM 644 24	Per ECD 024-95797 NTMX71AA is Replaced by NTMX71BA. NTMX71AA is not MD'd. Per ECD 024-95646 add NT6X03DD Upgrade kit. Add NT6X03DE XPM+ Upgrade kit to replace the NT6X02XH Kit. The NTMX70AC is MD'd and has no replacement. Add NT6X78AB CMR card.
96 04 19	ECM 383 09	Introduction of GTR, NT6X92EA.

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
96 07 29	ECM 644 26	Per 024-96554 introduce NT6X40FB, (NTZZ02HN) and NT6X40AD (NTZZ02GC). Show NT6X02UF bracket as AP always provided on SL6X01BA. (Remove NT6X02UF from NTZZ41AA. Clarify notes for the NT6X03DD and NT6X03DE kits. Clarify notes for the NT6X01WF and NT6X01WA per SR65044 and SR67142.
97 03 14	ECM 704 02	Consolidate ECM 644 issue 27 and provision information from NTZZ41AA PER 024-96494 MD NT6X05CA add NTMX90AB ref only. Per SR70780 show wiring list provide one per equipped module. Per SR73230 clarify notes for NT6X01XK Echo Canceller provisioning.
97 06 09	ECM 704 03	NT6X0250 is not "AP" correct doc. Remove NT6X02WF/NT7X05AA - 024-98050. Correct reference to NTMX70AC as MD'ed and show note replaced by NT6X03DE in 3P applications only.
97 07 23	ECM 704 04	Show NTZZ41AA items as AP-01. Show the frame as NT6X01BA not AB. Change AP-01 Items to AP for Frame level. Add info. for NTZZ41AA at RUL1. Show Universal GND Point information From RUL13 to 1.

The Frame LGE/DTE Non-ISDN is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Controller Array Shf Assy	NT6X0211	CPA1,0	4	X+14,X		AP
Frame Supervisory Panel	NT0X28AM	FSP	1	45		AP
Cable Support Bracket	NT6X02UF		1			AP
Basic NT6X01BA frame	NTZZ41AA		1	56R		RUL1
DC Cooling Inverter Unit	NT3X90AC			04		AP-01
Universal Framework Assy	NT0X25AH					AP-01
International Frame	NT6X01AB					AP-01
Universal Ground Point	NT6X0250			56R		AP-01
CPC Filler Faceplates	NT6X02AB			X		RUL1
Logic Return Cable Assembly	NT0X0009					RUL12
# IDTC Com CP (CEP)	NT6X02GA	IDTC		X		RUL1
# IDTC Com CP (CEP)	NT6X02GB	IDTC		X		RUL1
# IDTC Com CP (CEP)	NT6X02GF	IDTC		X		RUL1
# IDTC Com CP (CEP)	NT6X02GG	ILGC		X		RUL1
# ILGC Com CP (CEP)	NT6X02HA	ILGC		X		RUL1
# ILGC Com CP (CEP)	NT6X02HB	ILGC		X		RUL1
# IDTC Com CP (China)	NT6X02GC	IDTC		X		RUL1
# ILGC Com CP (China)	NT6X02GD	ILGC		X		RUL1
# IDTC Common CP (China)	NT6X02KA	IDTC		X		RUL1
# ILGC Common CP (China)	NT6X02KB	ILGC		X		RUL1
# IDTC Common CP (China)	NT6X02KC	IDTC		X		RUL1
# ILGC Common CP (China)	NT6X02KD	ILGC		X		RUL1
# IDTC Common CP (China)	NT6X02KE	IDTC		X		RUL1
# ILGC Common CP (China)	NT6X02KF	ILGC		X		RUL1
# ILGC, IDTC Com CP (SL-100UK)	NT6X02BD	ICPC		X		RUL1
# IDTC Common CP (DPNSS #1)	NT6X02BM	IDTC		X		RUL1
# IDTC Common CP (Mercury)	NT6X02BN	IDTC		X		RUL1
# IDTC Common CP (Spain)	NT6X02BE	IDTC		X		RUL1
# IDTC Common CP (Turkey)	NT6X02BA	IDTC		X		RUL1
# ILGC Common CP (Turkey)	NT6X02BF	ILGC		X		RUL1
# ILGC Common CP (Turkey)	NT6X02BK	ILGC		X		RUL1
# IDTC Com CP (Turkey) DMS-300	NT6X02JA	IDTC		X		RUL1
# IDTC Common CP (Turkey)	NT6X02QA	IDTC		X		RUL1

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
# ILGC/IDTC Com CP (Universal)	NT6X02BP	ILGC/IDTC		X		RUL1
# ILGC/IDTC Com CP (Universal)	NT6X02BW	ILGC/IDTC		X		RUL1
# IDTC Com CP (Universal)	NT6X02GE	ILGC/IDTC		X		RUL1
# IDTC Com CP (Universal)	NT6X02GH	ILGC/IDTC		X		RUL1
# ILGC/IDTC Com CP (Universal)	NT6X02GM	ILGC/IDTC/ PLGC/PDTC		X X		RUL1
# ILGC/IDTC Com CP (Universal)	NT6X02JB	ILGC/IDTC/ PLGC/PDTC		X X		RUL1
Packfill XPM or XPM+	NT6X02JH	ILGC/IDTC/ PLGC/PDTC		X X		RUL1
Designation Strip	P0743590		2	X+14,X		AP-02
Power Coverter +-5V +-12V	NT2X70AF		2	X+14,X	25	AP-02
Desig. Label for NT2X70AF	P0809960		2	X+14,X	25	AP-02
Universal Ground Point	NT6X0250			56R		RUL13
@ Int. XPM Non-ISDN 48V Cmn CP	NTZZ37BC	ILGC/IDTC/ PLGC/PDTC		X X		RUL1
4 MB MP Memory CP	NT6X47AC		2	X+14,X	16	AP-04
Filler Faceplate 0.875	NT0X50AA		2	X+14,X	15	AP-04
Time Switch CP	NT6X44EA		2	X+14,X	07	AP-04
ILGC/IDTC Processor CP	NT6X45BA		2	X+14,X	14	AP-04
Signal Proc. Memory Plus CP	NT6X46BB		2	X+14,X	13	AP-04
ILGC/IDTC Processor CP	NT6X45BA		2	X+14,X	12	AP-04
Msg Protocol & Downldbl Tone	NT6X69LB		2	X+14,X	10	AP-04
Signal Proc. Memory Plus CP	NT6X46BB		2	X+14,X	17	AP-04
ILGC/IDTC Processor CP	NT6X45BA		2	X+14,X	18	AP-04
Filler Faceplate 0.875	NT0X50AA		2	X+14,X	20	AP-04
Filler Faceplate 0.875	NT0X50AA		2	X+14,X	24	AP-04
Speech Bus Formatter CP	NT6X41AB		2	X+14,X	22	AP-04
Designation Strip	P0743128		2	X+14,X		AP-04
Wiring List Without XPM+	NT6X01WK			18, 65		AP-04
Power Coverter +-5V +-12V	NT2X70AF		2	X+14,X	25	AP-04
Desig. Label for NT2X70AF	P0809960		2	X+14,X	25	AP-04
@ Int. XPM+ Non-ISDN 48V Cm CP	NTZZ37BD	ILGC/IDTC/ PLGC/PDTC		X X		RUL1
Msg Protocol & Downldbl Tone	NT6X69LB		2	X+14,X	10	AP-05
Filler Faceplate 0.875	NT0X50AA		2	X+14,X	14	AP-05
XPM Plus Processor CP	NTMX77AA		2	X+14,X	12	AP-05
Bus Shorter CP	NT7X80AA		2	X+14,X	13	AP-05
Desig. Label for NT0X50AA	P0578498		2	X+14,X	14	AP-05

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Faceplate 0.875	NT0X50AA		2	X+14,X	15	AP-05
Filler Faceplate 0.875	NT0X50AA		2	X+14,X	16	AP-05
Desig. Label for NT0X50AA	P0578498		2	X+14,X	16	AP-05
Bus Shorter CP	NT7X80AA		2	X+14,X	17	AP-05
Filler Faceplate 0.875	NT0X50AA		2	X+14,X	18	AP-05
Desig. Label for NT0X50AA	P0578498		2	X+14,X	18	AP-05
Filler Faceplate 0.875	NT0X50AA		2	X+14,X	20	AP-05
XPM+ Terminator Paddleboard	NTMX71BA		4	X+14,X	8R, 20R	AP-05
Speech Bus Formatter CP	NT6X41AB		2	X+14,X	22	AP-05
Filler Faceplate 0.875	NT0X50AA		2	X+14,X	24	AP-05
Time Switch CP	NT6X44EA		2	X+14,X	07	AP-05
Designation Strip	P0743128		2	X+14,X		AP-05
Power Coverter +-5V +-12V	NT2X70AF		2	X+14,X	25	AP-05
Desig. Label for NT2X70AF	P0809960		2	X+14,X	25	AP-05
Desig. Label for NT7X80AA	P0742962		4			AP-05
Desig. Label for NTMX77AA	P0735417		2			AP-05
Wiring List With XPM+	NT6X01WL			18, 65		AP-05
# PCM-30 Interface CP	NT6X27AA			X+14,X	01-04	RUL2
# PCM-30 Interface CP	NT6X27AB			X+14,X	01-04	RUL2
# PCM-30 Interface CP	NT6X27AC			X+14,X	01-04	RUL2
PCM-30 Interface CP	NT6X27BB			X+14,X	01-04	RUL2
Filler Faceplate 0.875	NT0X50AA			X+14,X	01-04	RUL2
PCM-30 Sig.Interface CPs.	NT6X28AA		2	19		RUL2
NT6X28AA Designation label	P0653635		2	19		RUL2
# CPC Coax Panel (BNC Conn)	NT6X01ZA		2	32R, 65R		RUL2
# CPC Coax Panel (BNC Conn)	NT6X01ZD		2	32R, 65R		RUL2
CPC Coax Panel (BT43 Conn)	NT6X01ZE		2	32R, 65R		RUL2
# CPC Coax Panel (BNC Conn)	NT6X01ZF		2	32R, 65R		RUL2
Coax Cable Kit (02)	NT6X0126		2	32R, 65R		RUL2
Wiring List	NT6X01WH		2	32R, 65R		RUL2
Coax Cable Kit (01)	NT6X0127		2	32R, 65R		RUL2
Wiring List	NT6X01WJ		2	32R, 65R		RUL2
DS30A LCM Custom Block	NTZZ02KA		1			RUL3
DS30A LCM Interface CP	NT6X48AA		2	X+14,X	05, 06	AP-06
Design. Label NT6X48AA	P0626877		2	X+14,X	05, 06	AP-06
Filler Faceplate 0.875	NT0X50AA			X+14,X	05, 06	RUL3
# Connector Key Bracket	P0638261			X+14,X	05R, 06R	RUL3
Connector Key Bracket	P0745307			X+14,X	05R, 06R	RUL3
# Time Switch	NT6X44AB		2	X+14,X	07	RUL22
Time Switch CP	NT6X44EA		2	X+14,X	07	RUL22

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
# Tone Receiver Card CP	NT6X92AA			X+14,X	08,09	RUL4
@ UTR Custon Block	NTZZ41CA					RUL4
# Tone Receiver Card CP	NT6X92CA			X+14,X	08,09	AP-07
Design.Label NT6X92CA	P0677831					AP-07
GTR Custon Block	NTZZ02FC					RUL4
Global Tone Receiver CP	NT6X92EA			X+14,X	08,09	AP-08
Design.Labels (NT6X92EA).	P0835224					AP-08
Filler Faceplate 0.875	NT0X50AA			X+14,X	08,09	RUL4
Continuity Tone Detector	NT6X70AA			X+14,X	09	RUL4
Cont. Tone Detector & wiring	NT6X01WA			X+14,X	09	RUL4
CMR CP'S and Labels	NTZZ02EA		2	X+14,X	8,9,11	RUL23
Class Modem Resource card	NT6X78AB		2	X+14,X	8,9,11	AP-09
Option Slot Upg. Kit for 3P	NT6X03DD		1			AP-09
# Msg Interface CP	NT6X43BA		2	X+14,X	10	AP-02
# Msg Interface CP (Mercury)	NT6X43DA		2	X+14,X	10	AP-02
# Msg Interface CP (Spain)	NT6X43EA		2	X+14,X	10	AP-02
# Msg Interface CP (CEP)	NT6X43FA		2	X+14,X	10	AP-02
# Msg Interface CP (TurkDMS300)	NT6X43GA		2	X+14,X	10	AP-02
# Msg Protocol CP	NT6X69AA		2	X+14,X	10	AP-02
# Msg Protocol & Tone (Turkey)	NT6X69BB		2	X+14,X	10	AP-02
# Msg Protocol & Tones CP (UK)	NT6X69DA		2	X+14,X	10	AP-02
# Msg Protocol & Tones CP (CEP)	NT6X69FA		2	X+14,X	10	AP-02
# New Messaging CP (China)	NT6X69KA		2	X+14,X	10	AP-02
# Msg Protocol & Downldbl Tone	NT6X69LA		2	X+14,X	10	AP-02
# Msg Protocol & Downldbl Tone	NT6X69LA			X+14,X	10	RUL9
Msg Protocol & Downldbl Tone	NT6X69LB			X+14,X	10	RUL9
# Tone Receiver Card CP	NT6X92AA			X+14,X	11	RUL4
# Tone Receiver Card CP	NT6X92CA			X+14,X	11	RUL4
Global Tone Receiver CP	NT6X92EA			X+14,X	11	RUL4
CCITT N5 Tone Receiver CP	NT6X62DA			X+14,X	11	RUL15
Filler Faceplate 0.875	NT0X50AA		2	X+14,X	11	RUL15
CPCE Tone Generator CP (Turk)	NT6X79BA		2	X+14,X	11	AP-02
# ILGC/IDTC Processor CP	NT6X45AD		2	X+14,X	12	AP-02
# ILGC/IDTC Processor CP	NT6X45AD			X+14,X	12	RUL5
ILGC/IDTC Processor CP	NT6X45BA			X+14,X	12	RUL5
XPM Plus Processor CP	NTMX77AA		2	X+14,X	12	AP-02
XPM Plus Processor CP	NTMX77AA			X+14,X	12	RUL5

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
# Signal Proc. Memory Plus CP	NT6X46AB		2	X+14,X	13	AP-02
# Signal Proc. Memory Plus CP	NT6X46BA		2	X+14,X	13	AP-02
# Signal Proc. Memory Plus CP	NT6X46BB		2	X+14,X	13	AP-02
Signal Proc. Memory Plus CP	NT6X46BB			X+14,X	13	RUL5
Bus Shorter CP	NT7X80AA		2	X+14,X	13	AP-15
Bus Shorter CP	NT7X80AA			X+14,X	13	RUL5
Comm Periph Ctl BP Paddle	NT6X1205		2	X+14,X	13R	AP-02
# ILGC/IDTC Processor CP	NT6X45AD		2	X+14,X	14	AP-02
# ILGC/IDTC Processor CP	NT6X45AD			X+14,X	14	RUL5
ILGC/IDTC Processor CP	NT6X45BA			X+14,X	14	RUL5
Filler Faceplate 0.875	NT0X50AA			X+14,X	14	RUL5
# Master Memory Processor CP	NT6X47AB			X+14,X	15	RUL5
Filler Faceplate 0.875	NT0X50AA			X+14,X	15	RUL5
# Master Memory Processor CP	NT6X47AB		2	X+14,X	16	AP-02
4 MB MP Memory CP	NT6X47AC		2	X+14,X	16	AP-02
4 MB MP Memory CP	NT6X47AC			X+14,X	16	RUL5
Filler Faceplate 0.875	NT0X50AA			X+14,X	16	RUL5
# Signal Proc. Memory Plus CP	NT6X46AB		2	X+14,X	17	AP-02
# Signal Proc. Memory Plus CP	NT6X46BA		2	X+14,X	17	AP-02
# Signal Proc. Memory Plus CP	NT6X46BB		2	X+14,X	17	AP-02
Signal Proc. Memory Plus CP	NT6X46BB			X+14,X	17	RUL5
Bus Shorter CP	NT7X80AA		2	X+14,X	17	AP-15
Bus Shorter CP	NT7X80AA			X+14,X	17	RUL5
# ILGC/IDTC Processor CP	NT6X45AD		2	X+14,X	18	AP-02
# ILGC/IDTC Processor CP	NT6X45AD			X+14,X	18	RUL5
ILGC/IDTC Processor CP	NT6X45BA			X+14,X	18	RUL5
Filler Faceplate 0.875	NT0X50AA			X+14,X	18	RUL5
PCM 30 Signaling CP	NT6X28AA			X+14,X	19	RUL6
Filler Faceplate 0.875	NT0X50AA			X+14,X	19	RUL6
Echo Cancllr Ctrl Paddle Bd	NTCX50AA		2	X+14,X	19R	RUL16
ECC Interconnect cable assy	NTNX3390		1			RUL16
ECC Wiring List	NT6X01WF		1			RUL16
XPM+ Terminator Paddleboard	NTMX71BA		4	X+14,X	8R,20R	AP-15
XPM+ Terminator Paddleboard	NTMX71BA		4	X+14,X	8R,20R	RUL5
Filler Faceplate 0.875	NT0X50AA		2	X+14,X	20	AP-01

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Comm Periph Ctl BP Paddle	NT6X1205		2	X+14,X	20R	AP-13
Channel Supervisiom Msg CP	NT6X42AA		2	X+14,X	21	AP-02
Channel Supervisiom Msg CP	NT6X42AA			X+14,X	21	RUL7
CSM and CCITT N5 Splitter CP	NT6X42CA			X+14,X	21	RUL15
Speech Bus Formatter CP	NT6X41AB		2	X+14,X	22	AP-02
Speech Bus Formatter CP	NT6X41AB			X+14,X	22	RUL8
# DS-30 Network Interface CP	NT6X40AB		2	X+14,X	23	AP-02
DS30 CP'sa and Labels	NTZZ02GB		1			RUL9
DS30 Network Interface CP	NT6X40AC		2	X+14,X	23	AP-10
Design Label NT6X40AC	P0695397					AP-10
@ DS30 Network Interface Kit	NTZZ02GC		1			RUL9
DS30 Network Interface CP	NT6X40AD		2	X,X+14	23	AP-11
Design Label NT6X40AD	P0834806		2			AP-11
Connector Key Bracket	P0638263		2	X,X+14	23	AP-11
# DS512 Network Interface CP	NT6X40CA			X,X+14	23	RUL9
# DS512 Paddle Board	NT6X40DA			X,X+14	23R	RUL9
# Fiber I/F H/W Assembly	NT6X02BU			X	23R	RUL9
UFxPM Kit	NT6X02UF			X,X+14	23R	RUL9
DS-512 Interface	NTZZ02HM		1			RUL9
DS-512 XPM Interface CP	NT6X40FA		2	X+14,X	23	AP-12
Desig. Label (NT6X40FA)	P0729895		2	X+14,X	23	AP-12
DS-512 XPM Paddle Board	NT6X40GA		2	X+14,X	23R	AP-12
Fiber Cable Kit	NT6X0251		1	X	23R	AP-12
Optical Fiber Danger Label	P0736273		2	X+14,X		AP-13
DS512 Interface	NTZZ02HN		1			RUL9
DS512 Network Interface CP	NT6X40FB		2	X,X+14	23	AP-14
DS-512 XPM Paddle Board	NT6X40GA		2	X+14,X	23R	AP-14
Desig. Label (NT6X40FA)	P0729895		2	X+14,X	23	AP-14
Fiber Cable Kit	NT6X0251		1	X	23R	AP-14
Optical Fiber Danger Label	P0736273		2	X+14,X		AP-13
# Power Converter	NT2X70AD		2	X+14,X	25	AP-02
# Power Converter Change Kit	NT2X70AZ			X+14,X	25	RUL10
# Power Coverter +-5V +-12V	NT2X70AE		2	X+14,X	25	RUL10

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
NT2X70AF Upgrade Kit	NT2X70AY		1	X+14,X	25	RUL16
Power Coverter +-5V +-12V	NT2X70AF		2	X+14,X	25	AP-18
Desig. Label for NT2X70AF	P0809960		2	X+14,X	25	AP-15
# Cooling Inverter Unit	NT3X90AA	CU		04		RUL11
# Cooling Inverter Unit	NT3X90AB	CU		04		RUL11
DC Fan Cooling Unit	NT3X90AC	CU		04		RUL11
# XPM+ Upgrade Kit	NT6X01XE			X		RUL5
CCITT N5 Wiring List	NT6X01WG			X+14,X		RUL15
Echo Cancellor Wiring List	NT6X01WF			X+14,X		RUL16
Wiring List With XPM+	NT6X01WL			18,65		RUL5
Wiring List Without XPM+	NT6X01WK			18,65		RUL5
# 3P XPM Plus Change Kit	NT6X02XH		1	18,51		RUL18
# 3P XPM Plus Paddlecard Kit	NTMX70AC		1	18,51		RUL19
Enhanced 3P XPM+ Upg. Kitt	NT6X03DE		1	18,51		RUL24
XPM+ Terminator Paddleboard	NTMX71BA		4	X+14,X	8R,20R	AP-02
Bus Shorter CP	NT7X80AA		2	X+14,X	13	AP-02
XPM Plus Processor CP	NTMX77AA		2	X+14,X	12	AP-02
Bus Shorter CP	NT7X80AA		2	X+14,X	17	AP-02
Desig. Label for NTMX77AA	P0735417		2			AP-02
Desig. Label for NT7X80AA	P0742962		4			AP-02
XPM Plus Echo Cancellor Kit	NT6X01XK		1	X+14,X		RUL20
ECC Cable Support Brkt Kit	NT6X01XJ		1	X+14,X		RUL21
ECC Cable for Frames	NTNX3601		1	X+14,X		RUL21
Desig. Label for NT6X27AB	P0678466					RUL7
Desig. Label for NT6X27AC	P0706381					RUL7
Desig. Label for NT6X27BB	P0739157					RUL7
Desig. Label for NT6X28AA	P0653635					RUL7
Desig. Label for NT6X48AA	P0626877					RUL7
Desig. Label for NT6X70AA	P0628358					RUL7
Desig. Label for NT6X92AA	P0653636					RUL7
Desig. Label for NT6X92CA	P0677831					RUL7
Desig. Label for NT6X92EA	P0835224					RUL7
Desig. Label for NTMX77AA	P0735417					RUL7
Desig. Label for NT7X80AA	P0742962					RUL7

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
	Desig. Label for NT6X78AB	P0731980					RUL14
	Desig. Label for NT2X70AD	P0664133					RUL14
#	Desig. Label for NT2X70AE	P0698943					RUL14
	Desig. Label for NT6X27AA	P0647825					RUL14
	Desig. Label for NT6X27AB	P0678466					RUL14
	Desig. Label for NT6X27AC	P0706381					RUL14
	Desig. Label for NT6X27BB	P0739157					RUL14
	Desig. Label for NT6X28AA	P0653635					RUL14
	Desig. Label for NT6X44AB	P0664134					RUL14
	Desig. Label for NT6X45AD	P0670778					RUL14
	Desig. Label for NT6X47AB	P0666374					RUL14
	Desig. Label for NT6X48AA	P0626877					RUL14
	Desig. Label for NT6X70AA	P0628358					RUL14
	Desig. Label for NT6X92AA	P0653636					RUL14
	Desig. Label for NT6X92CA	P0677831					RUL14
	Desig. Label for NT6X92EA	P0835224					RUL14
	Desig. Label for NTMX77AA	P0735417					RUL14
	Desig. Label for NT7X80AA	P0742962					RUL14
	Desig. Label for NTMX77AA	P0735417		2			AP-15
	Desig. Label for NT7X80AA	P0742962		4			AP-15

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT3X90AA		NT3X90AC
NT3X90AB		NT3X90AC
NT6X02GA		NT6X02GM
NT6X02GB		NT6X02GM
NT6X02GF		NT6X02GM
NT6X02GG		NT6X02GM
NT6X02HA	MD	NT6X02GM
NT6X02GC		NT6X02GM
NT6X02GD		NT6X02GM
NT6X02BA	MD	NT6X02GM
NT6X02BD	MD	NT6X02GM
NT6X02BE	MD	NT6X02GM
NT6X02BF	MD	NT6X02GM
NT6X02BK	MD	NT6X02GM
NT6X02BM	MD	NT6X02GM
NT6X02BN	MD	NT6X02GM
NT6X02BP		NT6X02GM
NT6X02BW		NT6X02GM

PEC	RATING	REPLACED BY PEC
NT6X02GE		NT6X02GM
NT6X02GH		NT6X02GM
NT6X02JA	MD	NT6X02GM
NT6X02KA	MD	NT6X02GM
NT6X02KB	MD	NT6X02GM
NT6X02KC	MD	NT6X02GM
NT6X02KD	MD	NT6X02GM
NT6X02QA	MD	NT6X02GM
NT6X27AA	A&M	NT6X27BB
NT6X27AB	A&M	NT6X27BB per RUL2
NT6X27AC		NT6X27BB
NT6X40CA, NT6X40DA		NT6X40FA, NT6X40GA
NT6X43BA		NT6X69LB
NT6X43DA		NT6X69LB
NT6X43EA		NT6X69LB
NT6X43FA		NT6X69LB
NT6X43GA		NT6X69LB
NT6X45AD		NT6X45BA
NT6X47AB		NT6X47AC
NT6X46AB		NT6X46BB
NT6X46BA		NT6X46BB
NT6X69AA		NT6X69LB
NT6X69BB		NT6X69LB
NT6X69DA		NT6X69LB
NT6X69FA		NT6X69LB
NT6X69KA		NT6X69LB
NT6X92AA		NT6X92CA
NT6X02GM	MD	NT6X02JB
NT2X70AE	MD	NT2X70AF
P0698943	MD	P0809960
NT2X70AZ	MD	NT2X70AY
P0638261	A&M	P0745307
NT6X01ZA	A&M	
NT6X01ZD	A&M	
NT6X01ZF	A&M	
NT6X01XE	A&M	NT6X02XH
NT6X40AB	MD	NT6X40AC
NT6X44AB	MD	NT6X44AA
NT6X02HB	MD	NT6X02JB
NT6X69LA	MD	NT6X69LB
NT6X02JB	MD	NT6X02JH
NTMX70AC	MD	No Replacement
NT6X02XH	MD	NT6X03DE
NT6X92CA	STD *	NT6X92EA
NTZZ37CH	MD	NTZZ02HM and NT6X02UF

PEC	RATING	REPLACED BY PEC
NT6X02BU	MD	NT6X02UF and NT6X0251
NTZZ41CA	STD *	NTZZ02FC
NT6X01XE	A&M	NT6X02XH
NTMX70AC	MD	No Replacement
NT6X02XH	MD	NT6X03DE

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.

* Meaning NT6X92CA is still STD. It will be replaced by NT6X92EA. Check availability before ordering the NT6X92EA.

NOTES:

- 1) One ILGC, IDTC, PLGC, or PDTC may be equipped with a common CP in 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) The frame name will be derived from the bottom module within the frame (i.e. first one assigned). Although a PLGC or ILGC module and PDTC or IDTC respectively may be combined in the same frame, it is expected that some telcos will want frames dedicated to line functions and separate frames dedicated to digital trunking functions. With mixed frames it is harder to enforce the maximum 50 ft. cabling limit between ILCM and associated ILGC. With frames having non specialized function it is harder to rationalize cabling. For example IDTE with IDTC only will have cables to the ORB or DSX but no cabling to the ILCM (i.e. less cables, less cable congestion, which may be critical in an office with low ceiling height where there is no room for auxiliary cable rack).
- 3) Each ILGC, IDTC, PLGC, or PDTC module requires four cables per plane to the Speech Link Connecting Panel. The four

Speech Link Cable Groups from one module are to be adjacent in one PSL panel. One ILGC, IDTC, PLGC, or PDTC module uses up one quarter of a PSL panel on SLC frame.

RULES:

@ indicates a customized building block described in RUL10.

AP 1) When PEC NT6X01BA is ordered, these items are provided.

AP-01 1) This PEC is always provided with NTZZ41AA packfill.

AP-02 1) NT6X44AB was always provided with Common CPs NT6X02BA, NT6X02BD, NT6X02BE, NT6X02BF, NT6X02BK, NT6X02BM, NT6X02BN, NT6X02GA, NT6X02GB, NT6X02GC, NT6X02GD, NT6X02GF, NT6X02GG, NT6X02HA, NT6X02HB, NT6X02JA, NT6X02KA, NT6X02KB, NT6X02KC, NT6X02KD, NT6X02KE, NT6X02KF, and NT6X02QA.

2) NT6X43BA was always provided with Common CPs NT6X02BA, and NT6X02QA.

3) NT6X43DA was always provided with Common CP NT6X02BD.

4) NT6X43EA was always provided with Common CP NT6X02BE.

5) NT6X43FA was always provided with Common CP NT6X02GA.

6) NT6X43GA was always provided with Common CP NT6X02JA.

7) NT6X69AA was always provided with Common CP NT6X02BF.

8) NT6X69BB was always provided with Common CP NT6X02BK.

9) NT6X69DA was always provided with Common CPs NT6X02BM, and NT6X02BN.

10) NT6X69FA was always provided with Common CPs NT6X02GB, NT6X02GF, NT6X02GG, NT6X02HA, and NT6X02HB.

11) NT6X69KA was always provided with Common CPs NT6X02GC, NT6X02GD, NT6X02KA, NT6X02KC, NT6X02KD, NT6X02KE, and NT6X02KA.

12) NT6X69LA was always provided with Common CPs NT6X02BP, NT6X02BW, NT6X02GE, and NT6X02GH.

- 13) NT6X45AD was always provided with Common CPs NT6X02BA, NT6X02BD, NT6X02BE, NT6X02BF, NT6X02BK, NT6X02BM, NT6X02BN, NT6X02GA, NT6X02HA, NT6X02JA, NT6X02KA, NT6X02KB, NT6X02KC, NT6X02KD, and NT6X02QA.
- 14) NT6X46AB was always provided with Common CPs NT6X02BA, NT6X02BD, NT6X02BE, NT6X02BF, NT6X02BK, NT6X02BM, NT6X02BN, NT6X02GA, NT6X02HA, NT6X02JA, NT6X02KA, NT6X02KB, NT6X02KC, NT6X02KD, and NT6X02QA.
- 15) NT6X46BA was always provided with Common CPs NT6X02BP, NT6X02BW, NT6X02GB, NT6X02HB, NT6X02KE, and NT6X02KF.
- 16) NT6X46BB was always provided with Common CPs NT6X02GC, NT6X02GD, NT6X02GE, NT6X02GF, NT6X02GG, and NT6X02GH.
- 17) NT6X47AB was always provided with Common CPs NT6X02BA, NT6X02BD, NT6X02BE, NT6X02BF, NT6X02BK, NT6X02BM, NT6X02BN, NT6X02BP, NT6X02GA, NT6X02GB, NT6X02GC, NT6X02GD, NT6X02GE, NT6X02GF, NT6X02GG, NT6X02HA, NT6X02HB, NT6X02JA, NT6X02KA, NT6X02KB, NT6X02KC, NT6X02KD, NT6X02KE, NT6X02KF, and NT6X02QA.
- 18) NT6X47AC was always provided with Common CPs NT6X02BW, and NT6X02GH.
- 19) NT6X42AA was always provided with Common CPs NT6X02BA, NT6X02BD, NT6X02BE, NT6X02BF, NT6X02BK, NT6X02BM, NT6X02BN, NT6X02BP, NT6X02BW, NT6X02GA, NT6X02GB, NT6X02GC, NT6X02GD, NT6X02GE, NT6X02GF, NT6X02GG, NT6X02GH, NT6X02HA, NT6X02HB, NT6X02JA, NT6X02KA, NT6X02KB, NT6X02KC, NT6X02KD, NT6X02KE, NT6X02KF, and NT6X02QA.
- 20) NT6X41AB was always provided with Common CPs NT6X02BA, NT6X02BD, NT6X02BE, NT6X02BF, NT6X02BK, NT6X02BM, NT6X02BN, NT6X02BP, NT6X02BW, NT6X02GA, NT6X02GB, NT6X02GC, NT6X02GD, NT6X02GE, NT6X02GF, NT6X02GG, NT6X02GH, NT6X02HA, NT6X02HB, NT6X02JA, NT6X02KA, NT6X02KB, NT6X02KC, NT6X02KD, NT6X02KE, NT6X02KF, and NT6X02QA.
- 21) NT6X40AB was always provided with Common CPs NT6X02BA, NT6X02BD, NT6X02BE, NT6X02BF, NT6X02BK, NT6X02BM, NT6X02GA, NT6X02HA, NT6X02JA, NT6X02KA, and NT6X02KB.
- 22) NT6X40AC was always provided with Common CPs NT6X02BN, NT6X02BP, NT6X02BW, NT6X02GB, NT6X02GC, NT6X02GD, NT6X02GE, NT6X02GF, NT6X02GG, NT6X02GH, NT6X02HB, NT6X02KC, NT6X02KD, NT6X02KE, NT6X02KF, and NT6X02QA.

23) NT2X70AD was always provided with Common CPs NT6X02BA, NT6X02BD, NT6X02BE, NT6X02BF, NT6X02BK, NT6X02BM, NT6X02BN, NT6X02GA, NT6X02HA, NT6X02JA, NT6X02KA, NT6X02KB, and NT6X02QA.

24) NT6X1205 was always provided with Common CPs NT6X02BA, NT6X02BD, NT6X02BE, NT6X02BF, NT6X02BK, NT6X02BM, NT6X02BN, NT6X02GA, NT6X02HA, NT6X02JA, NT6X02KA, NT6X02KB, NT6X02KC, NT6X02KD, and NT6X02QA.

25) NT6X79BA was always provided with Common CP NT6X02BF.

AP-03 1) This item is always provided in NT6X02JH Packfill.

AP-04 1) This item is always provided in NTZZ37BC.

AP-05 1) This item is always provided in NTZZ37BD.

AP-06 1) This item is always provided in NTZZ02KA.

AP-07 1) This item is always provided in NTZZ41CA.

AP-08 1) This item is always provided in NTZZ02FC.

AP-09 1) This item is always provided in NTZZ02EA.

AP-10 1) This item is always provided in NTZZ02GB.

AP-11 1) This item is always provided in NTZZ02GC.

AP-12 1) This item is always provided in NTZZ02HM.

AP-13 1) This item is always provided in NT6X0251.

AP-14 1) This item is always provided in NTZZ02HN.

AP-15 1) This item is always provided in NT6X03DE Enhanced 3P Back-plane XPM+ Upgrade Kit provisioned per RUL24.

RUL1 1) For new International applications Provide NTZZ41AA for the NT6X01BA Basic equipment. Also, for each EQUIPPED Module provide one of the following (3) Packfills.

* For offices with the XPM or XPM+ feature provide:

- one (1) NT6X02JH packfill for either XPM or XPM+

* For offices with the XPM (MP/SP/FP) feature provide:

- one (1) NTZZ37BC Int. XPM Non-ISDN custom packfill

* For offices with the XPM Plus (UP) feature provide:

- one (1) NTZZ37BD Int. XPM+ Non-ISDN custom packfill

2) If the second module is not equipped provide:

- one (1) NT6X02AB Filler Faceplate Kit.
Refer to Section EMA2-06-FFP-1 for NT6X02AB information.

3) For existing frames not previously equipped with NT6X0250:

- one (1) NT6X0250 Universal Ground Point.

Provide one (1) NT6X0250 Universal Ground Point per new frame for Initials and Extensions. Provision one (1) NT6X0250 per frame when NT6X02UF UFXPM mechanicals are provisioned for field upgrades to fiber or when XPM+ upgrade kits are provisioned. Only one (1) NT6X0250 is ever required per frame. If the frame was upgraded to FIBER then it should have received an NT6X0250 upgrade. When XPM+ upgrades are required, No additional NT6X0250's are needed.

RUL2 1) For new applications, provide for each module equipped with:

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

Otherwise provide for each unequipped CP slot:

- one (1) NT0X50AA Filler Faceplate.

Do not provision NT6X27BB in a frame equipped with NT6X27AAs or NT6X27ABs.

For additions and maintenance in frames equipped with NT6X27ACs use NT6X27BBs.

When the enhancements of the NT6X27BB are required in a frame equipped with NT6X27AAs or NT6X27ABs, each of the NT6X27AA or NT6X27AB in the frame must be replaced with a NT6X27BB, and, when PCM-30 coaxial interface is required, the frame must be equipped with the grounded NT6X01 Coaxial Patch Panel, as detailed in RUL2 3).

One NT6X27AA/AB/AC/BB provides two ports per circuit pack. The following table is a listing of PCM 30 ports per circuit pack location.

CP POS	4	3	2	1
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 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). SAVE 2) For each LGC/DTC module, equipped with NTZZ37BC, NTZZ37BD or NT6X02JH which supports PCM-30 links (NT6X27 PCM-30 interface), or for each LGC module, which supports links to an LCM (NT6X48 DS30A LCM Interface CPs), and the LCM is equipped with a PCM-30 line drawer such as the NT6X05CA, Provide:

- Two (2) NT6X28AA PCM-30 Sig. Interface CP's per module.

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

For each unequipped CP slot 19, provide:

- one (1) NT0X50AA Filler Faceplate.

3) PCM-30 COAXIAL INTERFACE:

When 75 ohm coaxial PCM 30 interface cabling is required, a Patch Panel, grounded to the frame, must be provided as follows:

Coaxial Interface BNC Connectors, Grounded on Receive:

When coaxial interface cabling via 75 Ohm BNC connectors grounded on receive (Brazil, Curacuo) is required by the customer, provide for each frame:

- two (2) NT6X01ZA/ZD Coaxial Panels.

NT6X01ZA may not be provisioned when NTCX50AA/AB is provisioned per RUL16.

Coaxial Interface BT43 Connectors, Grounded on Transmit:

When coaxial interface cabling via 75 Ohm BT43 connectors grounded on transmit is required by the customer, and four (4) or more NT6X27s per module are provisioned, provide for each frame:

- to connect the first four (4) NT6X27s provisioned in CP slots 04 and 03:
 - two (2) NT6X01ZE Coaxial Panels,
- to connect the 5th and 6th NT6X27s, when provisioned, in CP slots 02:
 - two (2) NT6X0126 Coax Cable Kits, and
 - one (1) NT6X01WH Wiring List per equipped module.
- to connect the 7th and 8th NT6X27s, when provisioned, in CP slots 01:
 - two (2) NT6X0127 Coax Cable Kits, and
 - one (1) NT6X01WJ Wiring List per equipped module.

Coaxial Interface BNC Connectors, Grounded on Transmit:

When coaxial interface cabling via 75 Ohm BNC connectors grounded on transmit (China, NETAS), is required by the customer provide for each frame:

- two (2) NT6X01ZF Coaxial Panels.

- RUL3 1) For each LGC module equipped with NT6X02GM/JB/JH Common CP, provide as per customer requirements:

- maximum four (4) NT6X48AA DS30A LCM Interface CPs, and
- maximum four (4) P0745307 Connector Key Brackets (one P0745307 for each NT6X48AA provided).

Otherwise for each unequipped position, provide:

- one (1) NT0X50AA Filler Faceplate.

For each DTC module equipped with NT6X02GM/JB/JH common CP, NT6X48AA are not required, provide:

- four (4) NT0X50AA Filler Faceplates.

- 2) One pair of NT6X48AA provides interfaces for up to ten (10) DS30A ports (links) from LCM's. Assign one member of the pair to LGA 0 (lower shelf within the module) and the other to LGA 1 (upper shelf within the module). One member of the pair has the same DS30A ports as the other member of the card pair. Both cards of the pair occupy the same CP position but on different shelves.
- 3) When both pair of DS-30A interface circuit packs are equipped, assign the ports as follows:

19,17,18,16,15,13,14,12,11,9,10,8,7,5,6,4

This shows the assignment of 16 ports for a non concentrating configuration. If a concentrating configuration were to be used, the remaining four ports would be assigned in the following sequence:

3,1,2,0

When there are ten (10) or less DS-30A ports required and only one (1) pair of DS-30A interface packs has been provisioned, assign the ports as follows:

19,18,15,14,11,10,7,6,3 and 2

For initial offices, always provide two (2) pairs of NT6X48AA. When a second pair of cards is provided in an extension, assign the ports per the two pair configuration.

- 4) The following is a listing of DS30A ports according to the slot position of the DS30A LCM Interface CP, NT6X48AA.

	CP POS 6	CP POS 5
PORT	0	2
PORT	1	3
PORT	4	6
PORT	5	7
PORT	8	10

PORT	9	11
PORT	12	14
PORT	13	15
PORT	16	18
PORT	17	19

RUL4 1) For each LGC or DTC module equipped with NT6X02GM/JB/JH Common CP, provide as per customer requirements, except when CCITT N5 Signaling feature is required (RUL15):

- zero (0),
- two (2) or
- four (4) NT6X92CA Universal Tone Receiver (UTR) CPs.

One pair of Universal Tone Receiver CP's contains the equivalent of thirty receivers.

(OR)

- 1A) Provide two (2) or four (4) NT6X92EA in slots 8, 9 or 11 per PDTC/PLGC module for DIGITONE receivers (LINES) or MF receivers (Trunks). Each of the NT6X92EA circuit pack provides tone reception for PCM 30 Channels. The NT6X92EA is a CCITT compliant tone receiver. (Complies with CCITT Recommendations Q.24, Q.323 and Q.455 for DTMF and MF tone reception) Check availability before ordering the NT6X92EA. DO NOT mix NT6X92 CP types on the same shelf.

For DMS-300, the second UTR card may be equipped in slot 11 if slot 9 is occupied by an NT6X70AA Continuity Tone Detector. Otherwise equip in slots 8 & 9.

One member of each UTR pair is assigned to the lower shelf in the module and its mate is assigned to the upper shelf of the same module.

Provide UTR CP's if the module has incoming MF/MFC digital trunks, if the module has lines that originate as digitone lines, and/or if CCIS/CCS7 tones are received for continuity checking.

- 2) For Continuity Tone Detector Functionality, provide per module, as per customer requirements:

- two (2) NT6X70AA Continuity Tone Detector CPs (in position 9).

For each NT6X70AA ordered, provide:

- one (1) NT6X01WA Continuity Tone Detector Wiring.
NT6X01WA wiring is located in document LW6X01BA.
One strap, per shelf, with NT6X70AA in Pos 9.
(26AWG) Pin 49B to Pin 80B .

3) Otherwise, for each unequipped CP slot 8 and/or 9 provide:

- one (1) NT0X50AA Filler Faceplate.

RUL5 1) For offices with the XPM (MP/SP/FP) feature, provide for each LGC or DTC module equipped with NT6X02GM Common CP:

- six (6) NT6X45BA ILGC/IDTC Processor CPs,
- two (2) NT6X47AC 4MB MP Memory CPs,
- two (2) NT0X50AA Filler Faceplates in slot 15,
- four (4) NT6X46BB Signal Processor Memory Plus CPs, and
- one (1) NT6X01WK Wiring List Without XPM+ Application

Alternatively, for offices with the XPM Plus (UP) feature, provide for each LGC or DTC module equipped with NT6X02GM/JB/JH Common CP:

- two (2) NTMX77AA XPM Plus Processor CPs,
- four (4) NTMX71BA XPM Plus Paddleboards, and
- eight (8) NT0X50AA Filler Faceplates in CP slots 14, 15, 16 and 18,
- four (4) NT7X80AA Bus Shorter CPs, and
- one (1) NT6X01WL Wiring List With XPM+ Application.

2) To convert one PDTC module equipped for XPM to XPM+ provide:

- one (1) NT6X01XE XPM+ 3P Upgrade Kit.

The NT6X01XE kit includes:

- two (2) NTMX77AA XPM Plus Processor CPs,
- two (2) NTMX71AA XPM Plus Paddleboards,
- four (4) NT7X80AA Bus Shorter CPs, and
- backplane wiring modifications for XPM+.

The XPM CPs NT6X45BA, NT6X47AC, and NT6X46BB must be removed before the NT6X01XE XPM+ 3P Upgrade Kit is applied.

The NT6X01XE kit has been replaced by the NT6X02XH field upgrade kit.

If the customer has the NT6X01XE kit in stock the NTMX70AC kit may be used to provide backpanel modifications necessary for the XPM+ upgrade. (NT6X02XE, NT6X02XH and NTMX70AC Retired use NT6X03DE kit)

- RUL6 1) For each equipped LGC/DTC which supports PCM-30 links, or for each equipped LGC module which supports links to an LCM (NT6X48AA DS30A LCM Interface CPs provided per RUL3), and the LCM is equipped with a PCM-30 line drawer such as the NT6X05CA, provide:

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

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

- 2) For each Unequipped CP slot 19 provide:

- one (1) NT0X50AA Filler Faceplate.

- RUL7 1) For each LGC or DTC module equipped with NT6X02GM/JB/JH Common CP, provide, except when CCITT N5 Signaling feature is required (RUL15):

- two (2) NT6X42AA Channel Supervisiom Msg CPs.

- RUL8 1) For each LGC or DTC module equipped with NT6X02GM/JB/JH Common CP, provide:

- two (2) NT6X41AB Speech Bus Formatter CPs.

- RUL9 1) When DS30 copper network interface is required in a non-ENET office, provide for each LGC or DTC mdule equipped with NTZZ37BC or NTZZ37BD Common CP:

- two (2) NT6X40AC/AD DS30 Network Interface CPs,
two (2) NT6X69LB Msg Protcl & Downldbl Tone CPs,
and
- one (1) NT6X02UF UFXPM Kit (if not previously provided)
(For new frames NT6X02UF is always provided as part
of the NT6X01BA stocklist.)

The NT6X69LB is recommended for use in all applications in place of the NT6X69LA, which has been MD'd.

Otherwise, when fiber network interface is required in an ENET office, provide for each LGC or DTC module equipped with NTZZ37BC or NTZZ37BD Common Packfill:

- two (2) NT6X40FA/FB DS512 Network Interface CPs,
- two (2) NT6X40GA DS512 Paddle Boards,
- two (2) NT6X69LB Msg Protcl & Downldbl Tone CPs,
- one (1) NT6X0251 Fiber Cable Conversion Kit,
and
- one (1) NT6X02UF UFXPM Kit (If not previously provided)
(for new frames NT6X02UF is always provided as
part of the NT6X01BA stocklist.)

For fiber network interface the NT6X69LB must be used (the NT6X69LA may not be substituted for NT6X69LB when fiber network interface is required).

- RUL10 1) If telco requests field upgrade of NT2X70__ Power Converter CP to NT2X70AF vintage, provide for each equipped module:
- two (2) NT2X70AY Power Converter Change Kit.

- RUL11 1) For the only PLGE, PDTE, ILGE, or IDTE frame equipped in an office, or for the first of each group of frames served by a different PDC, provide:

- one (1) NT3X90AB Cooling Inverter Unit, or
- one (1) NT3X90AC DC Fan Cooling Unit.

Thereafter, for each subsequent frame, provide:

- one (1) NT3X90AA Cooling Inverter Unit, or
- one (1) NT3X90AC one DC Fan Cooling Unit.

NT3X90AC replaces NT3X90AA and NT3X90AB for new jobs.

- RUL12 1) When extending existing offices not equipped with enhanced grounding per IS0X00, provide for each frame:

- one (1) NT0X0009 Logic Return Cable Assembly.

- | RUL13 1) Unassigned.

- RUL14 1) Provide the appropriate designation label for each CP provided.

- RUL15 1) For CCITT N5 Signaling, provide for each module equipped with NT6X02GM/JB/JH Common CP:

- two (2) NT6X62DA CCITT N5 Tone Receiver CPs, and
 - two (2) NT6X42CA CSM and CCITT N5 Splitter CPs.
- 2) Always provide (in case NT6X62DA and NT6X42CA CPs are provided later):
- one (1) NT6X01WG CCITT N5 Signaling Wiring List per equipped module.

- RUL16 1) When the Echo canceller feature is required, for non-XPM+ applications provide for each module equipped with NTZZ37BC or NTZZ37BD Common CP:
- two (2) NTCX50AA Echo Canceller Control Paddle Boards.
 - one (1) NTNX3390 ECC Interconnect Cable Assembly.
 - one (1) NT6X01WF Echo Canceller Wiring List. (P/O NT6X01BA optional wiring for ECC in Non-XPM+ applications.)

The Coax Panel provisioned per RUL2 must be other than NT6X01ZA.

As the Echo Canceller Control interface cable uses the bulkhead connector positions normally used for twisted pair PCM-30 (see RUL11), the ECC can only be provisioned when these connectors are not being used.

- RUL17 1) Unassigned.

- RUL18 1) Provide one (1) NT6X03DE 3P Enhanced Upgrade Kit for XPM+ and Class Model Resource Ready frame. Field upgrades only.

- RUL19 1) Provide one (1) NTMX70AC 3P XPM PLUS paddlecard upgrade kit, instead of the NT6X02XH when a module needs to be upgraded to XPM PLUS and the office already has the NTMX77, NTMX71, and NT7X80 circuit packs stocked on site. The NTMX70AC does not contain the NTMX77, NTMX71, and NT7X80 nor the designation labels for these circuit packs. This kit is for field upgrades only. (NTMX70AC kit has been MD'd and has no replacement. Use the NT6X03DE kit instead of the retired NT6X02XH and NTMX70AC)

- RUL20 1) Provide one (1) NT6X01XK XPM PLUS echo canceller upgrade kit per module when echo cancellation is required in an XPM PLUS application on a frame. This kit is for Upgrades and New Product. NT6X01XK Contains:
- (2) NTCX50AB Paddle boards
 - (2) NT6X28AC Circuit packs
 - (2) P0725257 NT6X28AC Designation labels

- (1) NTNX3601 Cable assembly
- (4) Paddle board Insertion guides
- (1) Cable support bracket
- (2) P097F813 Screws to mount bracket
- (.5 mt.) R0109836 Hook-up wire
- (Note- Instruction in PC6X01XK Document)

The NT6X28AC and NTCX50AB CPs are required for echo cancellation in XPM PLUS. The NT6X28AA and NTCX50AA CPs are used for NON-XPM PLUS echo cancellation and will not function with XPM PLUS.

- RUL21 1) Provide one (1) NTNX3601 ECC Cable assembly and (1) ECC Cable support bracket to replace the NTNX3390 cable if the customer requires that the ECC cable be supported to the frame.
- RUL22 1) Provide two (2) NT6X44EA Universal Time Switch CP's in Pos. 07. The NT6X44EA is part of NTZZ37BC and NTZZ37BD.
- RUL23 1) Provide two (2) NT6X78AB CMR cards per module when Class Modem Resource is required, in slots 8 or 9 or 11. If the NT6X0211 shelf release is REL 70 or below, the NT6X03DD, Option Slot Ready Upgrade Kit must be applied before the NT6X78AB (CMR) cards. See RUL25.
- RUL24 1) Provide one (1) NT6X03DE Enhanced 3P Backplane XPM+ Upgrade Kit per module to upgrade to XPM PLUS functionality. This new kit includes all the necessary circuit packs, paddleboards, and cable assemblies to upgrade on PDTC/PLGC module to XPM+. The kit includes the new NTMX71BA terminator paddleboards and the option slot straps. It also includes the wiring templates and labels that are necessary for performing the upgrade to XPM+. The "PLUS+" and "OPT" labels P0833380 and P0833381 are included for marking the frame/cabinet when the XPM+ upgrade is complete. (This Kit is for Field upgrades for XPM+ and CMR ready and the backplane is REL 70 or below.)
- RUL25 1) Provide one (1) NT6X03DD Option Slot Upgrade Kit per frame if the NT6X0211 shelf release is 70 or below and the NT6X78AB CMR function is required. (Class Modem Resource) This kit gives the material and instructions for upgrading four NT6X0211 shelves (with NT6X0212 backplane) to "Option Slot Ready" functionality. This kit provides enough green 26 AWG wire to add the option slot straps to an entire frame or cabinet. Wiring templates are included to aid the installer in locating the correct pins. A label is also in-

cluded which will be installed on the frame or cabinet next to the PEC and release. The label will have the letters "OPT" to signify "Option Slot Ready". This label provides a visual indication of whether the straps have been added to the frame. The presence of the kit in office records will provide a method of tracking to which frames these straps have been applied. (field upgrades only)

| LINE GROUP CONTROLLER COMMON CP

NT6X02LC

RATING: Standard

ABBREVIATION NAME: LGC

ENGINEERING DESCRIPTION: The NT6X02LC is the common circuit pack fill for LGC application.

The Line Group Controller (LGC) Module is the host office peripheral controller module for all subscriber lines in either host or remote location.

NT6X02LC is required for offices with BCS-27.

REFERENCE DOCUMENTATION: N/A

The LGC 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 0.875	NT0X50AA		1	X+14	24	AP
Designation Strip	P0708171		1	X+14		AP
Time Switch CP	NT6X44AA		1	X	14	AP
Channel Supervision Mgs CP	NT6X42AA		1	X	20	AP
Speech Bus Formatter CP	NT6X41AA		1	X	21	AP
Filler Face Plate 0.875	NT0X50AA		1	X	24	AP
Designation Strip	P0708171		1	X		AP

NOTE: 1) LGC 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).

RULE:

AP 1) When PEC NT6X02LC is ordered, these items are provided.

| LINE TRUNK CONTROLLER COMMON CP

NT6X02MC

RATING: Standard

ABBREVIATION NAME: LTC

ENGINEERING DESCRIPTION: The NT6X02MC is the common circuit pack fill for LTC application.

The Line Trunk Controller (LTC) Module is the host office peripheral controller module for subscriber lines in host location, remote location and for digital trunking.

NT6X02MC is required for offices with BCS-27.

REFERENCE DOCUMENTATION: N/A

The LTC 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 0.875	NT0X50AA		1	X+14	24	AP
Designation Strip	P0708172		1	X+14		AP
Time Switch CP	NT6X44AA		1	X	14	AP
Channel Supervision Mgs CP	NT6X42AA		1	X	20	AP
Speech Bus Formatter CP	NT6X41AA		1	X	21	AP
Filler Face Plate 0.875	NT0X50AA		1	X	24	AP
Designation Strip	P0708172		1	X		AP

NOTE: 1) One LTC 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).

RULE:

AP 1) When PEC NT6X02MC is ordered, these items are provided.

| CIPE COMMON CIRCUIT PACK

NTRX46BB

RATING: Standard

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The NTRX46BB is the common circuit pack fill used in the Cabinetized International Peripheral Equipment.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

CALA
Asia/Pacific
Europe

NTRX46BB EMA2-06-RX46BB CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 12 21	ECM 669 01	Transfer from API310.

The CIPE Common Circuit Pack is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Faceplate	NT0X50AA		2	X+14,X	01	AP
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	08	AP
4 MB MP Memory CP	NT6X47AC		2	X+14,X	09	AP
Filler Faceplate	NT0X50AA		2	X+14,X	10	AP
SP Memory Plus CP	NT6X46BB		2	X+14,X	11	AP
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	12	AP
Universal Time Switch CP	NT6X44EA		2	X+14,X	14	AP
Universal Tone Receiver CP	NT6X92CA		2	X+14,X	15	AP
Filler Faceplate	NT0X50AA		2	X+14,X	16	AP
Universal Tone Receiver CP	NT6X92CA		2	X+14,X	17	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 (NTRX46BB)	P0738099		2	X+14,X		AP

NOTES:

- 1) One NTRX46BB Common CP can be assigned in the CIPE 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 the relevant section(s) on Cabinetized International Peripheral Equipment.

RULES:

- AP 1) When PEC NTRX46BB is ordered, these items are provided.

CIPE COMMON PACKFILL

PEC CODE: NTRX46CE

CPC CODE: B0243379

| RATING: MD

REPLACES: NTRX46CB

REPLACED BY: NTRX46CF

ABBREVIATION NAME: DTCO
LGC0

ENGINEERING DESCRIPTION: The NTRX46CE is the common circuit pack fill used for XPM and XPM+ peripheral controller modules in International Common Peripheral Equipment frames and cabinets. The XPM or XPM+ Processor cards are provisionable, along with the power converters.

| REFERENCE DOCUMENTATION: MSRX46CA 0110

MARKETS: Applicable markets:

CALA
Asia/Pacific
Europe

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

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

NTRX46CE EMA2-06-RX46CE CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 08 28	ECM 693 13	Introduce NTRX46CE packfill per ECD 024-94268.
96 09 12	ECM 693 20	MD NTRX46CE per EC 024-97049.

The CIPE Common Packfill is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Faceplate	NT0X50AA		2	X+14,X	10	AP
Universal Time Switch CP	NT6X44EA		2	X+14,X	14	AP
Message Protocol and Downloadable Tones	NT6X69LB		2	X+14,X	18	AP
Channel Supervision MSG CP	NT6X42AA		2	X+14,X	20	AP
Speech Bus Formatter	NT6X41AB		2	X+14,X	21	AP
Filler Faceplate	NT0X50AA		2	X+14,X	23	AP
Filler Faceplate	NT0X50AA		2	X+14,X	24	AP
Designation Strip NTRX46CE	P0815386		2			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 manufac-
tured and cannot be ordered.

NOTES:

1) A NTRX46CE Common CP can be assigned 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 NTRX46CE is ordered, these items are provided.

CIPE COMMON PACKFILL

PEC CODE: NTRX46CF

CPC CODE: B0247625

RATING: STD

| REPLACES: NTRX46CE

REPLACED BY: None

ABBREVIATION NAME: DTCO
LGC0

ENGINEERING DESCRIPTION: The NTRX46CF is the common circuit packfill used for XPM and XPM+ peripheral controller modules in International Common Peripheral Equipment frames and cabinets. The XPM or XPM+ Processor cards are provisionable, along with the power converters.

REFERENCE DOCUMENTATION: MSRX46CA 00 10

MARKETS: Applicable markets:

CALA
Asia/Pacific
Europe

ISSUE AUTHOR: Deniece Land Dept. 3471 (PPK)

MAIN CONTACT: Deniece Land Dept. 3471 (PPK)

NTRX46CF EMA2-06-RX46CF CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
96 09 12	ECM 693 20	Introduce NTRX46CF packfill per ECD 024-97049.

The CIPE Common Packfill is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Faceplate	NT0X50AA		2	X+14,X	10	AP
Universal Time Switch CP	NT6X44EA		2	X+14,X	14	AP
Message Protocol and Downloadable Tones	NT6X69LB		2	X+14,X	18	AP
Speech Bus Formatter	NT6X41AB		2	X+14,X	21	AP
Filler Faceplate	NT0X50AA		2	X+14,X	23	AP
Filler Faceplate	NT0X50AA		2	X+14,X	24	AP
Designation Strip NTRX46CE	P0815386		2			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) A NTRX46CF Common Packfill can be assigned 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 NTRX46CF is ordered, these items are provided.

SUBSCRIBER CARRIER MODULE-100 ACCESS COMMON CP

PEC CODE: NT6X02TJ

CPC CODE: B0244404

| RATING: MD

REPLACES: NT6X02TH

REPLACED BY: Not Applicable

ABBREVIATION NAME: SMA

ENGINEERING DESCRIPTION: The Subscriber Carrier Module-100 Access is the peripheral controller module for the interface of the AccessNode to the DMS-100. The NT6X69, NT6X80, NTB01, NTMX77, and NTMX71 are provisioned separately per office requirements.

REFERENCE DOCUMENTATION: SL6X02TJ 00 02
NT6X02TJ REL 02
MS6X01AD 00 22

MARKETS: Applicable markets:

US
Canada
CALA

| ISSUE AUTHOR: Barbara Berkley Dept. 3471 (PPK)

| MAIN CONTACT: Barbara Berkley Dept. 3471 (PPK)

NT6X02TJ EMA2-06-SMA-4 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 04 10	ECM 676 09	Introduce the NT6X02TH packfill per EC#024-94037.
95 11 08	ECM 676 12	EC 011-21580 Introduces NT6X02TJ to replace NT6X02TH. The Unified Proc. and Terminator PB were pulled out of the NT6X02TH Packfill and made provisionable.
95 12 21	ECM 676 13	EC 024-95220 MDs NT6X02TH. EC 024-95691 Corrects NT6X02TJ pkfill by removing NT2X70AF and making it & NT2X70AE as provisionable. Offices upgrading to NT6X02TJ can still use NT2X70AE.
97 03 11	ECM 714 02	MD NT6X02TJ per product MD EC 024-97180.

The Subscriber Carrier Module-100 Access Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Channel Supervision Mgs CP	NT6X42AA		1	X	20	AP
Speech Bus Formatter CP	NT6X41AA		1	X	21	AP
Filler Face Plate 0.875	NT0X50AA		1	X	24	AP
Designation Strip	P0833166		1	X		AP
Channel Supervision Mgs CP	NT6X42AA		1	X+14	20	AP
Speech Bus Formatter CP	NT6X41AA		1	X+14	21	AP
Filler Face Plate 0.875	NT0X50AA		1	X+14	24	AP
Designation Strip	P0833166		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) 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 NT6X02TJ is ordered, these items are provided.

SUBSCRIBER MODULE - SLC-96
COMMON CP KIT

PEC CODE: NT6X02DV

CPC CODE: B0245479

RATING: Standard

REPLACES: NT6X02DU

REPLACED BY: Not Applicable

ABBREVIATION NAME: SMS

| ENGINEERING DESCRIPTION: The NT6X02DV SMS packfill provides the common circuit packs for one module. This packfill does not include processors.

REFERENCE DOCUMENTATION: SL6X02DV 00 01

MARKETS: Applicable markets:

US
CALA

ISSUE AUTHOR: Erica Keltner Dept. 3471 (PPK)

MAIN CONTACT: Erica Keltner Dept. 3471 (PPK)

NT6X02DV EMA2-06-SMS-8 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 05 16	ECM 328 21	Introduce NT6X02DU packfill per EC#024-94037.
96 04 26	ECM 373 45	EC 024-95240 MD's NT6X02DU & replaces it with NT6X02DV.

The Subscriber Module - SLC-96 Common CP Kit is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Channel Supervision Msg.	NT6X42AA		2	X,X+14	20	AP
Speech Bus Formatter	NT6X41AA		2	X,X+14	21	AP
Filler faceplate	NT0X50AA		2	X,X+14	24	AP
Designation Strip	P0833166		2	X,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) 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 NT6X02DV is ordered, these items are provided.

SUBSCRIBER MODULE - SLC-96 REMOTE
COMMON CP KIT

PEC CODE: NT6X02PL

CPC CODE: B0245480

RATING: Standard

REPLACES: NT6X02PK

REPLACED BY: Not Applicable

ABBREVIATION NAME: SMS-R

| ENGINEERING DESCRIPTION: The NT6X02PL SMS-R packfill provides the common circuit packs for one module. This packfill does not include processors.

REFERENCE DOCUMENTATION: SL6X02PL 00 01

MARKETS: Applicable markets:

US
CALA

ISSUE AUTHOR: Erica Keltner Dept. 3471 (PPK)

MAIN CONTACT: Erica Keltner Dept. 3471 (PPK)

NT6X02PL EMA2-06-SMSR-6 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
96 04 26	ECM 373 45	EC 024-95240 MDs NT6X02PK and replaces it with NT6X02PL.

The Subscriber Module - SLC-96 Remote Common CP Kit is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Channel Supervision Msg.	NT6X42AA		2	X,X+14	20	AP
Speech Bus Formatter	NT6X41AA		2	X,X+14	21	AP
Filler faceplate	NT0X50AA		2	X,X+14	24	AP
Designation Strip	P0833750		2	X,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) Shelf position X can be either 18 or 51 for frame application, or 5 and 33 for cabinet application.

RULES:

- AP 1) When PEC NT6X02PL is ordered, these items are provided.

ESMU PACKFILL

PEC CODE: NT6X02CX

| CPC CODE: B0248578

RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: Not Applicable

ENGINEERING DESCRIPTION: The NT6X02CX is the common circuit packfill for the ISDN Subscriber Module Urban. The NT6X02CX does not contain the NT6X44CA CP, which was 'always provided' in the NT6X02ES packfill. The NT6X44CA and its replacement, NTAX78AB, are both provisionable with the implementation of NT6X02CX.

REFERENCE DOCUMENTATION: SL6X02CX 00 01

MARKETS: Applicable markets:

US
Canada

ISSUE AUTHOR: Barbara Berkley Dept. 3471 (PPK)

MAIN CONTACT: Barbara Berkley Dept. 3471 (PPK)

NT6X02CX EMA2-06-SMU-7 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 04 23	ECM 714 04	Create this section to document new SMUI+ circuit packfill per ECD 024-97732.

The ESMU PACKFILL is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Channel Supervision Msg CP	NT6X42AA		1	X	20	AP
Speech Bus Formatter CP	NT6X41AA		1	X	21	AP
Filler Face Plate 0.875	NT0X50AA		1	X	24	AP
Desig. Strip (Therm. Print)	P0800766		1	X		AP
Channel Supervision Msg CP	NT6X42AA		1	X+14	20	AP
Speech Bus Formatter CP	NT6X41AA		1	X+14	21	AP
Filler Face Plate 0.875	NT0X50AA		1	X+14	24	AP
Desig. Strip (Therm. Print)	P0800766		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) 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 NT6X02CX is ordered, these items are provided.

SMU PACKFILL

PEC CODE: NT6X02EU

CPC CODE: B0245481

RATING: Standard

REPLACES: NT6X02ET

REPLACED BY: Not Applicable

ABBREVIATION NAME: SMU

| ENGINEERING DESCRIPTION: The NT6X02EU SMU Packfill provides the common circuit packs for one module.

REFERENCE DOCUMENTATION: SL6X02EU 00 01

MARKETS: Applicable markets:

US
Canada
CALA

ISSUE AUTHOR: Erica Keltner Dept. 3471 (PPK)

MAIN CONTACT: Erica Keltner Dept. 3471 (PPK)

NT6X02EU EMA2-06-SMU-8 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 03 30	ECM 314 20	Introduce NT6X02ET SMU Packfill
96 04 26	ECM 373 45	EC 024-95240 MD's NT6X02ET & replaces it with NT6X02EU.

The SMU PACKFILL is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Time Switch CP	NT6X44CA		2	X,X+14	14	AP
Channel Supervision Msg. CP	NT6X42AA		2	X,X+14	20	AP
Speech Bus Formatter CP	NT6X41AA		2	X,X+14	21	AP
Filler Faceplate	NT0X50AA		2	X,X+14	24	AP
Designation Strip (NT6X02EU)	P0833750		2	X,X+14		AP

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 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 NT6X02EU is ordered, these items are provided.

INTERNATIONAL LCM COMMON CP

PEC CODE: NT6X04BC

CPC CODE: B0240609

RATING: Standard

REPLACES: NT6X04BB

REPLACED BY: None

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The ILCM Common CP includes the always required circuit packs for both Line Concentration Array shelves that make up an ILCM.

The NT6X04BC includes NT6X51AC LCM Processor CPs which provide indicator lights for In Service and Out of Service conditions.

REFERENCE DOCUMENTATION: SL6X04BC 00 01

MARKETS: Applicable markets:

Europe
Asia/Pacific

ISSUE AUTHOR: Darrell Deeds Dept. 3471 (PPK)

MAIN CONTACT: James Marsden Dept. 3471 (PPK)

NT6X04BC EMA2-07-ILCM-4 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 10 28	ECM 286 10	Introduces NT6X04BC.
94 11 18	ECM 286 11	Correct to conform to stocklist.

The International LCM Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Power Converter 5V/15V CP	NT6X53AA		1	X+17	1	AP
LCM Processor CP	NT6X51AC		1	X+17	4	AP
Internat'l Digroup Cntrl CP	NT6X52AB		1	X+17	5	AP
Designation Label (NT6X53AA)	P0633543		1	X+17	1	AP
Designation Label (NT6X51AC)	P0802359		1	X+17	4	AP
Designation Label (NT6X52AB)	P0654980		1	X+17	5	AP
Power Converter 5V/15V CP	NT6X53AA		1	X	1	AP
LCM Processor CP	NT6X51AC		1	X	4	AP
Internat'l Digroup Cntrl CP	NT6X52AB		1	X	5	AP
Designation Label (NT6X53AA)	P0633543		1	X	1	AP
Designation Label (NT6X51AC)	P0802359		1	X	4	AP
Designation Label (NT6X52AB)	P0654980		1	X	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:

1. ON LCE FRAME

1.1 One ILCM Common CP can be assigned on the frame to shelf mounting positions 55 and 38 and the other to shelf mounting positions 21 and 04 (i.e. for one ILCM X=04 and for the other ILCM X=38).

2. ON RLCM FRAME

| 2.1 One ILCM Common CP can be assigned on the frame to shelf mounting positions 21 and 04 (i.e. X = 04).

RULES:

AP 1) When PEC NT6X04BC is ordered, these items are provided.

LINE DRAWER (INTERNATIONAL)

PEC CODE: NT6X05BA

CPC CODE: B0219944

RATING: Standard

REPLACES: Not applicable

REPLACED BY: Not applicable

ABBREVIATION NAME: LD

ENGINEERING DESCRIPTION: Each Line Drawer houses up to sixty-four (64) line cards divided into two logical groups of thirty-two (32) cards called Line Sub Groups (LSG).

| REFERENCE DOCUMENTATION: MS6X05BA 00 07

MARKETS: Applicable markets:

Asia/Pacific
Europe

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

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

NT6X05BA EMA2-07-ILD-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-----	-----	Previous history not available
92 09 28	ECM 619 09	Correction of NT6X95 provisioning with World Line Card Type B
95 05 12	ECM 619 31	Correct CPC per ET64023.
97 03 21	ECM 619 43	Update EMS to reflect MD PECs per EC 024-97629.
97 08 29	ECM 619 47	Update EMS Rule 1 to reflect correct IBERT NT6X99AA provisioning per EC 011-21643.
97 11 14	ECM 619 49	Update EMS Rule 1, part 8 to reflect provisioning information for the NT6X21BC Line Card for International applications (GL03-China) per EC 024-98361.

The Line Drawer (International) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Line Drawer Assembly	NT6X0505		1	X		AP
Line Circuits	AR			X	00-31	RUL1
Int'l Bus Interface Card	NT6X54BA		1	X	32	AP
Line Drawer Cutoff Strap	A0384362			X		RUL2
Line Drawer Cable Spring Kit	NT6X05AZ			X		RUL3

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT6X93AA	MD	NT6X17BA
NT6X93BA	MD	NT6X17BA
NT6X93CA	MD	NT6X17BA
NT6X93DA	MD	NT6X17BA
NT6X94AA	MD	NT6X94AB
NT6X94AB	MD	NT6X18BA
NT6X94BA	MD	NT6X94BB
NT6X94BB	MD	NT6X18BA
NT6X94CA	MD	NT6X18BA
NT6X94DA	MD	NT6X18BA
NT6X95AA	MD	NT6X95AB
NT6X95AB	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:

NOTE: 1) The two lower rows of line card slots form one LSG and the upper two rows of line card slots form the other LSG. Each LSG has 32 line card slots. Each row within an LSG has 16

line card slots (i.e. each LD has up to 64 line card slots).

- 2) "X" can be one of 04, 21, 38, 55.

RULES:

AP 1) When PEC NT6X05BA is ordered, these items are provided.

RUL1 1) Provisionable line cards:

NT6X17BA	World Line Card Type A
# NT6X93AA*	Line Card Type A (Turkey)
# NT6X93BA*	Line Card Type A (CEP)
# NT6X93CA*	Line Card Type A (China)
# NT6X93DA*	Line Card Type A (Morocco)
NT6X93FA	Line Card Type A Extended Range (China)
# NT6X94AA	Line Card Type B (Turkey)
# NT6X94AB	Line Card Type B (Turkey)
# NT6X94BA	Line Card Type B (CEP)
# NT6X94BB	Line Card Type B (CEP)
# NT6X94CA	Line Card Type B (China)
# NT6X94DA	Line Card Type B (Morocco)
# NT6X95AA	Metering Tone Generator
# NT6X95AB	Metering Tone Generator - replacing NT6X95AA
NT6X18BA	World Line Card Type B
NT6X21BC	Type C Line Card (A-Law)
NT6X99AA	IBERT Card

* Rated MD. Replaced by World Line card NT6X17BA.

For RNS engineered jobs, provide the NT6X17AC until the NT6X17BA becomes qualified for use in the RNS market.

- 2) Provide one (1) NT6X93BA World Line Card for each 600 ohm POTS line. NT6X17BA replaces most of the type A international line cards denoted by *, but requires at least BCS33 software.
- 3) Provide one (1) NT6X94AB or NT6X94BA for each line requiring meter pulsing coin control or for reversals for coin or PBX lines. NT6X94AB replaces NT6X94AA and requires BCS-22 software to support it. Rated MD. Replaced by World Line Card NT6X18BA.
- 4) For applications using tone metering, provide one (1) NT6X95AB Metering Tone Generator per Line Drawer equipped with any Type B Line Card versions, except for the World

Line Card Type B, NT6X18BA. That is, for tone metering applications, if the Type B Line Cards in the Line Drawer comprise World Line Card Type B only, the NT6X95AB is not required because the World Line Card contains a metering tone generator. The Metering Tone Generator card is assigned to slot 0 of the upper LSG only (i.e. the odd line sub-group).

- 5) The NT6X94BB Type B Line Card replaces the NT6X94BA Line Card for applications in the Caribbean Expansion Plan. This Line card requires BCS-24 software to support it. Rated MD. Replaced by World Line Card NT6X18BA.
- 6) For Morocco, provide one (1) NT6X93DA for each POTS line or one (1) NT6X94CA for each line requiring meter pulsing coin control. Rated MD. Replaced by World Line Cards NT6X17BA and NT6X18BA.
- 7) For China:
 - Provide one (1) NT6X93BA for each POTS line with a loop length not longer than the standard loop length. NT6X17AB replaces NT6X17CA but requires at minimum BCS33 software. Rated MD. Replaced by World Line Card NT6X17BA.
 - Provide one (1) NT6X94CA for each line requiring meter pulsing coin control. Rated MD. Replaced by World Line Card NT6X18BA.
 - Provide one (1) NT6X93FA Extended Range Line Card (ERLC) for each POTS line with a loop length longer than the standard loop length.

Each ERLC occupies 3 vertically adjacent slots in the line drawer.

For example an ERLC may occupy slots 16 and 0 of the upper Line Sub Group (LSG) and slot 16 of the lower LSG; the remaining slot 0 in the lower LSG can be used by another line card. Alternatively an ERLC may occupy slot 0 of the upper LSG and slots 16 and 0 of the lower LSG; the remaining slot 16 in the upper LSG can be used by another line card.

Thus up to 16 ERLCs can be datafilled in the upper 00-31 slots of the line card drawer; the remaining 16 slots in the drawer can be used by other line cards.

8) The NT6X21BC Type C Line Card (P-Phone Line Card) may be provisioned for UK applications or International applications (GL03-China) requiring A-Law.

9) NT6X99AA used for Maintenance only. Only one card per LCM required but more may be equipped depending on customer requirements. No Tip and Ring pair associated.

Do not provision P-Phone or other Voice Frequency line cards within two (2) horizontal slots of an IBERT (NT6X99AA) Card on either side.

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 simultaneously in this state.

3) Via hold relays activated/deactivated by software commands, individual LSG can have line cards held simultaneously cutoff.

4) The NT6X94BB Type B Line Card replaces the NT6X94BA Line Card for applications in the Caribbean Expansion Plan. This Line Card requires BCS-24 software to support it. Rated MD. Replaced by World Line Card NT6X18BA.

RUL3 1) For existing offices only provide one Line Drawer Cable Spring Kit per line Drawer.

ISDN LINE DRAWER REMOTES

PEC CODE: NT6X05DA

CPC CODE: B0243437

RATING: Standard.

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: ILD-R

ENGINEERING DESCRIPTION: The ISDN Line Drawer Remotes is a new LCM drawer type that will support 28 ISDN line cards and contain the D-channel handler. The ISDN Line Drawer Remotes will co-exist with current POTS line drawers in a standard LCM. The ISDN Line Drawer Remotes is intended to be made available in all the DMS-100 frame and cabinet types provisionable with the RSC, RSC-S, OPM, OPAC and RLCM remote products. It is intended to be designed and engineerable in the following vehicles: CLCE, CRSC, RLCM, OPM, OPAC and LCE. A maximum of two ILD-R line drawers can be assigned to an LCM, one per shelf.

REFERENCE DOCUMENTATION: MS6X05DA 00 01

MARKETS: Applicable markets:

US
Canada

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

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

NT6X05DA EMA2-07-ILDR-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 04 18	ECM 619 44	Introduce NT6X05DA ISDN Line Drawer Remotes for use in the RLCM, OPAC, OPM, RSC (LCE) and RSC-S (CLCE) products per EC 024-97291, EC 028-15577, EC 028-15530, EC 028-15461, EC 028-15469, and EC 011-22123.

The ISDN LINE DRAWER REMOTES is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
ISDN Line Drawer Assembly	NT6X0514		1	X		AP
ISDN Drawer Controller CP	NT6X54DA		1	X		AP
Line Circuits	AR			X	00-13	RUL1
ISDN Enh. Line Drawer PUPS	NTBX71AA		1	X		AP
Line Drawer Cutoff Strap	A0384362					RUL2
Single Slot Line Card	A0298291					RUL3
Insertion/Removal Tool						

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC

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

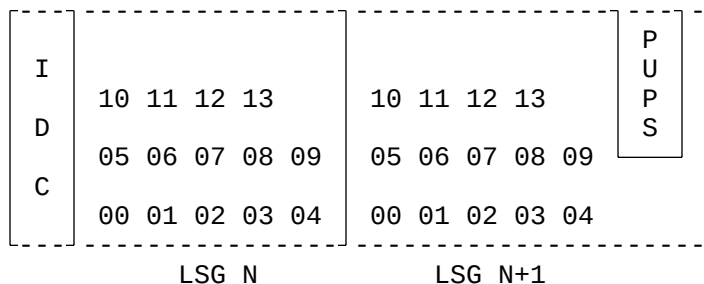
A&M - ADDITIONS & MAINTENANCE. These products can only be ordered if they are already in use in that office.

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

NOTES:

- 1) "X" can be one of 04, 21, 38, 55 for NT6X03AA LCE Frames.
 "X" can be one of 05, 19, 33, 57 for NTRX30AA CLCE Cabinets.
 "X" can be one of 05, 19, 33, 57 for NTRX30CA CLCE Cabinets.
 "X" can be one of 33, 57 for NTMX89CA CRSC Cabinets.
 "X" can be one of 33, 57 for NTMX89FA CRSC Cabinets.
 "X" can be one of 19, 33 for NT8X01AA/AB/AC/BA/BB/BC OPM Frames.
 "X" can be one of 04, 21 for NT6X14AA RLCM Frames.
 "X" can be one of 18, 32 for NTRX60AA OPAC Frames.

- 2) The line drawers are divided into two (2) line subgroups (LSG). LSG N has 20 slots and is located on the left side of the line drawer. LSG N+1 has 20 slots and is located on the right side of the line drawer. Slots 14-19 in each LSG shall remain vacant. Only slots 00-13 in each LSG shall be used as shown below:



RULES:

- AP 1) When PEC NT6X05DA is ordered, these items are provided.
- RUL1 1) The only line card that may be assigned to the ISDN Line Drawer Remotes is the single slot NTB27AA ISDN 2B1Q 'U' I/F Line Card. Provide one (1) NTB27AA per ISDN 'U' Line as per job engineering requirements. A maximum of fourteen (14) line cards may be assigned per each LSG, for a total of twenty-eight (28) line cards per line drawer. Arrange the line cards left to right beginning with slot 00 in each LSG.
- 2) Do not mix or place any other LCM type line cards in the ISDN Line Drawer Remotes line drawer. Use only NTB27AA Line Cards. Provisionable with BCS-31 and later software only. Refer to TABLE C - Line Drawer Provisionable Cards, Section EMA14-03-000, for more information.
- RUL2 1) Provide one (1) A0384362 Line Drawer Cutoff Strap for each line drawer whose line cards are to be held simultaneously cutoff by this method.
- RUL3 1) Provide one (1) A0298291 Single Slot Insertion/Removal Tool for each 10,000 lines in each host and or remote site.

CLCE DOMESTIC COMMON CP FILL-MOD B

PEC CODE: NT6X04MD

CPC CODE: B0241061

RATING: Standard

REPLACES: NT6X04MB

REPLACED BY: Not Applicable

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This packfill contains the always provided CLCE LCM Common Circuit Packs and designation labels for domestic markets. It includes NT6X51AC LCM Processor CP's which provide indicator lights for In Service and Out of Service conditions. This packfill is intended for Model B CLCE and CRSC (LCM-ready) domestic applications.

REFERENCE DOCUMENTATION: SL6X04MD 00 01

MARKETS: Applicable markets:

US
Canada
CALA

ISSUE AUTHOR: NTI: William Stanley Dept. 3471 (PPK)

MAIN CONTACT: NTI: James Marsden Dept.3471 (PPK)

NT6X04MD EMA2-07-LCEC-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 12 09 95 05 04	ECM 683 13 ECM 691 09	Initial release, EC 11-20036 Specify for RSC-S applications.

The CLCE Domestic Common CP Fill-Mod B is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Power Converter CP	NT6X53AA		1	33	AP	
LCM Processor Circuit Pack	NT6X51AC		1	33	AP	
LCM Digroup Control Card CP	NT6X52AA		1	33	AP	
Packfill Desig. Strip	P0800229		1	33	AP	
CLCE Des. Strip (21,22,23)	P0745595		1	33	AP	
Power Converter CP	NT6X53AA		1	5	AP	
LCM Processor Circuit Pack	NT6X51AC		1	5	AP	
LCM Digroup Control Card CP	NT6X52AA		1	5	AP	
Packfill Desig. Strip	P0800229		1	5	AP	
CLCE Des. Strip (21,22,23)	P0745595		1	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 NT6X04MD is ordered, these items are provided.

CLCE INTERNATIONAL COMMON CP FILL-MOD B

PEC CODE: NT6X04ND

CPC CODE: B0241062

RATING: Standard

REPLACES: NT6X04NB

REPLACED BY: Not Applicable

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This packfill contains the always provided CLCE LCM Common Circuit Packs and designation labels required for international markets. It includes NT6X51AC LCM Processor CP's which provide indicator lights for In Service and Out of Service conditions.

| REFERENCE DOCUMENTATION: SL6X04ND 00 01

MARKETS: Applicable markets:

Europe
Asia/Pacific
CALA

ISSUE AUTHOR: NTI: Gary Baum Dept. 3471 (PPK)

MAIN CONTACT: NTI: James Marsden Dept.3471 (PPK)

NT6X04ND EMA2-07-LCEC-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 12 09	ECM 683 13	Initial release, EC 11-20036

The CLCE International Common CP Fill-Mod B is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Power Converter CP	NT6X53AA		1	33	AP	
LCM Processor Circuit Pack	NT6X51AC		1	33	AP	
International Digroup Controller	NT6X52AB		1	33	AP	
Packfill Desig. Strip	P0800305		1	33	AP	
CLCE Des. Strip (21,22,23)	P0745595		1	33	AP	
Power Converter CP	NT6X53AA		1	5	AP	
LCM Processor Circuit Pack	NT6X51AC		1	5	AP	
International Digroup Controller	NT6X52AB		1	5	AP	
Packfill Desig. Strip	P0800305		1	5	AP	
CLCE Des. Strip (21,22,23)	P0745595		1	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 NT6X04ND is ordered, these items are provided.

LCM FILLER KIT

PEC CODE: NT6X04AX

CPC CODE: B0235343

RATING: Standard

REPLACES: None

REPLACED BY: None

ABBREVIATION NAME: None

ENGINEERING DESCRIPTION: The LCM Filler Kit is used to provide Filler Faceplates for all of the vacant positions on both shelves of an unequipped LCM. Fillers are provided in lieu of the LCM Common Circuit Packs and the ten Line Drawers.

REFERENCE DOCUMENTATION: SL6X04AX

MARKETS: Applicable markets:

Canada
US
CALA
Asia/Pacific
Europe

ISSUE AUTHOR: Ron Hogan Dept. 3471 (PPK)

MAIN CONTACT: Ron Hogan Dept. 3471 (PPK)

NT6X04AX EMA2-07-LCM-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 07 31	ECM 619 06	NT6X04AX Introduction
92 11 06	ECM 619 10	Correction according to ECD 024-85128
94 11 17	ECM 636 14	Add International markets.
95 09 15	ECM 619 34	Change NT6X05AY from AP to Provisionable per ET19729 and EC 024-94435.

The LCM Filler Kit is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Faceplate 2.62	NT0X50AM		2	XX	1	AP
Filler Faceplate .875	NT0X50BA		4	XX	4,5	AP
Line Drawer Filler	NT6X05AX		10	XX	*	AP
Line Drawer Stop Kit	NT6X05AY		1			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:

XX Shelf positions 04 and 21 or 38 and 55.

* Line drawer positions 1,2,3,4 and 5

RULES:

AP 1) When PEC NT6X04AX is ordered, these items are provided.

RUL1 1) Provide one (1) Line Drawer Stop Kit NT6X05AY per LCM module (up to ten line drawers) to support the drawer when changing line cards. The improvement provided in this kit was applied to all NT6X05AA line drawers manufactured after February 1986, and so this kit should only be ordered to up- grade drawers supplied prior to that date. One drill guide P0677233 per office is required to locate hold po-

sitions. This kit is approved for RTP/USA applications
only.

LINE CONCENTRATING MODULE COMMON CP

PEC CODE: NT6X04AD

CPC CODE: B0240608

RATING: Standard

REPLACES: NT6X04AC

REPLACED BY: None

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The LCM Common CP includes the always required circuit packs for both Line Concentration Array shelves that make up an LCM.

The NT6X04AD includes NT6X51AC LCM Processor CPs which provide indicator lights for In Service and Out of Service conditions.

REFERENCE DOCUMENTATION: SL6X04AD

MARKETS: Applicable markets:

Canada
US
Europe
Asia/Pacific

ISSUE AUTHOR: Darrell Deeds Dept. 3471 (PPK)

MAIN CONTACT: James Marsden Dept. 3471 (PPK)

NT6X04AD EMA2-07-LCM-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 10 28	ECM 286 10	Introduces NT6X04AD.

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

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Des. Label (NT6X04AD)	P0800469		1	X+17		AP
Power Converter 5V/15V CP	NT6X53AA		1	X+17	1	AP
LCM Processor CP	NT6X51AC		1	X+17	4	AP
LCM Digroup Control Card CP	NT6X52AA		1	X+17	5	AP
Des. Label (NT6X04AD)	P0800469		1	X		AP
Power Converter 5V/15V CP	NT6X53AA		1	X	1	AP
LCM Processor CP	NT6X51AC		1	X	4	AP
LCM Digroup Control Card CP	NT6X52AA		1	X	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:

1. ON LCE FRAME

1.1 One LCM Common CP can be assigned on the frame to shelf mounting positions 55 and 38 and the other to shelf mounting positions 21 and 04 (i.e. for one LCM X=04 and for the other LCM X=38).

2. ON RLCM FRAME

2.1 One LCM Common CP can be assigned on the frame to shelf mounting positions 21 and 04 (i.e. X = 04).

RULES:

AP 1) When PEC NT6X04AD is ordered, these items are provided.

LCM COMMON CP

PEC CODE: NT6X04AE

| CPC CODE: B0248075

| RATING: Standard

| REPLACES: N/A

REPLACED BY: Not Applicable

ABBREVIATION NAME: LCM

ENGINEERING DESCRIPTION: The Line Concentration Module (LCM) is identical to the host LCM supporting up to ten (10) line drawers at 64 line cards per drawer. The OPAC LCM supports all of the line features available at the host. This includes POTS, party lines, coin lines, IBN stations, Business Sets, Data Units, Attendant Consoles and DataPath. This also allows ISDN capability when used with the ISDN Line Drawer NT6X05DA.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Canada
US

ISSUE AUTHOR: NTI: Mark Sorrell Dept. 3471 (PPK)

MAIN CONTACT: NTI: Mark Sorrell Dept. 3471 (PPK)

NT6X04AE EMA2-07-LCM-4 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 05 05	ECM 514 17	Per EC 024-97291 introduce packfill.

The LCM Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Power Converter	NT6X53AA		1	33	1	AP
LCM Processor	NT6X51DA		1	33	4	AP
Digroup Controller	NT6X52AA		1	33	5	AP
Designation Label	P0865462		1	33		AP
Power Converter	NT6X53AA		1	19	1	AP
LCM Processor	NT6X51DA		1	19	4	AP
Digroup Controller	NT6X52AA		1	19	5	AP
Designation Label	P0865462		1	19		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 NT6X04AE is ordered, these items are provided.

LINE DRAWER

PEC CODE: NT6X05AA

CPC CODE: B0215923

RATING: Standard

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: LD

ENGINEERING DESCRIPTION: The Line Drawer houses up to 64 analog subscriber lines. Five Line Drawers will fit on one Line Concentrating Array Shelf of an LCM. A maximum of ten Line Drawers can be assigned to one LCM.

| REFERENCE DOCUMENTATION: MS6X05AA 00 12

MARKETS: Applicable markets:

Canada
US

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

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

NT6X05AA EMA2-07-LD-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-----	-----	Previous history not available
92 11 06	ECM 619 10	Correction according to ECD 024-85128
93 04 15	ECM 536 03	ECD 011-17940 - Add line card removal tools.
93 07 12	ECM 616 12	Update to New Template Standards.
94 01 17	ECM 536 06	EC 45983
96 03 28	ECM 619 40	Consolidate Japan LCE Line Cards into NT6X05AA per EC 024-94219.
97 08 29	ECM 619 47	Update Rule 1 for provisioning IBERT NT6X99AA Cards per EC 011-21643. Also, minor editing corrections to Rules 1.3, 1.4, 1.5, and 3.2.
97 09 26	ECM 722 01	Update EMS to add NTEX37AA PC Kit and Rule 6 per 1-MMS Product Spec issue 01.08, EC 024-98088 and EC 024-98055.

The Line Drawer is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Line Drawer Assembly	NT6X0501		1	X		AP
Line Circuits	AR			X	00-31	RUL1
Bus Interface Card	NT6X54AA		1	X	32	AP
Line Drawer Cutoff Strap	A0384362			X		RUL2
Line Dwr Cable Spring Kit	NT6X05AZ					RUL3
Line Drawer Stop Kit	NT6X05AY					RUL3
Drill Guide	P0677233					RUL3
Line Card Removal Tool (for Single Slot Cards)	A0298292					RUL4
Line Card Removal Tool (for Double Slot Cards)	A0313317					RUL5
Product Change Kit (NT6X05AA to NT6X05EA)	NTEX37AA					RUL6

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
Not Applicable		

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 two lower rows of line card slots form one LSG and the upper two rows of line card slots form the other LSG. Each LSG has 32 line card slots. Each row within an LSG has 16 line card slots (i.e. each LD has up to 64 line card slots).

2) "X" can be one of 04, 21, 38, 55.

RULES:

- AP 1) When PEC NT6X05AA is ordered, these items are provided.
- RUL1 1) Refer to Table C-1, Section EMA14-03-000, for the list of line cards that are provisionable on the NT6X05AA Line Drawer, their associated provisioning rules and assignment restrictions.
- 2) One Type A Line Card in slot 00 in line sub group 00 must be provided for each LCM on a dedicated basis for diagnostic/testing purposes when analog ringing is required (i.e. in the absence of analog ringing, this slot is available for subscriber use).
- 3) Provide one (1) NT6X20AA Message Waiting Converter CP in the Line Drawer if there are any NT6X19AA, Line Card Type E in the Line Drawer. Locate NT6X20AA in the odd LSG, slot position 0 and 16.
- 4) Provide one (1) NT6X23AA, Power Converter (+48V) CP per line drawer (NT6X05AA) if there are any Type B line cards with +48V (NT6X18AB) and this +48V feature is required. Locate NT6X23AA in the odd LSG, slot position 0 and 16.
- 5) While BER testing can be performed by either the NT6X99AA card, which mounts in an LCM, or by the NT4X23AA card, which mounts in an MTM, there is a software problem that prevents the NT4X23AA from successfully testing Datapath Extension trunks.

Therefore, it is recommended that the NT6X99AA be used for DMS-100 and DMS-100/200 offices (local and local/toll applications) and the NT4X23AA be used for DMS-200 offices (toll applications).

A minimum of one (1) NT6X99AA per LCM (requires 2 slots) or 24 per office (whichever is larger) should be provisioned for basic test capability in DMS-100 or DMS-100/200 offices. Higher quantities of test cards will provide faster office coverage.

For datapath loop testing provide one (1) NT6X99AA IBERT Line Card per LCM equipped with a data line card. Locate this NT6X99AA on slot 1 in line sub group 00 of an LCM or on slot 0 in line sub group 10 of the same LCM.

If switch bit error rate testing is required, provide one (1) NT6X99AA IBERT Line Card for each LCM in the office.

Locate this NT6X99AA on slot 1 in line sub group 00 of an LCM or on slot 0 in line sub group 10 of the same LCM. When provisioning an IBERT (NT6X99AA) card in a line drawer, do not provision other card types within two (2) horizontally adjacent slots of the IBERT on either side except for the following: NT6X20AA Message Waiting Converter, and NT6X23AA Power Converter +48v.

For more information, refer to Section EMA14-03-000 Table C Line Drawer Provisionable Cards.

- 6) For Line Cards for DMS-10 Japan applications, refer to Table C (EMA14-03-000) Line Drawer Provisionable 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 simultaneously in this state.

- 3) Via hold relays activated/deactivated by software commands, individual LSG can have line cards held simultaneously cut-off.

RUL3 1) Provide one (1) Line Drawer Cable Spring Kit NT6X05AZ per line drawer to keep the line drawer cables from coming in contact with the line cards in the adjacent line drawer. The cable spring assembly provided in this kit was applied to all NT6X05AA line drawers manufactured after February 1986 and so the kit should only be ordered to upgrade drawers supplied prior to that date.

- 2) Provide one (1) Line Drawer Stop Kit NT6X05AY per LCM module (up to ten line drawers) to support the drawer when changing line cards. The improvement provided in this kit was applied to all NT6X05AA line drawers manufactured after February 1986 and so this kit should only be ordered to upgrade drawers supplied prior to that date. One drill guide P0677233 per office is required to locate hold positions. This kit is approved for RTP/USA applications only.

Note: The Line Drawer Stop Kit is applicable to the following frames: NT6X03AA, NT6X03CA, NT6X03RA, NT6X03RB, NT7X38AA, NT6X14AA and NTRX30AA.

RUL4 1) Provide one (1) Single Slot Line Card Removal Tool for each 10,000 line/site in each host or remote office.

- RUL5 1) Provide one (1) Double Slot Line Card Removal Tool for each office that have double slot line cards or double slot converters.
- RUL6 1) Provide one (1) NTEX37AA PC Kit per line drawer to change a NT6X05AA Line Drawer to a NT6X05EA Line Drawer. The NTEX37AA Product Change Kit consists of PEC labels and rules for removing the existing BIC card. Refer to NTEX37AA Eng. Manual Section.

LCM LINE DRAWER, PROVISIONABLE BIC

PEC CODE: NT6X05EA

| CPC CODE: B0247607

RATING: Standard

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The LCM Line Drawer, Provisionable BIC is similar to the NT6X05AA POTS Line Drawer except that it has a provisionable NTEX54AA Data Enhanced Bus Interface Card, a provisionable NTEX3710 Data Cable and Trough Assembly, and can accommodate up to 16 NTEX17AA xLC 2-slot xDSL Line Cards for 1-Meg Modem Service.

The LCM Line Drawer, Provisionable BIC can accommodate a mix of xLC Line Cards and POTS LCM type Line Cards in accordance with rules and parameters stated herein.

Five Line Drawers will fit on one Line Concentrating Array Shelf of an LCM. A maximum of ten Line Drawers can be assigned to one LCM. There is no limit to the number NT6X05EA line drawers in an LCM or LCE.

| REFERENCE DOCUMENTATION: MS6X05EA 01 01

MARKETS: Applicable markets:

Canada
US

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

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

NT6X05EA EMA2-07-LDPB-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 09 26	ECM 722 01	Introduce the NT6X05EA LCM Line Drawer, Provisionable BIC for use only in DMS-100 Host Office LCE frames for 1-Meg Modem Service per 1-MMS Product Spec issue 01.08, EC 024-98088 and EC 024-98055.

The LCM LINE DRAWER, PROVISIONABLE BIC is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Line Drawer Assembly Line Circuits	NT6X0501 AR		1	X X	00-31	AP RUL1, RUL8 RUL6
Data Enhanced Bus Interface Card (DBIC)	NTEX54AA		1	X	32	RUL6
Data Cable and Trough Assembly	NTEX3710		1			RUL7
Line Drawer Cutoff Strap	A0384362			X		RUL2
Line Dwr Cable Spring Kit	NT6X05AZ					RUL3
Line Drawer Stop Kit	NT6X05AY					RUL3
Drill Guide	P0677233					RUL3
Line Card Removal Tool (for Single Slot Cards)	A0298292					RUL4
Line Card Removal Tool (for Double Slot Cards)	A0313317					RUL5

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 two lower rows of line card slots form one LSG and the upper two rows of line card slots form the other LSG. Each LSG has 32 line card slots. Each row within an LSG has 16

line card slots (i.e. each LD has up to 64 line card slots).

- 2) "X" can be one of 04, 21, 38, 55.
- 3) The following Line Cards may not be provisioned in the NT6X05EA LCM Line Drawer although they are provisionable in the NT6X05AA Line Drawer: NT6X18AB, NT6X19AA, NT6X20AA, NT6X23AA.

RULES:

- AP 1) When PEC NT6X05EA is ordered, these items are provided.
- RUL1 1) Refer to Table C-1, Section EMA14-03-000, for the list of line cards that are provisionable on the NT6X05EA Line Drawer, their associated provisioning rules and assignment restrictions.
- 2) One Type A Line Card in slot 00 in line sub group 00 must be provided for each LCM on a dedicated basis for diagnostic/testing purposes when analog ringing is required (i.e. in the absence of analog ringing, this slot is available for subscriber use). In the NT6X05EA Line Drawer, the NTEX17AA xLC Line Card meets this requirement. See Note 3 for other 1-Meg Modem Service applications/requirements.
 - 3) Unassigned.
 - 4) Unassigned.
 - 5) While BER testing can be performed by either the NT6X99AA card, which mounts in an LCM, or by the NT4X23AA card, which mounts in an MTM, there is a software problem that prevents the NT4X23AA from successfully testing Datapath Extension trunks.

Therefore, it is recommended that the NT6X99AA be used for DMS-100 and DMS-100/200 offices (local and local/toll applications) and the NT4X23AA be used for DMS-200 offices (toll applications).

A minimum of one (1) NT6X99AA per LCM (requires 2 slots) or 24 per office (whichever is larger) should be provisioned for basic test capability in DMS-100 or DMS-100/200 offices. Higher quantities of test cards will provide faster office coverage.

For datapath loop testing provide one (1) NT6X99AA IBERT Line Card per LCM equipped with a data line card. Locate this NT6X99AA on the odd LSG in the last slot positions, 15 and 31. When provisioning an IBERT card in this drawer, do not provision other card types within two horizontally adjacent slots of the IBERT card.

If switch bit error rate testing is required provide one (1) NT6X99AA IBERT Line Card for each LCM in the office. Locate this NT6X99AA in the odd LSG in the last slot positions, 15 and 31. When provisioning an IBERT card in this drawer, do not provision other card types within two horizontally adjacent slots of the IBERT card.

For more information, refer to Section EMA14-03-000 Table C Line Drawer Provisionable 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 simultaneously in this state.
- 3) Via hold relays activated/deactivated by software commands, individual LSG can have line cards held simultaneously cutoff.
- RUL3 1) Provide one (1) Line Drawer Cable Spring Kit NT6X05AZ per line drawer to keep the line drawer cables from coming in contact with the line cards in the adjacent line drawer. The cable spring assembly provided in this kit was applied to all NT6X05AA line drawers manufactured after February 1986 and so the kit should only be ordered to upgrade drawers supplied prior to that date.
- 2) Provide one (1) Line Drawer Stop Kit NT6X05AY per LCM module (up to ten line drawers) to support the drawer when changing line cards. The improvement provided in this kit was applied to all NT6X05AA line drawers manufactured after February 1986 and so this kit should only be ordered to upgrade drawers supplied prior to that date. One drill guide P0677233 per office is required to locate hole positions. This kit is approved for RTP/USA applications only.
- RUL4 1) Provide one (1) Single Slot Line Card Removal Tool for each 10,000 line/site in each host office.

- RUL5 1) Provide one (1) Double Slot Line Card Removal Tool for each office that have double slot line cards or double slot converters.
- RUL6 1) Provide one (1) NTEX54AA DBIC if NTEX17AA xLCs will be provided for voice and data support on the xLC. If the NTEX54AA DBIC is provisioned, slot 16 of the odd LSG must remain empty for thermal reasons and to accommodate a connector on the NTEX54AA DBIC.
- RUL7 1) Provide one (1) NTEX3710 Data Cable Trough Assembly for cabling the DBIC if the NTEX54AA DBIC is provided. Refer to NT0X02AB Eng. Manual Section for the provisioning of termination equipment.
- RUL8 1) Provide NTEX17AA xLC line cards for 1-MMS voice and data service on the xLC.
- 2) If only xLCs are deployed within a drawer, a maximum of 16 may be installed. The xLCs are to be populated in the even LSG only (two lower rows of drawer). The odd LSG (two [2] upper rows of drawer) must be left completely unpopulated. Note that xLCs are mountable in the even LSG slots 0-15, physically occupying slots 0-31, and that the odd LSG slots 0-31 are unavailable when xLCs are mounted in the even LSG slots 0-15.
- 3) If xLCs and other Line Cards are to be mixed, Rule 8, part 2 remains as stated for the xLC cards. Line cards are not allowed in slots vertically above xLCs. Furthermore, line cards are not allowed in slots closer to the DBIC than the farthest xLC. For example, if an xLC occupies slots 07/23 of the even LSG, no line cards are allowed in slots 00-07 and 16-23 of the odd LSG.

PRODUCT CHANGE KIT
(NT6X05AA TO NT6X05EA)

PEC CODE: NTEX37AA

| CPC CODE: B0247638

RATING: Standard.

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: Not Applicable

ENGINEERING DESCRIPTION: One NTEX37AA Product Change Kit upgrades one NT6X05AA Line Drawer to a NT6X05EA LCM Line Drawer, Provisionable BIC for 1-Meg Modem Service product applications.

REFERENCE DOCUMENTATION: SLEX37AA 01 01

MARKETS: Applicable markets:

Canada
US

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

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

NTEX37AA EMA2-07-PCKIT-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 09 26	ECM 722 01	Introduce NTEX37AA PC Kit for 1-Meg Modem Service product applications per 1-MMS Product Spec issue 01.08, EC 024-98088 and EC 024-98055.

The PRODUCT CHANGE KIT (NT6X05AA TO NT6X05EA) is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Bus Interface Card	NT6X54AA		1	X	32	AP
REMOVE	Des Labels (Front & Rear of NT6X05AA)	AR		2			AP
ADD	Designation Label (NT6X05EA)	P0859946		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) Provision one (1) NTEX54AA DBIC and one (1) NTEX3710 Data Cable Trough Assembly for each NT6X05AA Line Drawer being field upgraded to a NT6X05EA LCM Line Drawer, Provisionable BIC for 1-Meg Modem Service applications. Also provision NTEX17AA xLC Line Cards as required in accordance with the rules established within Engineering Manual Section NT6X05EA.

RULES:

- AP 1) When PEC NTEX37AA is ordered, these items are provided.

1-MEG MODEM SERVICE PATCH PANEL KIT

PEC CODE: NTEX45AA

| CPC CODE: B0248823

RATING: Standard.

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: Not Applicable

ENGINEERING DESCRIPTION: One NTEX45AA Patch Panel Kit contains a patch panel, a cable management panel, mounting brackets, and associated miscellaneous components for mounting into the Miscellaneous Frame for 1-Meg Modem Service product applications.

REFERENCE DOCUMENTATION: SLEX45AA 01 01

MARKETS: Applicable markets:

Canada
US

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

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

NTEX45AA EMA2-07-PPKIT-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 09 26	ECM 722 01	Introduce NTEX45AA Patch Panel Kit for 1-Meg Modem Service product applications per 1-MMS Product Spec issue 01.08, EC 024-98088 and EC 024-98055.

The 1-MEG MODEM SERVICE PATCH PANEL KIT is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Patch Panel (24 port RJ45)	A0677972		1			AP
Cabel Management Panel	A0679795		1			AP
Patch Panel Mtg Brackets	P0870407		2			AP
Lock Washer	P0183220		3			AP
Flat Washer	P0284154		3			AP
Hex Head Washer	P097F813		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:

- 1) This Patch Panel Kit mounts in the MIS frame. See NT0X02AB Engineering Manual Section for further information.

RULES:

- AP 1) When PEC NTEX45AA is ordered, these items are provided.

LINE CONCENTRATING EQUIPMENT FRAME OR
INTERNATIONAL LINE CONCENTRATING EQUIPMENT FRAME

PEC CODE: NT6X03AA

CPC CODE: B0215919

RATING: Standard

REPLACES: Not applicable

REPLACED BY: Not applicable

ABBREVIATION NAME: LCE/ILCE

ENGINEERING DESCRIPTION: The Line Concentrating Equipment Frame is a standard DMS frame which houses two dual shelf LCM modules. A fully equipped LCE frame supports 1280 line cards.

NT6X03AA also acts as an International LCE frame when the International LCM modules and International Line Drawers are used.

| REFERENCE DOCUMENTATION: MS6X03 00 28

MARKETS: Applicable markets:

Canada
US
CALA
Europe
Asia/Pacific

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

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

NT6X03AA EMA2-07-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-----	-----	Previous history not available
92 07 31	ECM 619 06	Include NT6X04AC LCM Common CP
92 08 17	ECM 619 07	Add note on NT6X04AX provisioning
92 12 07	ECM 619 11	EC #018-39307 - Replace NT0X25AV with NT0X25AH. Change status of NT0X25AV to A&M.
92 12 22	ECM 619 12	Include NT6X04AC LCM Common CP
93 01 29	ECM 619 13	Incorporates EC 024-83202
93 05 14	ECM 619 14	Add NT6X30CA Ring Generator.
93 12 03	ECM 619 19	Incorporates EC 024-90134 and 024-67558
93 12 17	ECM 619 21	ET 18339
94 02 11	ECM 619 22	EC 024-91117
94 06 27	ECM 619 23	EDIT53-02 replaced by NT8T5055.
95 05 12	ECM 619 31	EC 024-91858 & EC 018-41956
95 07 13	ECM 619 33	Correct CPC code per ET20859 and EC 024-34065.
95 10 04	ECM 619 35	EC 011 20036 Changes to LCM Common Packfill
96 02 09	ECM 619 39	MD NT0X25AL and replace with NT0X25AH per EC 002-15963.
96 03 28	ECM 619 40	Show NT6X04BB and NT6X04AC as A&M replaced by NT6X04BC and NT6X04AD. Editing corrections. Solve SR RR60738.
97 03 21	ECM 619 43	Consolidate Japan LCE into NT6X03AA per EC 024-94219.
97 04 18	ECM 619 44	Show NT6X30AA as MD per EC 018-48828. MD NT6X04AB/AC/BB per EC 024-96698. MD NT6X04ZZ per EC 024-96698. MD NT6X05CA per EC 024-96494. Clarified Rules 6, 14 and 17 to reflect the above changes.
97 09 26	ECM 722 01	Introduce NT6X05DA ISDN Line Drawer Remotes to the LCE per EC 024-97291 and EC 028-15577 for use with the RSC product.
97 10 30	ECM 619 48	Introduce NT6X05EA LCM Line Drawer, Provisionable BIC to the LCE frame per 1-MMS Product Spec issue 01.08, EC 024-98088 and EC 024-98055.
		Introduce NT6X0377 LCE FSP Busbar Kit to the LCE frame per EC 024-98658.

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
		Correction to Rule 9, part 4. Minor editing corrections.

The NT6X03AA is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
LCE Frame Supervisory Panel	NT6X35AA	FSP	1	72		AP
FSP Busbars	NT6X0342			72		RUL1
LCE FSP Busbar Kit	NT6X0377			72		RUL1
# Ringing Generator CP	NT6X30AA			72	1, 2	RUL2
Ringing Generator CP (N.A.)	NT6X30CA			72	1, 2	RUL2
Ringing Generator CP (China)	NT6X30DA			72	1, 2	RUL2
Ringing Generator CP (UK)	NT6X30AB			72	1, 2	RUL2
Ringing Generator CP (Aust.)	NT6X30AE			72	1, 2	RUL2
Ringing Generator CP (Japan)	NT6X30BA			72	1, 2	RUL2
(DMS-10 Application)						
Ring Return Straps	NT6X0338			72		RUL3
Japan Wiring Kit for Ring	NT6X0339			72		RUL4
Returns (DMS-10 Option)						
Circuit Breaker	P0689697			72		RUL5
Designation Label						
(DMS-10 Option)						
Ringing Generator Labels	P0731162			72		RUL2
Line Drawer (North America)	NT6X05AA	LD		55		RUL6
Designation Labels, LSG No.	P0631765					RUL7
International Line Drawer	NT6X05BA			55		RUL6
# PCM-30 Line Drawer	NT6X05CA			55		RUL6
ISDN Line Drawer Remotes	NT6X05DA			55		RUL6
LCM Line Drawer,	NT6X05EA			55		RUL6
Provisionable BIC						
Line Drawer Filler	NT6X05AX			55		RUL8
# LCM Common CP	NT6X04AA	LCM1		38		RUL9
# LCM Common CP	NT6X04AB	LCM1		38		RUL9
# LCM Common CP	NT6X04AC	LCM1		38		RUL9
LCM Common CP	NT6X04AD	LCM1		38		RUL9
# ILCM Common CP	NT6X04BA			38		RUL9
# ILCM Common CP	NT6X04BB			38		RUL9
ILCM Common CP	NT6X04BC			38		RUL9
# LCM Processor	NT6X04ZZ			38, 55		RUL17
LCM Processor	NT6X04ZY			38, 55		RUL14
Line Concen. Array Shf Assy	NT6X0371	LCA0	1	38		AP
Line Drawer (North America)	NT6X05AA	LD		38		RUL6
International Line Drawer	NT6X05BA			38		RUL6
# PCM-30 Line Drawer	NT6X05CA			38		RUL6
ISDN Line Drawer Remotes	NT6X05DA			38		RUL6
LCM Line Drawer,	NT6X05EA			38		RUL6
Provisionable BIC						
Line Drawer Filler	NT6X05AX			38		RUL8

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Line Drawer	NT6X05AA	LD		21		RUL6
International Line Drawer	NT6X05BA			21		RUL6
# PCM-30 Line Drawer	NT6X05CA			21		RUL6
ISDN Line Drawer Remotes	NT6X05DA			21		RUL6
LCM Line Drawer, Provisionable BIC	NT6X05EA			21		RUL6
Line Drawer Filler	NT6X05AX			21		RUL8
# LCM Common CP	NT6X04AA	LCM0		04		RUL9
# LCM Common CP	NT6X04AB	LCM0		04		RUL9
# LCM Common CP	NT6X04AC	LCM0		04		RUL9
LCM Common CP	NT6X04AD	LCM0		04		RUL9
# ILCM Common CP	NT6X04BA			04		RUL9
# ILCM Common CP	NT6X04BB			04		RUL9
ILCM Common CP	NT6X04BC			04		RUL9
# LCM Processor	NT6X04ZZ			04, 21		RUL17
LCM Processor	NT6X04ZY			04, 21		RUL14
Line Concen. Array Shf Assy	NT6X0371	LCA0	1	04		AP
Line Drawer	NT6X05AA	LD		04		RUL6
International Line Drawer	NT6X05BA			04		RUL6
# PCM-30 Line Drawer	NT6X05CA			04		RUL6
ISDN Line Drawer Remotes	NT6X05DA			04		RUL6
LCM Line Drawer, Provisionable BIC	NT6X05EA			04		RUL6
Line Drawer Filler	NT6X05AX			04		RUL8
LCM Filler Kit	NT6X04AX		1	38		RUL10
Rear Panels (Eq & Universal)	NT8T5055					RUL11
Universal Frame	NT0X25AH	FW	1			RUL12
EMI Framework Assembly	NT0X25AE	FW	1			RUL12
Cable Protection Brackets	P0664837		4	38, 55 04, 21		RUL13
Mounting Screws	P097F813		8	38, 55 04, 21		RUL13
Rear Cover Support Brackets	P0729355		5	55, 72 21, 38 04		RUL16
EMI Cable	NT7X3815					RUL15
EMI Cable	NT7X3816					RUL15
EMI Cable	NT0X9503					RUL15
EMI Cable	NT6X1441					RUL15

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
EMI Cable	NT6X1448					RUL15
EMI Hardware	P097F814					RUL15
EMI Hardware	P0183220					RUL15
EMI Hardware	P0642031					RUL15
EMI Hardware	P0633700					RUL15
EMI Hardware	P0633702					RUL15
EMI Hardware	P097F813					RUL15
EMI Kit	NT6X0363					RUL15
Wiring Option Kit	NT6X0375					RUL18
Wiring Option Kit	NT6X0376					RUL18

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT6X04AA	MD	NT6X04AB
NT6X04BA	MD	NT6X04BB
NT0X25AV	MD	NT0X25AH
NT0X25AA	MD	NT0X25AH
NT0X25AL	MD	NT0X25AH
NT6X30AA	MD	NT6X30CA
NT6X04AB	MD	NT6X04AC
NT6X04AC	MD	NT6X04AD
NT6X04BB	MD	NT6X04BC
NT6X04ZZ	MD	NT6X04ZY
NT6X05CA	MD	None (GPP Product)

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 manufac-
tured and cannot be ordered.

NOTES:

- 1) NT6X03AA is a single bay frame which can be equipped with
up to two (2) independent Line Concentrating Modules.

- 2) One LCM/ILCM module is composed of 2 shelves. Each LCE/ILCE can have up to two (2) LCM/ILCMs. One LCM/ILCM on shelf mounting positions 38 and 55 and the other on shelf mounting positions 04 and 21. The two (2) bare shelf assemblies do not become an LCM/ILCM till they are equipped with one NT6X04AA/AB/AC/AD/BA/BB/BC, LCM/ILCM Common CP. Then the shelf assembly becomes a Line Concentrating Array Shelf (LCA) that can house up to five (5) Line Drawers. Within each LCM/ILCM the lower LCA is LCA 0 and the upper LCA is LCA 1.
- 3) One Frame Supervisory Panel, NT6X35AA always contains one FSP Alarm CP, NT6X36AA.

RULES:

AP 1) When PEC NT6X03AA is ordered, these items are provided.

- RUL1 1) Provide one (1) NT6X0342 set of busbars per LCE bay for new production. Note, If IS6X03 option 'R', for reduced power and ground feeds (6 power and 6 ground feeds), is used, the busbars are used with LCE frames which are less than or equal to 61 feet (one way wire run length) from the PDC. Do not supply this kit for field upgrades since this kit will not work with older vintages of LCEs. ISRX03 option "S" must be used for frames with cable run lengths between 61 and 93 feet, i.e. 8 battery feeds and 8 ground returns of 6 AWG are used. For these frames, the NT6X0342 Busbars are not required and are to be removed on site. The busbars are always shipped with the frame because the topographical relationships of frames are not known until they are installed at the site.
- 2) Provide one (1) NT6X0377 set of busbars per LCE bay for field upgrade jobs only. These jobs may be referred to as "Power Concentration" or "Power Cable Reduction" jobs. This kit will allow the busbars to work across all vintages of LCEs in the field. All other rules dictating maximum cable run lengths of up to 61 feet still apply.
- 3) Refer to NT0X42 Fusing Requirements and MS0X60AA Labeling Information which will change depending on which IS6X03 option is used. Option 'R' uses 30 amp fuses. Option 'S' uses 20 amp fuses. Option 'R' fuse designation labels will cover two shelves per fuse. Option 'S' Fuse Designation Labels will cover one shelf per fuse.

- RUL2
- 1) Provide two (2) Ringing Generators if analog ringing is required. Data Unit and Business Set do not require analog ringing. Ringing type and level is set by switch settings in the Ringing Generators.
 - 2) Provide two (2) Ringing Generators even if:
 - There is only one LCM/ILCM per frame, and analog ringing is required.

Normally one Ringing Generator serves one LCM/ILCM. Under failure conditions the remaining good Ringing Generator can serve the two LCM/ILCMs.

 - Only PCM-30 Line Drawers (PLD) for Mercury in the UK are installed in the frame (No standard line drawers installed in the frame).
 - 3) Provide two NT6X30AA when analog ringing is required. To be Manufacture Discontinued. Refer to NT6X30CA.
 - 4) Provide two NT6X30CA Ringing Generators per frame when analog ringing is required for the North America application. This ringing generator is UL compliant and fully backward compatible. Provide two per frame for initial and extension jobs.
 - 5) Provide two (2) NT6X30DA Ringing Generators when analog ringing is required for the China application.
 - 6) Provide two (2) NT6X30AB Ringing Generators when analog ringing is required for the UK application.
 - 7) Provide two (2) NT6X30AE Ringing Generators when analog ringing is required for the Australia application.
 - 8) Provide two (2) NT6X30BA Ringing Generators when analog ringing is required for the DMS-10 Japan application.
 - 9) Provide one (1) P0731162 Ringing Generator Labels per LCE ordered for North America applications.
- RUL3
- 1) Provide one (1) set NT6X0338 Ring Return Straps for configurations where ring returns are connected to battery returns according to option 'P' in IS6X03. This arrangement is used in North America.
 - 2) In configurations where 'tip' on the Ringing Generators is -48V, as is the practice in Japan, for example, do not pro-

vide NT6X0338 Ring Return Straps. 'Tip' must be left floating for this configuration, i.e. with neither option 'N' or 'P' in IS6X03. Refer to DMS-10 document SD0T01- 05 application.

- RUL4 1) Provide one (1) NT6X0339 Strap for all DMS-10 applications per IS6X03AA option 'V'. Do not provide this option for any DMS-100 system.
- RUL5 1) For North America DMS-10 applications, provide one (1) P0689697 Circuit Breaker Designation Label. This label is used to identify the Ringing Generator Circuit Breakers on the front of the FSP.
- RUL6 1) For operation with North American standards, Provide one Line Drawer (NT6X05AA) to accommodate up to sixty-four (64) Line Cards in two logical drawers called Line Sub Group (LSG). Line Drawers are positioned in drawer positions 01-05 on each line shelf assembly.
- 2) For international applications, except PLD for Mercury in the UK, provide one International Line Drawer, NT6X05BA to accommodate up to sixty-four (64) Line Cards in two logical drawers called Line Sub Group (LSG). Line Drawers are positioned in drawer positions 01-05 on each line shelf assembly..
- 3) Provide one (1) NT6X05CA PCM-30 Line Drawer to interface two PCM-30 links from a Type 1 Mercury Exchange Line Multiplexor (MEL MUX). NT6X05CA is MD and replaced by the GPP Product.
- 4) For North America Remote ISDN applications, provide one (1) NT6X05DA ISDN Line Drawer Remotes per LCM shelf, with a maximum of two (2) per LCM Module. Each NT6X05DA accommodates up to 28 ISDN line cards in two logical drawers called Line Sub Groups (LSG), which can contain 14 cards each. It is recommended that the ISDN Line Drawer be provisioned in the right hand drawer position of each shelf in physical position 4 and 9 (logical drawers 8 and 18) in order to permit an optimal heat dispersion in the LCM. However, ISDN Line Drawers can be provisioned in any drawer position on the LCM shelf except physical position 0 and 5 (logical position 0 and 10). This is because BIC Relay Test diagnostics require those positions for systems use.
- 5) Provide a maximum of seven (7) NT6X05DA ISDN Line Drawer Remotes per Remote site with a single (1) RSC NT6X10 frame.

- 6) Provide a maximum of fourteen (14) NT6X05DA ISDN Line Drawer Remotes per Remote site with dual (2) RSC NT6X10 frames.
 - 7) Provide one (1) NT6X05EA LCM Line Drawer, Provisionable BIC for applications requiring 1-MMS Ethernet Service. Up to 16 xLCs may be provisioned per NT6X05EA. Up to twenty (20) NT6X05EA LCM Line Drawers may be provisioned per LCE (NT6X03AA). Refer to NT6X05EA Engineering Manual Section for provisionable DBIC and xLCs.
 - 8) An existing NT6X05AA Line Drawer may be upgraded to a NT6X05EA LCM Line Drawer by applying one (1) NTEX37AA PC Kit. Refer to NT6X05AA and NTEX37AA Engineering Manual Sections for further information.
 - 9) 1-Meg Modem Service is only available for North America DMS-100 Host office frame applications.
- RUL7 1) Provide one (1) P0631765 per LCE/ILCE frame provided. Each label contains two sets of LSG designation numbers (twenty (20) Line Sub Groups (00 through 19) housed in ten (10) Line Drawers for each set).
- RUL8 1) Provide one (1) NT6X05AX, Line Drawer Filler, in any position not occupied by a line drawer.
- RUL9 1) For new switches, provide one (1), LCM Common CP for each LCM module equipped in the LCE/ILCE frame.
- 2) Provide one (1) NT6X04AD/BC, LCM/ILCM Common CP for each LCM/ILCM module equipped in the LCE/ILCE frame for North American, and PCM-30 Line Drawer (PLD) for Mercury in the UK, applications. NT6X05CA is MD and replaced by the GPP Product.
 - 3) For international applications, except PLD for Mercury in the UK, provide one (1) NT6X04BC, International LCM Common CP for each ILCM module equipped on the ILCE frame.
 - 4) For North America ISDN Line Drawer Remotes (NT6X05DA) applications using the NT6X03AA LCE frame, you must have the NT6X51AB LCM Proc CP (NT6X04AC) as a minimum. The NT6X51AC LCM Proc CP (NT6X04AD) shall be provided for new LCM modules.
- RUL10 1) Provide one (1) LCM Filler Kit NT6X04AX for each completely unequipped LCM.

- RUL11 1) For optimum LCE cable protection, provide one Rear Cover (1) NT8T5055 per LCE for non-EMI frames compatible with Universal Framework (NT0X25AH) and must be field installed. Refer also to the rule for Cable Bracket P0664837.
- RUL12 1) Provide one (1) NT0X25AA (MD) per LCE for non-earthquake non- EMI applications in the United States.
- 2) Provide one (1) NT0X25AH Universal Frame per LCE for earthquake, EMI applications.
- 3) Provide one (1) NT0X25AL (MD) for earthquake with EMI compliance applications in the United States.
- 4) Provide one (1) NT0X25AE for non-earthquake, EMI compliant applications in the United States.
- RUL13 1) Provide four (4) P0664837 Brackets and eight (8) P097F813 mounting screws for Line Drawer cable protection on the LCE frame if required by the customer. Cable Brackets, P0664837, may be used additional to or as an alternative to the optimum protection provided by the Rear Cover NT8T5055. Refer to the rule for the Rear Cover NT8T5055. The Cable Brackets are to be shipped loose and installed by the customer or NT Installer. Brackets to be mounted onto the rear frame uprights at hole locations: 07, 24, 41 and 58
- RUL14 1) Provide one (1) NT6X04ZY LCM Processor CP Kit when upgrading a module E/W NT6X04AA/AB/AC to NT6X04AD (NT6X51AA/AB to NT6X51AC). 2) Provide one (1) NT6X04ZY LCM Processor CP Kit when upgrading a module E/W NT6X04BA/BB to NT6X04BC (NT6X51AA/AB to NT6X51AC). NOTE: Office Records shall be changed and maintained to agree with the Common Circuit Pack Fill and not the Common Circuit Pack Kit.
- RUL15 1) For EMI with 8 in rear extension without Overhead Cable Trough. Provide hardware per MS0X32
- 2) Provide one (1) NT7X3815 per module (maximum 2 per frame) for EMI applications
- 3) Provide one (1) NT7X3816 per module (maximum 2 per frame) for EMI applications
- 4) Provide one (1) NT0X9503 per frame for EMI applications
- 5) Provide one (1) NT6X1441 per frame for EMI applications. Refer to Note 1

- 6) Provide one (1) NT6X1448 per frame for EMI applications. Refer to Note 1
- 7) Provide one (1) P097F814 Screw per frame for EMI applications
- 8) Provide one (1) P0183220 Washer per frame for EMI applications
- 9) Provide one (1) P0642031 Cable Bracket per frame for EMI applications
- 10) Provide twenty four (24) P0633700 Cable Ties per frame for EMI applications
- 11) Provide twenty eight (28) P0633702 Cable Ties per frame for EMI applications
- 12) Provide two (2) P097F813 Screw per frame for EMI applications
- 13) Provide one (1) NT6X0363 EMI LCE Fan Unit Kit for EMI applications

NOTE 1: Provide these cables when jobs are engineered for NT0X32CH.

- RUL16 1) Provide (5) P0729355 LCE Rear Cover Support Brackets to secure Rear Covers in situations where the customer is having problems with the Rear Covers staying on. This is a field upgrade situation usually associated with Common Framework.
- RUL17 1) Provide one (1) NT6X04ZZ LCM Processor CP Kit when upgrading a module E/W NT6X04AA to NT6X04AB. (NT6X04ZZ is MD and replaced by NT6X04ZY). NOTE: Office Records shall be changed and maintained to agree with the Common Circuit Pack Fill and not the Common Circuit Pack Kit.
- RUL18 1) Provide one (1) NT6X0375 Wiring Option Kit per DMS-10 LCE, with ringing, for Japan applications.
- 2) Provide one (1) NT6X0376 Wiring Option Kit per DMS-10 LCE, without ringing, for Japan applications.

SIGNALLING TERMINAL 7 EXTENSION FRAME

NT6X09AA

RATING: Standard

ABBREVIATION NAME: ST6E
(When used as an extension frame for CCITT No. 6 or CCIS6 applications.)
ST7E
(When used as an extension frame for CCS7 applications or DPNSS applications.)

ENGINEERING DESCRIPTION: The Signalling Terminal Extension Frame houses CCITT No. 6/CCIS6/CCS7 signalling terminals. The ST6E/ST7E provides the capacity to add up to 48 ST's (on 3 ST extension shelves) in addition to the 16 ST's on the MS6E (NT6X06AB) frame or the 24 ST's on the MS7E (NT6X31AA) frame. The Data Modem Extension Frame (DME) NT6X29 must always be provisioned with the ST6E frame.

REFERENCE DOCUMENTATION: MS6X09AA 00 10

The Signalling Terminal 7 Extension Frame is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Cage Filler Panel Assembly	NT0X84AA		1	65		AP
Signalling Term Ext Shf	NT6X08AA	ST7G2	1	51		RUL2
Cage Filler Panel Assembly	NT0X84AA		1	51		RUL3
Signalling Terminal Cards	AR			51	04-24	RUL4
Filler Face Plate	NT0X50AA			51	04-24	RUL6
# Pwr Conv +/-5V & 12V	NT2X70AB			51	01,25	RUL7
# Pwr Conv +/-5V & 12V	NT2X70AD			51	01,25	RUL7
Pwr Conv +/-5V & 12V	NT2X70AE			51	01,25	RUL7
Filler Face Plate	NT0X50AE			51	01,25	RUL8
Frame Supervisory Panel	NT0X28AP	FSP		45		AP
Signalling Term Ext Shf	NT6X08AA	ST7G1	1	32		RUL2
Cage Filler Panel Assembly	NT0X84AA		1	32		RUL3
Signalling Terminal Cards	AR			32	04-24	RUL4
Filler Face Plate	NT0X50AA			32	04-24	RUL6
# Pwr Conv +/-5V & 12V	NT2X70AB			32	01,25	RUL7
# Pwr Conv +/-5V & 12V	NT2X70AD			32	01,25	RUL7
Pwr Conv +/-5V & 12V	NT2X70AE			32	01,25	RUL7
Filler Face Plate	NT0X50AE			32	01,25	RUL8
Signalling Term Ext Shf	NT6X08AA	ST7G0	1	18		AP
Signalling Terminal Cards	AR			18	04-24	RUL4
Filler Face Plate	NT0X50AA			18	04-24	RUL6
# Pwr Conv +/-5V & 12V	NT2X70AB			18	01,25	RUL7
# Pwr Conv +/-5V & 12V	NT2X70AD			18	01,25	RUL7
Pwr Conv +/-5V & 12V	NT2X70AE			18	01,25	RUL7
Filler Face Plate	NT0X50AE			18	01,25	RUL8
Cooling Unit	NT3X90AC	CU	1	04		RUL9
Cooling Unit	NT3X90AB	CU	1	04		RUL9
Cooling Unit	NT3X90AA	CU	1	04		RUL9
Desig Label for NT6X65AA	P0626891					RUL10
Desig Label for NT6X68AA	P0643138					RUL10
Desig Label for NT6X68AB	P0643139					RUL10
Desig Label for NT2X70AB	P0643565				01,25	RUL10
Desig Label for NT6X66AA	P0647822					RUL10
Desig Label for NT6X68AC	P0647823					RUL10

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Desig Label for NT6X68AD	P0647824					RUL10
Desig Label for NT2X70AD	P0664133					RUL10
Desig Label for NT2X70AE	P0698943					RUL10
Cbl Assy from shf 18 to 32	NT0X26GU					RUL11
Cbl Assy from shf 32 to 51	NT0X26GS					RUL12
Power Cable Assemblies	NT0X95BU					RUL13
Power Cable Assemblies	NT0X95BA					RUL13
Connector Key Brackets	P0638270		16	18	04-11 17-24	AP
Connector Key Brackets	P0638268		4	18	12-13 15-16	AP
Connector Key Brackets	P0638270			32, 51	04-11 17-24	RUL14
Connector Key Brackets	P0638268			32, 51	12-13 15-16	RUL14
Logic Return Cable Assembly	NT0X0009					RUL5

FLAGS:

To be replaced by NT2X70AE.

NOTE:

- 1) The ST cards reside in the ST7G shelf. The ST7G shelf contains two ST groups, each powered by a different feed (i.e. A & B). CCS7 ST's are provisioned in pairs; the ST pair should be powered by different power feeds, for reliability purposes. Even pooled ST's (i.e. ST's in a reserve pool) should be shared over the two power feeds wherever possible.
- 2) The maximum cable length between the Data Set Module shelf of the DME and the respective ST6G shelf of the ST6E is 50 feet (16 m). Note that the ST6E and DME frames are not used for the CCIS application. The Signalling Terminal, NT6X65AA is common to both the CCIS and CCITT #6 applications. The ST6E must be located to the left of the MS6E (as viewed from the front of the frames).

RULE:

- AP 1) When PEC NT6X09AA is ordered, one (1) NT0X84AA is always provided at position 65.
- 2) When PEC NT6X09AA is ordered, one (1) NT6X08AA is always provided at position 18 together with 16 P0638270 connector brackets and 4 P0638268 connector brackets. The ST7G shelf (NT6X08AA) has the capacity of housing 16 CCS7 signalling terminals, in two ST groups of 8 ST's each.

RUL1 1) (Reserved for future use).

| RUL2 1) Provide up to two (2) additional NT6X08AA, Signalling Terminal 7 Group Shelf as per customer requirements. Note that each MSB7 (NT6X32__) can interface a maximum of 72 ST's, i.e. 24 ST's on the MS7E and 48 ST's on the ST7E.

RUL3 1) Provide up to two (2) additional NT0X84AA, Cage Filler Panel Assemblies in positions 32 and/or 51 when the provisionable NT6X08AA ST7G shelves are not provided.

RUL4 1) The following Signalling Terminal Cards are provisionable on the ST6E/ST7E frame on shelves 18, 32 and 51:

SIGNALLING TERMINAL CARD	FOR ST6E	FOR ST7E	FOR DPNSS
Signalling Terminal	NT6X65AA	NT6X66AA	NT6X66CA
Signalling Terminal I/F	NT6X68AA	NT6X68AC	NT6X68AC
ST I/F with Terminator	NT6X68AB	NT6X68AD	NT6X68AD

- 2) For ST6E, provide one (1) NT6X66AA CCS7 Signalling Terminal for each additional signalling link (maximum 48) required by the customer, as per Table 1. ST's on the ST7G are provisioned in two groups of 8 ST's. Also see RUL5.

For ST7E, provide one (1) NT6X66AA CCS7 Signalling Terminal for each additional signalling link (maximum 48) required by the customer, as per Table 1. ST's are provisioned in pairs and are equipped on the ST7G are provisioned in two groups of 8 ST's.

TABLE 1

ST GROUP	ST	ST LOCATION ON ST7G	POWER FEED
XX	7	XX-04 (J08)	B
XX	6	XX_05 (J07)	B
XX	5	XX-06 (J06)	B
XX	4	XX_07 (J05)	B
XX	3	XX-08 (J04)	B
XX	2	XX_09 (J03)	B
XX	1	XX-10 (J02)	B
XX	0	XX_11 (J01)	B
XX	0	XX-17 (J09)	A
XX	1	XX_18 (J010)	A
XX	2	XX-19 (J011)	A
XX	3	XX_20 (J012)	A
XX	4	XX-21 (J013)	A
XX	5	XX_22 (J014)	A
XX	6	XX-23 (J015)	A
XX	7	XX_24 (J016)	A

The JXX are connectors on the ST6G, ST7G and modem shelves.

ST6G,ST7G SHELF POSITION

(XX)

18

32

51

- 3) Provide NT6X68AA and NT6X68AB for ST6E frame or provide NT6X68AC and NT6X68AD for the ST7E frame as follows:

NO. OF ST GROUP UNITS	CIRCUIT PACK	QTY	FRAME POS	CIRCUIT PACK POSITION	INTER SHELF CABLES
1	NT6X68AA/AC	-	18	-	-
	NT6X68AB/AD	2	18	15&16	-
2	NT6X68AA/AC	2	18	15&16	-
	NT6X68AB/AD	2	18	12&13	-
3	NT6X68AA/AC	4	18	12&13 & 15&16	add cables NT0X26GU from 18-13 to 32-15 and from 18-12 to 32-16
	NT6X68AB/AD	2	32	15&16	
4	NT6X68AA/AC	6	18	12&13 & 15&16	
			32	15&16	
	NT6X68AB/AD	2	32	12&13	
5	NT6X68AA/AC	8	18	12&13 & 15&16	add cables NT0X26GS from 32-13 to 51-15 and from 32-12 to 51-16
			32	12&13 & 15&16	
	NT6X68AB/AD	2	51	15&16	
6	NT6X68AA/AC	10	18	12&13 & 15&16	
			32	12&13 & 15&16	
			51	15&16	
	NT6X68AB/AD	2	51	12&13	

Provide two (2) Signalling Terminal Interface with Terminator NT6X68AD when the NT6X08AA is the last shelf.

- 4) The ST6E/ST7E frame is used to increase the ST's from 24 (resident on the MS6E/MS7E NT6X31AA frame) to 72 (i.e. an additional 48 ST's).

If the office already has ST's on the MS7E frame, transfer the STI with Terminator CP (NT6X68AD) to the last ST shelf on the ST7E and replace with 2 STI packs NT6X68AC. If this is an initial office, provision 2 NT6X68AD's and mount on the last ST group in the last ST7G shelf on the ST7E.

- RUL5 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.).
- RUL6 1) Provide one (1) NT0X50AA Filler Face Plate always in position 14
- 2) Provide an NT0X50AA Filler Face Plate for each position not equipped with NT6X66AA or NT6X68AC or NT6X68AD. Provide fillers only when shelves are provided.
- RUL7 1) Provide one NT2X70AE when providing 1 to 8 CCIS/CCS7 Signalling Terminal NT6X66AA/NT6X65AA and 2 NT6X68AA/AC or 2 NT6X68AB/AD on shelf (maximum of 6 on frame) as per Table 2. 2) The NT2X70AE replaces the NT2X70AD.

TABLE 2

NT2X70AD/AE Position	Powers Circuit Pack Positions
18-01	18-04 to 18-13
18-25	18-15 to 18-24
32-01	32-04 to 32-13
32-25	32-15 to 32-24
51-01	51-04 to 51-13
51-25	51-15 to 51-24

- RUL8 1) Provide one (1) NT0X50AE in position 01 or 25 when an NT2X70AE is not provided. Provide fillers only when CPs are not provided.

- RUL9 1) Provide one (1) NT3X90AB Cooling Unit when this frame is the first frame in the chain of peripheral equipment (SME/LGE/LTE/DTE/MS7E) frames that require Cooling Units, and this chain is fed by a different PDC. This chain excludes the Central Control Complex and the Network frames.
- 2) Provide one (1) NT3X90AA when RUL9 item #1 does not apply.
- 3) Provide one (1) NT3X90AC DC Cooling Unit for this frame to supply forced air cooling.
- RUL10 1) Provide one (1) corresponding Designation Label per each Signalling Terminal Card and each Power Converter Card.
- RUL11 1) Provide four (4) Cable Assemblies NT0X26GU when an NT6X08AA is provided in position 32.
- RUL12 1) Provide four (4) Cable Assemblies NT0X26GS when an NT6X08AA is provided in position 51.
- RUL13 1) Provide two (2) of each cable NT0X95BU and NT0X95BA when an NT6X08AA is provided.
- RUL14 1) Provide sixteen (16) P0638270 brackets and four (4) P0638268 brackets when an NT6X08AA is provided as a separate item to be field mounted.

DATA MODEM EXTENSION FRAME

NT6X29AA

RATING: Standard

ABBREVIATION NAME: DME

ENGINEERING DESCRIPTION: In the CCIS/CCITT #6 environment, Phase Shift Keying (PSK) is used to transmit serial binary data over analog channels. The DME frame NT6X29AA houses analog 2400 baud modems which modulate/demodulate serial binary data (in dibits) to/from PSK. An AC modem is dedicated to each signalling terminal. The DME frame is provisioned in conjunction with the ST6E frame (NT6X09AA).

REFERENCE DOCUMENTATION: MS6X29AA 00 04

The Data Modem Extension Frame is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
AC Modem Shelf	NT5X08AC	E, F	1	66		RUL2
AC Modem Circuit Packs	A0302338			66	01-16	RUL3
AC Modem Shelf	NT5X08AC	C, D	1	52		RUL2
AC Modem Circuit Packs	A0302338			52	01-16	RUL3
Frame Supervisory Panel	NT0X88AB	FSP	1	45		RUL5
AC Modem Shelf	NT5X08AC	A, B	1	33		RUL2
AC Modem Circuit Packs	A0302338			33	01-16	RUL3
Inverters	NT0X87AA			04, 11 18		RUL4
Logic Return Cable Assembly	NT0X0008					RUL6

RULE:

- RUL1 1) Reserved for future use.
- RUL2 1) Provide up to three (3) Modem Shelves NT5X08AC as described below:

ST6G SHELF
(NT6X08AA)
FRAME POS

18
32
51

AC MODEM SHELF
(NT5X08AC)
FRAME POS

33
52
66

RUL3 1) Provide A0302338 AC Modem Circuit Pack as per Table 1.

TABLE 1

TYPICAL FOR AC MODEM SHF POS 33.
REPEAT FOR SHELVES POS 52 & 66.

ST GROUP	ST	LOCATION OF ST CARD ON NT6X08AA WHICH MOUNTS ON NT6X09AA	CORRESPONDING LOCATION OF AC MODEMS
XX-	7	XX-04 (J08)	YY-08 (J08)
XX-	6	XX-05 (J07)	YY-07 (J07)
XX-	5	XX-06 (J06)	YY-06 (J06)
XX-	4	XX-07 (J05)	YY-05 (J05)
XX-	3	XX-08 (J04)	YY-04 (J04)
XX-	2	XX-09 (J03)	YY-03 (J03)
XX-	1	XX-10 (J02)	YY-02 (J02)
XX-	0	XX-11 (J01)	YY-01 (J01)
XX-	0	XX-17 (J09)	YY-09 (J09)
XX-	1	XX-18 (J10)	YY-10 (J10)
XX-	2	XX-19 (J11)	YY-11 (J11)
XX-	3	XX-20 (J12)	YY-12 (J12)
XX-	4	XX-21 (J13)	YY-13 (J13)
XX-	5	XX-22 (J14)	YY-14 (J14)
XX-	6	XX-23 (J15)	YY-15 (J15)
XX-	7	XX-24 (J16)	YY-16 (J16)
ST6G SHELF POS (NT6X08AA) (XX)		AC MODEM SHELF POS (NT5X08AC) (YY)	
18		33	
32		52	
51		66	

RUL4 1) Provide Inverters for AC Modem Shelves as per Tables 2 and 3.

TABLE 2

PLUG J1 ON INVERTERS (NT0X87AA) CANNOT BE USED TO POWER AC MODEM SHELVES (NT5X08AC).

METHOD OF POWERING AC MODEM (NT5X08AC) USING INVERTERS:

POS		1ST A FEED	POS
66-	MODEM (E) (P1) (A)		
	MODEM (F) (P2) (A)	MODEM (A) PLUG P1-INVERTER 04 PLUG J2	
		MODEM (C) PLUG P1-INVERTER 04 PLUG J3	
52-	MODEM (C) (P1) (A)	B FEED	
	MODEM (D) (P2) (B)		
33-	MODEM (A) (P1) (A)	MODEM (B) PLUG P2-INVERTER 11 PLUG J2	
	MODEM (B) (P2) (B)	MODEM (D) PLUG P2-INVERTER 11 PLUG J3	
		2ND A FEED	
18-	(J2) INVERTER (J3)	A FEED	MODEM (E) PLUG P1-INVERTER 18 PLUG J2
			MODEM (F) PLUG P2-INVERTER 18 PLUG J3
11-	(J2) INVERTER (J3)	B FEED	
04-	(J2) INVERTER (J3)	A FEED	

Note: This implies that two inverters must be ordered for the first modem shelf (33) if it has more than 8 modems.

TABLE 3

THE FIRST INVERTER IN POS 04 WILL BE ALARMED TO TS TS1 AS SHOWN BELOW.

UNIT	CODE	LEAD DESIG	TERMINATION
INV	NT0X87AA	NO	TS TS1 PIN 14
		C	TS TS1 PIN 15

TO ALARM OTHER INVERTERS IN POS 11 AND 18 THEY WILL BE MULTIPLIED TOGETHER. EG. POS 04 MULTIPLIED TO POS 11 ETC.

RUL5 1) Provide one (1) NT0X88AB FSP when AC Modem Shelf NT5X08AC is provided.

RUL6 1) Provide one (1) NT0X0013 Logic Return Cable Assembly per frame when extending existing offices not equipped with enhanced grounding per IS0X00.

INTERNATIONAL CMS7 MSB7 COMMON CP

NTRX48AC

RATING: Standard

ABBREVIATION NAME: N/A

| ENGINEERING DESCRIPTION: The NTRX48AC International Cabinetized Message Switch 7 (CMS7) Message Switch Buffer 7 (MSB7) Common CP equips the lower two shelves of the CMS7 cabinet. The message switch buffer 7 (MSB7) provides and maintains a path from the digital signaling link which is switched through the network to the signaling terminal. MSB7 also performs the message switching and distribution functions between the DTCs and the appropriate signaling terminal.

This packfill is for international applications only.

REFERENCE DOCUMENTATION: SLRX48AC/01 01
NTRX48AC REL 01

MARKETS: Applicable markets:

CALA
Asia/Pacific
Europe

NTRX48AC EMA2-11-MSB7-5 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 12 14	ECM 661 01	Transfer from ECM-636.

The International CMS7 MSB7 Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Signal Terminal Buffer	NT6X67AA		2	05,19	10	AP
Master Signal Processor	NT6X45BA		2	05,19	11	AP
Filler Face Plate	NT0X50AA		2	05,19	12	AP
Master Processor Memory	NT6X47AB		2	05,19	13	AP
Filler Face Plate	NT0X50AA		2	05,19	14	AP
Signal Processor Memory	NT6X46BB		2	05,19	15	AP
Master Signal Processor	NT6X45BA		2	05,19	16	AP
DS30A LCM Interface	NT6X48AA		2	05,19	17	AP
Time Switch	NT6X44EA		2	05,19	18	AP
Filler Face Plate	NT0X50AA		2	05,19	19	AP
Filler Face Plate	NT0X50AA		2	05,19	21	AP
Cannel Supervision Msg.	NT6X42AA		2	05,19	22	AP
Speech Bus Formatter	NT6X41AB		2	05,19	23	AP
DS30 Network Interface	NT6X40AC		2	05,19	24	AP
Designation Strip (NTRX48AC)	P0737136		1			AP

NOTES:

RULES:

AP 1) When PEC NTRX48AC is ordered, these items are provided.

MESSAGE SIGNALLING 7 FRAME

PEC CODE: NT6X31AA

CPC CODE: B0218978

RATING: A&M

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: MS7E

ENGINEERING DESCRIPTION: The Message Switch and Buffer 7 (MS7E) Frame consists of one MSB7 module and one ST7G shelf. The MSB7 is a dual shelf peripheral, based on the LTC hardware and architecture. The MSB7 performs two main tasks. It provides and maintains a path from the CCS7 digital signalling data link, which is switched through the network (i.e. a Nailed Up Connection), to the CCS7 signalling terminal, and, it performs the message switching and distribution function between the DTC's and the appropriate ST's.

The ST's are located on the MSB7 shelves (maximum 4 per shelf) and on ST7G shelves (maximum 16). Therefore, a maximum of 24 ST's can be provided on the MS7E frame. The MSB7 can interface a maximum of 120 interperipheral message links (PML) on the C side and a maximum of 72 ST's. Refer to MS6X09AA - Signalling Terminal 7 Extension Frame (ST7E) when the office requires more than 24 ST's.

CAUTION: As of CSP07 (for example; NA007, CDN007, TOPS07) CCS7 links on MSB7 platforms are no longer supported in the DMS switch. A newer CCS7 peripheral must be provisioned before adding the CSP07 software. Newer CCS7 peripherals include the FLIS, LIM and SNSE LIS.

REFERENCE DOCUMENTATION: MS6X31AA 00 19

SL6X31AA 00 09

SL6X32DB 00 01

MARKETS:

Applicable markets:

US

Canada

Europe

Asia/Pacific

CALA

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

NT6X31AA EMA2-11-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-----	-----	Previous history not available
93 10 15	ECM 271 13	Introduction of NT6X69LB in MSB7 to allow MSB7 function in ENET appl.
95 09 11	ECM 271 14	Change status of section to MD per ECD 024-93165.
96 01 26	ECM 271 17	Change status of section to A&M per ECD 024-95822.
96 08 22	ECM 271 18	Change status of section to Standard and add NT6X32CE packfill per ECD 024-96109.
97 02 28	ECM 271 19	Add Caution note that MSB7 links are not supported by CSP07 and higher software in the DMS office.
97 04 02	ECM 271 20	MD the NT6X45BB, LGC/DTC Processor CP per EC 024-96698.

The Message Signalling 7 Frame is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Cage Filler Panel Assembly	NT0X84AA		1	65		AP
Sig. Term 7 Group Shf Assy	NT6X08AA	ST7G		51		RUL6
Cage Filler Panel Assembly	NT0X84AA			51		RUL6
CCS7 Signalling Terminal CP	NT6X66AA			51	04-11, 17-24	RUL3
CCS7 Signalling Terminal CP	NT6X66AC			51	04-11, 17-24	RUL3
DPNSS Signalling Term CP	NT6X66CA	ST		51	04-11, 17-24	RUL3
Signalling Terminal I/F CP	NT6X68AC			51	15-16 12-13	RUL4
Filler Face Plate 0.875	NT0X50AA			51	14	RUL8
STI with Terminator CP	NT6X68AD			51	15-16 12-13	RUL5
Filler Face Plate 0.875	NT0X50AA			51	04-24	RUL8
* Power Converter	NT2X70AB			51	01,25	RUL7
* Power Converter	NT2X70AD			51	01,25	RUL7
* Power Converter	NT2X70AE			51	01,25	RUL7
* Power Converter	NT2X70AF			51	01,25	RUL7
* Power Converter Kit	NT2X70AZ			51	01,25	RUL7
Power Converter Kit	NT2X70AY			51	01,25	RUL7
Filler Face Plate	NT0X50AE			51	01,25	RUL7
Connector Key Brackets	P0638268			51	12,13, 15,16	RUL6
Connector Key Brackets	P0638270			51	04,11, 17,24	RUL6
Cable Support Bracket	P0638290			51		RUL6
Frame Supervisory Panel	NT0X28AP	FSP	1	45		AP
Sig. Term Array 7 Shf Assy	NT6X3201	STA71	1	32		AP
* Power Conv. +/-5V & 12V	NT2X70AB			32	1,25	RUL23
* Power Conv. +/-5V & 12V	NT2X70AD			32	1,25	RUL23
* Power Conv. +/-5V & 12V	NT2X70AD			32	1,25	RUL23
* Power Conv. +/-5V & 12V	NT2X70AE			32	1,25	RUL23
Power Conv. +/-5V & 12V	NT2X70AF			32	1,25	RUL23
* Power Conv. Kit	NT2X70AZ			32	1,25	RUL23
Power Conv. Kit	NT2X70AY			32	1,25	RUL23
CCS7 Signalling Terminal CP	NT6X66AA	ST		32	04-07	RUL3
CCS7 Signalling Terminal CP	NT6X66AC	ST		32	04-07	RUL3
DPNSS Signalling Term CP	NT6X66CA	ST		32	04-07	RUL3
Filler Face Plate 0.875	NT0X50AA			32	04-07	RUL3
Signalling Terminal I/F	NT6X68AC			32	08	RUL4

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
STI with Terminator	NT6X68AD			32	08	RUL5
% LGC/DTC Processor CP	NT6X45AE			32	11, 16	RUL19
@ LGC/DTC Processor CP	NT6X45AF			32	11, 16	RUL19

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
LGC/DTC Processor CP	NT6X45BA			32	11, 16	RUL19
# LGC/DTC Processor CP	NT6X45BB			32	11, 16	RUL19
SP memory Plus CP	NT6X46BA			32	15	RUL25
SP memory Plus CP	NT6X46BB			32	15	RUL25
Message Protocol CP	NT6X69AB			32	20	RUL24
Message Protocol CP	NT6X69AC			32	20	RUL24
Message Protocol CP	NT6X69MA			32	20	RUL24
CPP Msg Protocol & Downld CP	NT6X69LB			32	20	RUL24
Design Label (NT6X69LB)	P0713213			32	20	RUL21
\$ DS30 Network I/F CP	NT6X40AB			32	24	RUL20
DS30 Network I/F CP	NT6X40AC			32	24	RUL20
Filler Face Plate 0.875	NT0X50AA			32	12, 14, 19, 21	RUL8

Sig. Term Array 7 Shf Assy	NT6X3201	STA70	1	18		AP
# MSB7 Common CP	NT6X32AA	MSB7		18		RUL2
# MSB7 Common CP	NT6X32AB	MSB7		18		RUL2
# MSB7 Common CP	NT6X32CA	MSB7		18		RUL2
# MSB7 Common CP	NT6X32CC	MSB7		18		RUL2
MSB7 Common CP	NT6X32CE	MSB7		18		RUL2
! MSB7 Common CP (DPNSS)	NT6X32BA	MSB7		18		RUL2
MSB7 Common CP (DPNSS)	NT6X32DA	MSB7		18		RUL2
MSB7 Common CP (DPNSS)	NT6X32DB	MSB7		18		RUL2
Product Change Kit	NT6X02ZA			18		RUL2
Product Change Kit	NT6X02ZJ			18		RUL2
Product Change Kit	NT6X02BQ			18		RUL2
* Power Conv. +/-5V & 12V	NT2X70AB			18	1, 25	RUL23
* Power Conv. +/-5V & 12V	NT2X70AD			18	1, 25	RUL23
* Power Conv. +/-5V & 12V	NT2X70AE			18	1, 25	RUL23
Power Conv. +/-5V & 12V	NT2X70AF			18	1, 25	RUL23
* Power Conv. Kit	NT2X70AZ			18	1, 25	RUL23
Power Conv. Kit	NT2X70AY			18	1, 25	RUL23
r CCS7 Signalling Terminal CP	NT6X66AA	ST		18	04-07	RUL3
CCS7 Signalling Terminal CP	NT6X66AC	ST		18	04-07	RUL3
DPNSS Signalling Term CP	NT6X66CA	ST		18	04-07	RUL3
Filler Face Plate 0.875	NT0X50AA			18	04-07	RUL3
Signalling Terminal I/F	NT6X68AC			18	08	RUL4
STI with Terminator	NT6X68AD			18	08	RUL5

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
% LGC/DTC Processor CP	NT6X45AE			18	11, 16	RUL19
@ LGC/DTC Processor CP	NT6X45AF			18	11, 16	RUL19
LGC/DTC Processor CP	NT6X45BA			18	11, 16	RUL19
# LGC/DTC Processor CP	NT6X45BB			18	11, 16	RUL19
SP memory Plus CP	NT6X46BA			18	15	RUL25
SP memory Plus CP	NT6X46BB			18	15	RUL25
Message Protocol CP	NT6X69AB			18	20	RUL24
Message Protocol CP	NT6X69AC			18	20	RUL24
Message Protocol CP	NT6X69MA			18	20	RUL24
CPP Msg Protocol & Downld CP	NT6X69LB			18	20	RUL24
Design Label (NT6X69LB)	P0713213			18	20	RUL21
\$ DS30 Network I/F CP	NT6X40AB			18	24	RUL20
\$ DS30 Network I/F CP	NT6X40AB			18	24	RUL20
DS30 Network I/F CP	NT6X40AC			18	24	RUL20
Filler Face Plate 0.875	NT0X50AA			18	12, 14, 19, 21	RUL8
Cooling Inverter Unit	NT3X90AC	CU		04		RUL9
Cooling Inverter Unit	NT3X90AB	CU		04		RUL9
Cooling Inverter Unit	NT3X90AA	CU		04		RUL9
Cable Assembly	NT0X26GR					RUL11
Cable Assembly	NT0X26GS					RUL11
Cable Assembly	NT0X26GT					RUL12
Cable Assembly	NT0X26GV					RUL12
Power Cable Assembly	NT0X95BX&BV					RUL13
Power Cable Assembly	NT0X95CG&CH					RUL13
Logic Return Cable Assembly	NT0X0009					RUL18
Desig. Label for NT6X66AA	P0647822			18, 32	04-07	RUL14
				51	04-11	RUL14
				51	17-24	RUL14
Desig. Label for NT6X66AC	P0729818			18, 32	04-07	RUL14
				51	04-11	RUL14
				51	17-24	RUL14
Desig. Label for NT6X66CA	P0689915			18, 32	04-07	RUL14
				51	04-11	RUL14
				51	17-24	RUL14
Desig. Label for NT2X70AB	P0643565			51	01, 25	RUL15
Desig. Label for NT2X70AE	P0698943			51	01, 25	RUL15
Desig. Label for NT2X70AE	P0698943			51	01, 25	RUL15
Desig. Label for NT2X70AF	P0809960			51	01, 25	RUL15
Desig. Label for NT6X68AC	P0647823			18, 32	08	RUL16
Desig. Label for NT6X68AD	P0647824			18, 32	08	RUL17
Desig. Label for NT6X68AD	P0647824			51	15-16	RUL17
Desig. Label for NT6X45AE	P0696599			18, 32	11-16	RUL21
Desig. Label for NT6X45AF	P0685029			18, 32	11-16	RUL21
Desig. Label for NT6X45BA	P0665152			18, 32	11, 16	RUL21

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Desig. Label for NT6X45AF	P0685029			18,32	11,16	RUL21
Desig. Label for NT6X45BB	P0702191			18,32	11,16	RUL21
Desig. Label for NT6X46BB	P0709528			18,32	15	RUL22
Desig. Label for NT6X69AB	P0698317			18,32	20	RUL22
Desig. Label for NT6X69AC	P0710476			18,32	20	RUL22
Desig. Label for NT6X40AB	P0677827			18,32	24	RUL22
Desig. Label for NT6X40AC	P0695397			18,32	24	RUL22

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT6X32CC NT6X45BB	MD MD	NT6X32CE NT6X45BA

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) DTC Provisioning

The Signalling Data Link (SDL) is a channel on a T1 Carrier which terminates on a DTC, DCM, or LTC.

ISDN trunks must terminate on a DTC. ISDN trunks are only supported on DTC's.

The DTC may be used for both SDL and ISDN trunks, however for reliability against failures, it is recommended to distribute the ISDN trunks and SDL across several peripherals.

Mixing of ISDN and Per Trunk Signalling (PTS) trunks on the same DTC is supported.

The DTC supporting the ISDN trunk must be equipped with extended memory boards, NT6X47AB and NT6X46AB, and the new messaging card with tone circuits NT6X69AA & NT6X79AA (i.e. CP Fill NT6X02AQ). The following chart lists the product change kits used to convert the CP fills on DTC's to NT6X02AQ.

	CP FILLS	
PC KIT	FROM	TO

*	NT6X02ZT	NT6X02AA	NT6X02AQ
*	NT6X02ZW	NT6X02AC	NT6X02AQ

* In the U.S. a NT6X02ZL PC kit is required when the NT6X02ZT or NT6X02ZW kit is ordered.

RULES:

- AP 1) When PEC NT6X31AA is ordered, these items are provided.
- 2) Two always provided 7 Signalling Terminal Array Shelves NT6X3201 on positions 18 and 32 make up the Message Switching Buffer Module 7, MSB7.

The lower shelf, STA7 0 is "A" powered.
The upper shelf, STA7 1 is "B" powered.

- 3) Frame Supervisory Panel NT0X28AP has one always provided Converter Drive & Protection CP, NT0X91AE, and one Alarm & Converter Drive CP, NT0X91AA.

- RUL1 1) Reserved for future use.

- RUL2 1) Provide one (1) NT6X32CE, MSB7 Common CP to equip the MSB7 module in the MS7E frame. The MSB7 is a dual shelf peripheral, i.e. one NT6X32CC consists of hardware for both shelf positions 18 and 32. NT6X32AA is replaced by NT6X32CA, which is replaced by NT6X32CC. The NT6X32CC is replaced by the NT6X32CE.

- 2) Provide one (1) NT6X02ZJ, PC Kit for the BCS-27 conversion of the MSB7 module in the MS7E frame. The NT6X32AB is an NT6X32AA with the PC Kit NT6X02ZJ applied to expand the memory for BCS-27. The MSB7 is a dual shelf peripheral, i.e. one NT6X32AB consists of hardware for both shelf positions 18 and 32.

- 3) Provide one (1) NT6X32DA, MSB7 Common CP to equip the MSB7 module in the MS7E frame for DPNSS. The MSB7 is a dual shelf peripheral, i.e. one NT6X32DA consists of hardware for both shelf positions 18 and 32. NT6X32BA is replaced by NT6X32DA.

- 4) Provide one (1) NT6X02BQ FXPM Product Change Kit to upgrade NT6X32AB or NT6X32CA MSB7 Common CP to NT6X32CC. This upgrade is required when MSB7 interfaces to ENET.

- 5) Provide one (1) NT6X32DB, MSB7 Common CP to equip the MSB7 module in the MS7E frame for DPNSS to allow MSB7 function in ENET application.

The new NT6X32DB MS7B (DPNSS) packfill which uses the NT6X69LB Message Interface circuit pack to allow the module to function in ENET applications. The NT6X32DB packfill is

provisioned to the NT6X31AA Message Switching 7 Equipment (MS7E) frame.

- 6) Provide one (1) NT6X32ZA, in order for customers with existing NT6X32DA packfills (which use the NT6X69AA Message pack) to upgrade to the new NT6X32DB packfill, a new NT6X32ZA Product Change (PC) Kit has been created and introduced in this ECM. This will allow the packfill to be used in ENET applications. The NT6X32ZA product change kit stocklist contains two (2) NT6X69LB message interface packs and two (2) P0713213 labels (NT9X69LB).

- RUL3 1) Provide one (1) Signalling Terminal CP (NT6X66AC) per signalling link. In CCS7, signalling links are provisioned in pairs. The two CCS7 ST CP's associated with a signalling link pair must be provided on separate STA7 shelves (NT6X3201) at CP positions 04 to 07, or on the ST7G (NT6X08AA) at CP positions 04 to 11 and 17 to 24. Note that on the ST7G shelf, CP positions 15 to 25 are "A" powered, and CP positions 01 to 13 are "B" powered.

The NT6X66ACs must be located and datafilled per the data fill location order (CP Position 07, then 06, etc.).

For all new jobs provide NT6X66AC which functions identically to NT6X66AA but also has C7BERT capability.

STA7 Shelf

CP POSITION	04	05	06	07
Data Fill Location	3	2	1	0

ST's (NT6X66AC) should be spread evenly between STM's.

Provide one (1) NT6X66CA DPNSS Signalling Terminal CP per DPNSS Signalling Link. For DPNSS, the signalling links are provisioned individually - one per associated PCM-30 span.

- 2) Provide one (1) Filler Face Plate (NT0X50AA) for each position not equipped with NT6X66AA/CC in part 1 of RUL3 above.

- RUL4 1) Provide one (1) NT6X68AC STI card each for positions 18-08 and 32-08 if the STA7 is not the last ST group shelf, i.e. if one or more ST7G shelf (NT6X08AA) are associated with this MSB7 unit.

- 2) The ST7G shelf (NT6X08AA) is partitioned into two ST groups of 8 ST's each, i.e. CP positions 15-25 (STG:0) and 01-13

(STG:1). Provide two (2) NT6X68AC STI CP's for each STG:0 and 1 when the ST group is not the last in the office. Where either the STG:0 or 1 is the last ST group for the MSB, provision NT6X68AD STI with terminator as per RUL5. Thus a maximum of six (6) STI's can be provisioned in a NT6X31AA MS7E frame.

- 3) The total number of NT6X68AC per MSB7 should be equal to the number of ST7G shelves (NT6X08AA) * 4.

RUL5 1) Provide two (2) Signalling Terminal Interface cards with Terminator NT6X68AD, in positions 18-08 and 32-08, when the MSB7 (NT6X32AA) shelves are the last shelves on the MS7E, i.e. the ST requirements for the office do not exceed eight (8) ST's.

- 2) Provide two (2) STI with terminator cards NT6X68AD on the last STG (i.e. either STG:0 or 1) of the ST7G (NT6X08AA) shelf i.e. in position 51-15 & 51-16 or 51-12 & 51-13. When a ST7E frame (NT6X09AA) and associated ST7G shelves are provisioned, provide STI cards (NT6X68AC) as per RUL4 above, and provide STI with Terminators on the last ST group of the ST7E frame.

- 3) Provide one (1) Filler Face Plate NT0X50AA for each position on the ST7G not equipped, to ensure effective forced air cooling by the Cooling Unit.

RUL6 1) Provide one (1) Signalling Terminal 7 Group Shelf Assembly ST7G (NT6X08AA) when customer requirements exceed 8 signalling terminals (NT6X66AA/AC), together with one (1) cable support bracket P0638290, 16 Cable Key Brackets P0638270 and four (4) P0638268 Cable Key Brackets.

- 2) Provide one (1) Cage Filler Assembly (NT0X84AA) in position 51 when no ST7G (NT6X08AA) is ordered.

RUL7 1) Provide two (2) NT2X70AF when ST7G (NT6X08AA) is provisioned as per table below:

NT2X70AF POSITION	FOR CP POSITION
01	04 to 13
25	15 to 24

- 2) The NT2X70AF replaces the NT2X70AE. The NT2X70AY kit is used to upgrade existing NT2X70AE to NT2X70AF.

- 3) The NT2X70AE replaces the NT2X70AD. The NT2X70AZ kit is used to upgrade existing NT2X70AD to NT2X70AE.
 - 4) Provide one (1) Filler Face Plate NT0X50AE in position 01 or 25 of ST7G (NT6X08AA) when NT2X70AF is not provided.
- RUL8 1) Always provide one (1) Filler Face Plate NT0X50AA in position 14 of ST7G shelf.
- 2) Provide one (1) Filler Face Plate NT0X50AA in positions 04-13 and 15-24 when not equipped with a circuit pack.
- RUL9 1) Provide one (1) Cooling Inverter Unit NT3X90AB when this frame is the first frame in the chain of frames that require cooling units and this chain is fed by one particular PDC.
- 2) Provide one (1) Cooling Inverter Unit NT3X90AA when the above rule does not apply.
- 3) Provide one (1) NT3X90AC DC Cooling Unit for this frame to supply forced air cooling.
- RUL10 1) Reserved for future use.
- RUL11 1) Provide two (2) Cable Assemblies (NT0X26GR) when ST7G (NT6X08AA) is provided in position 51. The cable will run from shelf 18-08 to 51-16.
- 2) Provide two (2) Cable Assemblies (NT0X26GS) when ST7G (NT6X08AA) is provided in position 51. The cable will be run from shelf 32-08 to 51-15.
- RUL12 1) Provide one (1) of each cables NT0X26GT and NT0X26GV to extend the MSB7 DS-30A speech bus to STG:0 on the ST7G, i.e. the cables run from pos 18-17 to 51-15 and from pos 32-17 to 51-16 respectively.
- 2) Provide two (2) additional cables, one each of NT0X26GT and NT0X26GV when Signalling Terminals (NT6X66AA/CC) are provisioned on the STG:1 of the ST7G, i.e. the cables run from pos 18-17 to 51-13 and from pos 32-17 to 51-12 respectively.
- RUL13 1) Provide one (1) each of power cables NT0X95CG, NT0X95CH, and NT0X95BX, NT0X95BV when ST7G (NT6X08AA) is provided.
- RUL14 1) Provide one (1) P0647822 Designation Label per each NT6X66AA provided.

Provide one (1) P0729818 Designation Label per each NT6X66AC provided.

Provide one (1) P0689915 Designation Label per each NT6X66CA provided.

RUL15 1) Provide one (1) P0664133 Designation Label per each NT2X70AD provided.

2) Provide one (1) P0809960 Designation Label per each NT2X70AF provided.

RUL16 1) Provide one (1) Designation Label P0647823 per each NT6X68AC provided.

RUL17 1) Provide one (1) Designation Label P0647824 per each NT6X68AD provided.

RUL18 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 item 1GZ in the switchboard cabling section of the Grounding Requirements (1.3) of Section 35000000.)

RUL19 1) Provide four (4) NT6X45BA LGC/DTC Processor Cards for each NT6X32CC MSB7 module ordered. Mount circuit packs in slots 11 and 16 of the peripheral modules. NT6X45BA/BB replaces NT6X45AF. The NT6X32CC is replaced by NT6X32CE.

2) Provide four (4) NT6X45BA LGC/LTC Processor cards for each new MSB7 module ordered (Canadian applications only). This CP is required for the NTXA67-- Extended XPM Diagnostics or the NTX66-- Enhanced Office Recovery software package. Mount circuit packs in slots 11 and 16 of the upper and lower shelves of the peripheral module.

3) Provide four (4) NT6X45BB LGC/LTC Processor cards when upgrading an existing MSB7 (U.S. applications only). This CP is required for the NTXA67-- Extended XPM Diagnostics or the NTX66-- Enhanced Office Recovery software package. Mount circuit packs in slot 11 and 16 of the upper and lower shelves of the peripheral module.

- RUL20 1) Provide two (2) NT6X40AC DS30A Network I/F Cards for each new MSB7 module ordered. Mount circuit packs in slot 24 of the upper and lower shelves of the peripheral modules.
- 2) The MSB7 Port 0,1 and 2 are always required ports as Port 0 and Port 2 are the two messaging ports. One port has 30 speech channels. Each channel supports one Signalling Data Link (SDL).

Two MSB7 channels in the port are required for one (1) Inter- peripheral Message Links (IPML) (i.e. per DTC) therefore the provisioning of the network ports for the MSB7 is as follows:

$$\#DS-30 \text{ Ports} = \frac{\# \text{ Signalling Terminals (ST)} + (2 * \#DTC)}{30}$$

Minumum 3 Network Ports
Maximum 72 Signalling Terminals (ST)
Maximum 60 DTCs utilizing CCS7

- RUL21 1) Provide one (1) Designation Label P0685029 per each NT6X45AF provided.
- 2) Provide one (1) Designation Label P0665152 per each NT6X45BA provided.
- 3) Provide one (1) Designation Label P0702191 per each NT6X45BB provided.
- 4) Provide one (1) Designation Label P0733549 per each NT6X69LB provided.
- RUL22 1) Provide one (1) Designation Label per each NT6X40AC, NT6X46BB, NT6X69AB, and NT6X69AC provided.
- RUL23 1) Provide four (4) NT2X70AE Power Converters for each MSB7 module. Mount circuit packs in slots 1 and 25 of the upper and lower shelves (applicable to NT6X32CA only).
- 2) Provide one (1) NT2X70AZ Power Converter kit when upgrading an existing NT2X70-- circuit pack to the NT2X70AE circuit pack.
- RUL24 1) Provide two (2) NT6X69AB or NT6X69MA (special applications only) per NT6X32CC per customer requirements. When available, provide NT6X69AC in place of NT6X69AB. 2) Provide

two (2) NT6X69LB when messaging and tones are required for the Enhanced Network (ENET).

RUL25 1) Provision two (2) NT6X46BB per NT6X32CC MSB7 packfill ordered.

LINK INTERFACE UNIT SHELF COMMON CP

PEC CODE: NT9X72BA

CPC CODE: B0228987

RATING: MD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: LIS

ENGINEERING DESCRIPTION: The Link Interface Unit Shelf Common CP
equips the Link Interface Unit Shelf with
always provided circuit packs.

REFERENCE DOCUMENTATION: NA

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA
Carrier

ISSUE AUTHOR: NTI: Ganesh Ram Dept. 3471 (PPK)

MAIN CONTACT: NTI: Ganesh Ram Dept. 3471 (PPK)

NT9X72BA EMA2-12-LIS-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
----- 95 10 23	----- ECM 620 29	Previous history not available Retire this section.

The Link Interface Unit Shelf Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
STP Filler Pack	NT9X19EA		1		01F	AP
+5V Power Converter	NT9X30AA		1		04F	AP
F-Bus Repeater/Term CP	NT9X74CA		2		07F, 32F	AP
STP Filler Pack	NT9X19EA		1		33F	AP
+5V Power Converter	NT9X30AA		1		36F	AP
Intra FBUS B Termination PB	NTEX20BA		1		08R	AP
PB Filler Face Plate	NT9X19BA		10		10R, 12R, 14R, 16R, 18R, 20R, 22R, 24R, 26R, 28R	AP
Intra FBUS A Termination PB	NTEX20AA		1		30R	AP
LIS Desig. Label Front	P0709179		1			AP
LIS Desig. Label Rear	P0709180		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 NT9X72BA is ordered, these items are provided.

LINK INTERFACE MODULE ENHANCED CABINET

PEC CODE: NT9X70BB

CPC CODE: B0234130

RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: LIM

ENGINEERING DESCRIPTION: The Link Interface Module forms a functional block of the CCS7 Signalling Transfer Point. The Link Interface Module interfaces the CCS7 message links. Each LIM cabinet houses up to thirty-six (36) individual Link Interface Units each of which can accommodate one DS-0 message link, or up to thirty-six (36) individual Ethernet Interface Units, each of which can accommodate one Ethernet link, or up to thirty-six (36) of a combination of the above.

The NT9X70BB is capable of providing Channelized Access for LIU7s in order to remove the need of interfacing the LIU7s to an OEM channel bank. Channelized Access provides connection to the DMS network using DS-30 protocol. The NT9X70BB has the same functionality as existing LIMs but is housed in an enhanced 42 inch cabinet.

REFERENCE DOCUMENTATION: SL9X70BB 02 04
MS9X70BB 01 22
IS9X70BB 01 11
AD9X70BB 02 07
MS9X95BA 00 01
MSRX73 00 01

MARKETS:

Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA
Carrier
Wireless

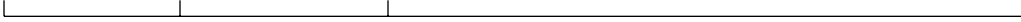
ISSUE AUTHOR: NTI: Ganesh Ram Dept. 3471 (PPK)

MAIN CONTACT: NTI: Ganesh Ram Dept. 3471 (PPK)

NT9X70BB EMA2-12-003 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-----	-----	Previous history not available
92 08 03	ECM 620 05	Add NIU and -60V information
92 10 02	ECM 620 06	Add correct information for NTEX26AA CBI paddleboard.
92 11 11	ECM 620 07	Add restriction for maximum of 11 XLIU per DMS Switch.
92 12 08	ECM 620 08	Add non streamline and streamline streamline bulkheads. Change the numbering for the ASUs to match the LIUINV table. rate change pending on the NTEX31AA replaced by the NTEX31BA EC 024-84215 replace the Cooling Units
93 01 21	ECM 620 09	Remove AP bulkheads from NT9X70BB
93 03 12	ECM 620 10	Reference to ASU allowable combination
93 04 06	ECM 620 11	Introduce NTEX22BB card for use on the EIU for BCS 34 and above.
94 02 15	ECM 620 14	Introduce NTEX22BB for CCS7 LIU7. Introduce NT9X13DD.
94 03 10	ECM 620 15	Change NT9X95AA to NT9X95BA.
94 06 03	ECM 620 17	Add text to RULE 15.
94 06 30	ECM 620 18	ECD 018-43057, ET19079, ET52573, ECD 018-42107, and ECD 018-42854
94 08 03	ECM 620 19	ECD 006-19337
94 08 29	ECM 620 20	ET19619 and ET19569.
94 10 11	ECM 620 21	ET19749.
94 11 23	ECM 682 02	Provisioning Ratio APU/VPU for ADAS changed from 2/3 to 1/2 Also EC 018-43987 and ET 19759
94 11 30	ECM 682 03	Editorial changes. Change bars retained from previous issue
95 02 10	ECM 620 23	ET60593. Added ASU numbering Dwgs. Also updated ADAS APU/VPU spread order numbering. Also added recommended MAU for EIU Applications. ET63763 Revised notes to exclude the req't for CBI LIU cable routing labels ET20759/EC 018-43880 - Introduce NT9X78DA to support Link Fault Sectionalization feature.
95 03 14	ECM 620 25	Clarify rule 21, NT9X13DD/DA memory requirements. Remove non-filter Blkhd.

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 04 04	ECM 620 26	Make filtered bulkhead AP in NT9X70BB. Bring back the non-filtered bulkhead. MD EX22BA per EC#18-43870.
95 04 24	ECM 682 05	EC#18-44239 MD NT9X77AA and Introduce ISG Compliant NT9X77AB V.35 I/F CP. ET 22139 Revise ADAS ASU configuration sequence
95 06 29	ECM 620 28	Solve ET 22419, 25319.
95 10 23	ECM 620 29	Updated per ECD 018-45801.
95 12 06	ECM 620 30	Solve ET 30699: Clarified Rule 11. Solve ET 31399: Rules included for NT9X17AD as per IS. Updated per ECD 018-45348 to MD 9X14BB Removal of P0730273 Insulating Boots and the applicable rules from this Section.
96 03 22	ECM 620 31	Introduction of new NT9X53AD Clock card in LMS of LPP. Updated per ECD 018-46147 for NT9X30AB to function in -48V and in -60V powered installation. NT9X30AA will be replaced by NT9X30AB.
96 05 08	ECM 620 32	Solve SR RR61423. Introduction of 32M ASU Processor NTEX22CA in LPP in this section only for GATE 1A.
96 11 15	ECM 620 33	Solved SR RR62788 to clarify rules by modifying RUL15. XLIU Configuration from inside out is a valid configuration. MD'ing NT9X77AA, NT9X13DB, NT9X17AA NT9X71AB.
97 01 30	ECM 620 34	Solve SR RR6A105 to state the maximum number of XLIUs in the LPP cabinet. Implement ECD: 018-47110 and include two slot Desig. label for various ASUs including NTEX22CA.
97 05 08	ECM 620 35	Implement ECD: 018-48745 to change the A0368392 from provisionable to AP in the stocklist of NT9X70BB. Solve SRs RR73679, RR73677 to include Labels in this section. Remove info. on NT9X76BA since LIU-COM application not used in LPP.



The Link Interface Module Enhanced Cabinet is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
C42 Cabinet Mechanical Assy	NT9X95BA	FW	1			AP
Cabinetized DMS Cosmetic	NTRX73					RUL17
Endguards and EMI Sidepanels						
Frame Super. Panel (-48V)	NT9X03AA	FSP		52		RUL1
Frame Super. Panel (-60V)	NT9X03BA	FSP		52		RUL1
Local Msg Switch Shf Assy	NT9X7101	LMS	1	39		AP
# Common Circuit Pack	NT9X71AB			39		RUL6
# Power Converter (-48V) CP	NT9X30AA			39	4F, 36F	RUL6
Global +5V Power Converter	NT9X30AB			39	4F, 36F	RUL6
T-Bus Access CP	NT9X52AA			39	19F, 20F	RUL6
Mapper CP	NT9X15AA			39	15F, 24F	RUL6
# Message Switch 4 Port CP	NT9X17AA			39	9F, 10F, 29F, 30F	RUL6
Message Switch 4 Port CP	NT9X17AD			39	9F, 10F, 29F, 30F	RUL6
Message Switch P-Bus Term.	NT9X49CC			39	7F, 32F	RUL6
Message Switch Clock	NT9X53AA			39	18F, 21F	RUL6
Message Switch Clock	NT9X53AD			39	18F, 21F	RUL6
DS-30 4 Port PB	NT9X23BA			39	9R, 10R, 29R, 30R	RUL6
F-Bus Extender PB	NT9X79BA			39	8R, 31R	RUL6
# Remote Terminal I/F CP	NT9X26AA			39	17R, 22R	RUL6
Remote Terminal I/F CP	NT9X26AB			39	17R, 22R	RUL6
LMS F-BUS Rate Adapter CP	NT9X73BA			39	08F, 31F	RUL6
Filler Faceplate	NT9X19AA			39	11F-14F, 25F-28F	RUL6
PB Filler Faceplate	NT9X19BA			39	7R, 11R-16R, 18R-21R, 23R-28R, 32R	RUL6
Power Converter Face Plate	NT9X19EA			39	1F, 33F	RUL6
Designation Label NT9X26AB	P0705003			39		RUL6
Designation Label NT9X73BA	P0709458			39		RUL6
Designation Label NT9X17AA	P0678439			39	9F, 10F, 29F, 30F	RUL6
Designation Label NT9X17AD	P0735096			39	9F, 10F, 29F, 30F	RUL6
Designation Label NT9X53AD	P0803728			39	18F, 21F	RUL6
# CPU 16 MHZ CP	NT9X13DB			39	17F, 22F	RUL21
CPU 16 MHZ CP	NT9X13DD			39	17F, 22F	RUL21

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
# 6Meg Memory CP	NT9X14BB			39	16F, 23F	RUL21
24Meg Memory CP	NT9X14DB			39	16F, 23F	RUL21
Filler Faceplate	NT9X19AA			39	16F, 23F	RUL21
PB Filler Faceplate	NT9X19BA			39	16R, 23R	RUL21
# Designation Label NT9X13DB	P0696239			39	17F, 22F	RUL21
Designation Label NT9X13DD	P0743628			39	17F, 22F	RUL21
Designation Label NT9X14DB	P0700802			39	16F, 23F	RUL21
Designation Label NT9X19AA	P0709515			39	16F, 23F	RUL21
Designation Label NT9X19BA	P0709516			39	16R, 23R	RUL21
LMS DS-30 X-Link Cable Assy	NT9X0171			39		RUL15
LMS DS-30 X-Link Cable Assy	NT9X7025			39		RUL15
LMS DS-30 Cable Assembly	NT9X0145			39		RUL18
Filtered DS-30 Blkhd (left)	NT9X6509			39		RUL18
Filtered DS-30 Blkhd (right)	NT9X6536			39		RUL18
LMS DS-30 Cable Assembly	NT9X0100			39		RUL19
LMS DS-30 Cable Assembly	NT9X0107			39		RUL19
Non-Fltd DS-30 Blkhd (left)	NT9X6569			39		RUL19
Non-Fltd DS-30 Blkhd (right)	NT9X6570			39		RUL19
Link I/F Unit Shelf Assy	NT9X7204	LIS	3	00, 13, 26		AP
# Power Converter (-48V) CP	NT9X30AA			XX	4F, 36F	RUL2
Global +5V Power Converter	NT9X30AB			XX	4F, 36F	RUL2
Power Conv. (-48V/-60V) CP	NTDX16AA			XX	4F, 36F	RUL2
				XX	1F, 33F	RUL2
Power Interface Unit	NT9X2825			XX	1F-4F	RUL2
				XX	33F-36F	RUL2
Power Interface Kit	NT9X7214			XX	1F-4F	RUL2
				XX	33F-36F	RUL2
INTRA F-Bus A Term. PB	NTEX20AA			XX	30R	RUL2
INTRA F-Bus B Term. PB	NTEX20BA			XX	8R	RUL2
Bulkhead Assembly	NT9X6534		6	XX		AP
Bulkhead Conn Cover Plate	NTEX5025			XX		RUL7
Bulkhead Config. Label	P0735163			XX		RUL2
# F-Bus Repeater CP	NT9X74CA			XX	7F, 32F	RUL16
F-Bus Repeater CP	NT9X74DA			XX	7F, 32F	RUL16
F-Bus Extender Paddleboard	NT9X79AA			26, 13	7R, 32R	RUL3
F-Bus Extender Paddleboard	NT9X79BA			00	7R, 32R	RUL3
# IPF Proc and FBUS I/F CP	NTEX22AA			XX	8F, 10F, 12F, 14F,	RUL4

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
# IPF Proc and FBUS I/F CP	NTEX22BA			XX	16F, 18F, 20F, 22F, 24F, 26F, 28F, 30F, 8F, 10F, 12F, 14F, 16F, 18F, 20F, 22F, 24F, 26F, 28F, 30F	RUL4
Enhanced CPU-IPF CP	NTEX22BB			XX	8F, 10F, 12F, 14F, 16F, 18F, 20F, 22F, 24F, 26F, 28F, 30F	RUL4
32MB ASU Processor & FBUS Controller	NTEX22CA			XX	8F, 10F, 12F, 14F, 16F, 18F, 20F, 22F, 24F, 26F, 28F, 30F	RUL4
STP Signalling Terminal CP	NT9X76AA			XX	9F, 11F, 13F, 15F, 17F, 19F, 21F, 23F, 25F, 27F, 29F, 31F	RUL4
ISUP LIU7 Circuit Pack	NT9X76CA			XX	9F, 11F, 13F, 15F, 17F, 23F, 25F, 27F, 29F, 31F	RUL4
Ethernet Interface CP	NT9X84AA			XX	9F, 11F, 13F, 15F, 17F, 19F, 21F, 23F, 25F, 27F, 29F, 31F	RUL4
# Frame Relay Service I/F CP	NTEX31AA			XX	9F, 11F, 13F, 15F, 17F, 19F, 21F, 23F, 25F, 27F, 29F, 31F	RUL4

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
APUX Processor Circuit Pack	NT9X14DB			XX	9F, 11F, 13F, 15F, 17F, 23F, 25F, 27F, 29F, 31F	RUL4
Channel Bus Control Unit:0	NTEX25AA			XX	19F	RUL4
Channel Bus Control Unit:1	NTEX25BA			XX	21F	RUL4
HDLC Frame Processor CP	NTFX10AA			XX	9F, 11F, 13F, 15F, 17F, 23F, 25F, 27F, 29F, 31F	RUL4
Enhanced Frame Relay I/F CP	NTEX31BA			XX	9F, 11F, 13F, 15F, 17F, 19F, 21F, 23F, 25F, 27F, 29F, 31F	RUL4
# V.35 Interface Paddleboard	NT9X77AA			XX	9R, 11R, 13R, 15R, 17R, 19R, 21R, 23R, 25R, 27R, 29R, 31R	RUL4
V.35 Interface Paddleboard	NT9X77AB			XX	9R, 11R, 13R, 15R, 17R, 19R, 21R, 23R, 25R, 27R, 29R, 31R	RUL4
# V.35/RS232 I/F Paddleboard	NT9X77BA			XX	9R, 11R, 13R, 15R, 17R, 19R, 21R, 23R, 25R, 27R, 29R, 31R	RUL4

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
# DS0A Interface Paddleboard	NT9X78AA			XX	9R, 11R, 13R, 15R, 17R, 19R, 21R, 23R, 25R, 27R, 29R, 31R	RUL4
# Enhanced DS0A Interface PB	NT9X78BA			XX	9R, 11R, 13R, 15R, 17R, 19R, 21R, 23R, 25R, 27R, 29R, 31R	RUL4
# Enhanced DS0A Interface PB	NT9X78CA			XX	9R, 11R, 13R, 15R, 17R, 19R, 21R, 23R, 25R, 27R, 29R, 31R	RUL4
STP DS0-A Interface PB	NT9X78DA			XX	9R, 11R, 13R, 15R, 17R, 19R, 21R, 23R, 25R, 27R, 29R, 31R	RUL4
Ethernet Access Unit I/F PB	NT9X85AA			XX	9R, 11R, 13R, 15R, 17R, 19R, 21R, 23R, 25R, 27R, 29R, 31R	RUL4
Frame Relay Service I/F PB	NTEX30AA			XX	9R, 11R, 13R, 15R, 17R, 19R, 21R, 23R, 25R, 27R, 29R, 31R	RUL4
Channel Bus Interface PB	NTEX26AA			XX	9R, 11R, 13R, 15R, 17R, 23R, 25R, 27R, 29R, 31R	RUL4
DS30 Link I/F PB	NTEX28AA			XX	19R, 21R	RUL4
CBUS Interface PB	NTFX09AA			XX	9R, 11R, 13R, 15R,	RUL4

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Recording/Announcement Processor	NTMX97AA			XX	17R, 23R, 25R, 27R, 29R, 31R 9F, 11F, 13F, 15F, 17F, 23F, 25F, 27F, 29F, 31F	RUL4
Multi Channel C-Bus Interface	NTMX99AA			XX	9R, 11R, 13R, 15R, 17R, 23R, 25R, 27R, 29R, 31R	RUL4
Designation Label (NTMX99AA)	P0749722					RUL4
Designation Label (NTMX97AA)	P0744977					RUL4
LIU ID Label (NTEX22BB/NT9X76AA)	P0738554					RUL4
LIU ID Label (NTEX22CA/NT9X76AA)	P0859948					RUL4
Desig. Label NT9X77AB	P0804444					RUL4
Desig. Label NT9X77BA	P0731938					RUL4
Desig. Label NT9X30AB (NT9X30AB only)	P0738496					RUL2
Desig. Label NTDX16AA	P0748922					RUL2
Desig. Label NT9X78DA	P0803615					RUL4
Desig. Label NT9X79AA	P0689621					RUL3
Desig. Label NT9X79BA	P0689622					RUL3
EIU ID Label Front (NTEX22BB, NT9X84AA)	P0738387					RUL4
EIU ID Label Front (NTEX22CA, NT9X84AA)	P0859950					RUL4
EFRU ID Label Front (NTEX22BB, NTEX31BA)	P0735916					RUL4
Desig. Label NT9X85AA	P0711661					RUL4
Desig. Label NTEX30AA	P0711675					RUL4
Desig. Label NT9X74DA	P0733871					RUL16
Desig. Label NTEX22BB	P0735913					RUL4
Desig. Label NTEX22CA	P0837660					RUL4
NIU ID Label Unit:0 (NTEX22BB, NTEX25AA)	P0735918					RUL4
NIU ID Label Unit:1 (NTEX22BB, NTEX25BA)	P0735919					RUL4
NIU ID Label Unit:0 (NTEX22CA, NTEX25AA)	P0859952					RUL4

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
NIU ID Label Unit:1 (NTEX22CA,NTEX25BA)	P0859953					RUL4
Desig. Label NTEX28AA	P0733137					RUL4
Desig. Label NTEX26AA	P0733875					RUL4
XLIU ID Label (NTEX22BB,NTFX10AA)	P0735914					RUL4
XLIU ID Label (NTEX22CA,NTFX10AA)	P0859986					RUL4
Desig. Label NTFX09AA	P0732784					RUL4
STP Cable Assembly	NT9X0193		12	XX		RUL4
Ethernet Cable Assembly	NT9X0190			XX		RUL4
FRIU Cable Assembly	NT9X0191			XX		RUL4
NIU DS30 Cable to Bulkhead	NT9X7020			XX		RUL4
NIU Inter CBC Cable	NT9X7021			XX		RUL4
Filler Face Plate	NT9X19AA			XX	08F-31F	RUL5
Power Converter Face Plate	NT9X19EA			XX	01F, 33F	RUL5
PB Filler Face Plate	NT9X19BA			XX	9R-29R, 31R	RUL5
Media Access Unit (MAU)	A0383333					RUL22
# Cooling Unit (-48V)	A0377580	CU				RUL1
Cooling Unit (-48V)	NT9X95CU	CU				RUL1
# Cooling Unit (-60V)	A0382102	CU				RUL1
Cooling Unit (-60V)	NT9X95GU	CU				RUL1
-48V Blower Assembly	A0383325					RUL20
-60V Blower Assembly	A0382103					RUL20
-60V Elec. Module	A0383326					RUL20
Filter	A0377837					AP
End Guard Labels(000-011)	P0737499					RUL14
End Guard Labels(012-023)	P0737500					RUL14
LIU Cable Routing Labels	P0714420			26		RUL10
LIU Cable Routing Labels	P0735397			26		RUL10
LIU Cable Routing Labels	P0714421			13		RUL10
LIU Cable Routing Labels	P0735398			13		RUL10
LIU Cable Routing Labels	P0714422			00		RUL10
LIU Cable Routing Labels	P0735399			00		RUL10
FRIU Cable Routing Labels	P0714414			26		RUL10
FRIU Cable Routing Labels	P0714415			26		RUL10
FRIU Cable Routing Labels	P0714416			13		RUL10
FRIU Cable Routing Labels	P0714417			13		RUL10
FRIU Cable Routing Labels	P0714418			00		RUL10
FRIU Cable Routing Labels	P0714419			00		RUL10
NIU Cable Routing Labels	P0735393			26		RUL10
NIU Cable Routing Labels	P0735391			13		RUL10
NIU Cable Routing Labels	P0735392			00		RUL10

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Stand-Alone Pwr Cabling Kit	NT9X9532					RUL11
Horizontal Pwr Cabling Kit	NT9X9531					RUL11
Terminal Block Desig Strips	P0736058					RUL11
Filter Capacitor Desig Sheet	P0736059					RUL11
FCC 15/CSA C108.8 Label	P0679484					RUL9
FSP Term Block Cover Assy	A0368392					AP
ESP Ground Terminal Assy	NT9X0324					RUL12
C42 Cabinet Mechanical Assy	NT9X95BA					NOTE2

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT9X14BB	MD	NT9X14DB
NT9X13DB	MD	NT9X13DD
NT9X17AA	MD	NT9X17AD
NT9X77AA	MD	NT9X77AB
NT9X78BA	MD	NT9X78DA
NT9X78CA	MD	NT9X78DA
NT9X71AB	MD	NONE. Use Rul 6.
NTEX22BA	MD	NTEX22BB
NTEX31AA	MD	NTEX31BA
NT9X30AA *	MD	NT9X30AB
P0709181	MD	P0738554/P0859948
P0734382	MD	P0738554/P0859948
P0704358	MD	P0804444
P0689620	MD	P0803615
P0704359	MD	P0803615
P0732783	MD	P0803615
P0732781	MD	P0735913/P0837660
P0711662	MD	P0738387/P0859950
P0734383	MD	P0738387/P0859950
P0735917	MD	P0735916
P0734384	MD	P0735916
P0711676	MD	P0735916

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.

* Meaning this CP is MD'd only in this product. It may not have been MD'd in other products. Check the availability in other products.

NOTES:

- 1) XX can be either shelf position 00, 13 or 26.
- 2) Refer to NT9X95BA(EMA4-07-001) for additional mechanical hardware requirements for C42 Cabinet.
- 3) The Provisionable Frame fail lights NT0X24BT and P0674502 (in Brown) or NT0X24CN and P0699441 (in Grey) have been removed from this document. The new NT9X0105 Black LAMP Bezel will always be provided with the cabinet.

RULES:

- AP 1) When PEC NT9X70BB is ordered, these items are provided.
- 2) The NT9X95BA contains the NT9X9575 Cabinet Framework.

The NT9X9575 framework provides earthquake and EMI protection. The framework is 72" high, 28" deep and 42" wide.

Refer to NT9X95BA (EMA4-07-001) for additional mechanical hardware requirements for C42 (S/DMS) Cabinet.

- RUL1 1) For each cabinet, provide:
- For 48VDC applications,
 - one (1) NT9X03AA Frame Super. Panel (-48V), and
 - one (1) NT9X95CU Cooling Unit (-48V), or
 - For 60VDC applications (German market),
 - one (1) NT9X03BA Frame Super. Panel (-60V), and
 - one (1) NT9X95GU Cooling Unit (-60V).

- RUL2 1) For each LIS shelf, provide:
- For 48VDC and for -60VDC applications,
 - two (2) NT9X30AB +5V Global Power Converter CPs,

- one (1) NTEX20AA INTRA F-Bus A Termination Paddleboard, and
- one (1) NTEX20BA INTRA F-Bus B Termination Paddleboard.
- For 48VDC/60VDC Dual Power Redundancy Applications,
 - four (4) NTDX16AA Power Converter (-48V/-60V) cps,
 - four (4) P0748922 Designation Labels (NTDX16AA),
 - two (2) NT9X2825 Power Interface Units,
 - one (1) NTEX20AA INTRA F-Bus A Termination Paddleboard, and
 - one (1) NTEX20BA INTRA F-Bus B Termination Paddleboard, or
- For 48VDC/60VDC Dual Power Redundancy Field Upgrade Applications
 - two (2) NT9X7214 Power Interface Kit,

Provide designation labels for power packs as follows:

- when a field upgrade from NT9X30AA is required,
 - one (1) P0738496 NT9X30AB label.

2) For each LIS shelf, provide:

- two (2) P0735163 Bulkhead Configuration Labels.

The labels are mounted on the inside of the rear cabinet doors adjacent to the shelf bulkheads. The labels provide a surface that allows the customer to record cabling configuration information for each bulkhead.

RUL3 1) For the bottom most LIS on the frame (Position 00), provide:

- two (2) NT9X79BA F-Bus Extender PBs With Termination, and
- two (2) P0689622 Designation Labels (NT9X79BA),

and for each of the other two Link Interface Shelves, provide:

- two (2) NT9X79AA F-Bus Extender PBs, and
- two (2) P0689621 Designation Labels (NT9X79AA).

RUL4 1) The NTEX22CA, 32 Meg ASU processor is introduced in LPP and it is only for V0 offices. NA006 will be the first platform software release supporting the NTEX22CA.

1A) The NTEX22CA is fully backward compatible with the 4-MB NTEX22AA and the 8-MB NTEX22BA/BB ASU processors, and can co-exist with either or both, on the same shelf.

1B) The first application for the NTEX22CA is for the Cellular Digital Packet Data (CDPD) services. The CDPD provides the functionality of transporting datagrams between the Mobile-

End Systems (M-ES) and Private/Public Data Networks. There are three types of Application Specific Units such as EIU, XLIU and NIU that provide support for CDPD service. The NTEX22CA can only be used on these ASUs used on CDPD services. Note that the APU (APUX), VPU and the FRIU applications are not supported by the NTEX22CA at this time.

- 2) For the actual number of ASU combinations please refer to section 2.4 Provisioning Considerations (ECM620).

JAPAN ISUP LIU7:

When the JAPAN ISUP LIU7 circuit pack is used (NT9X76CA), a maximum of ten (10) ISUP LIUs can be provided per LIS shelf, up to a maximum of thirty (30) LIUs per LPP cabinet. This restriction exists because the JAPAN ISUP LIU7 can only be used when channelized access is used on an LIS shelf. That is, an NIU must be provided before the JAPAN ISUP LIU can be provided.

The Japan ISUP LIU7 requires the NTEX22BB IPF Proc and F-BUS CP.

The only paddleboard that can be used with the NT9X76CA ISUP LIU7 is the NTEX26AA, the Channel BUS Interface paddleboard.

When Field upgrading to the NTEX22BA, provide P0732781 Designation Label (NTEX22BA).

Link Interface Unit SS7 (LIU7):

For each individual two slot LIU7, provide:

- a signalling link interface as follows:
 - when interfacing a V.35 signalling link,
 - one (1) NT9X77AB V.35 Interface Paddleboard (ISG Compliant),
 - when interfacing a DS0A signalling link,
 - one (1) NT9X78CA Enhanced DS0A Interface (MD'd)
- (NOTE: The NT9X78CA requires BCS33 and higher software along with the software packages:
NTXN19AA - LIU7 for LPP Based CCS7 Applications.
NTXR68AA - 64 KBIT CCS7 Link Interface. This package allows to datafill the NT9X78CA to operate at 64KB/S.

OR

- when Link Fault Sectionalization Feature is required,
 - one (1) NT9X78DA Interface Paddleboard,
- OR for channelized access applications,
 - one (1) NTEX26AA Channel Bus Interface PB,

AND

- one (1) NT9X76AA STP - Signalling Terminal CP,

AND

- For BCS33 and earlier,
 - one (1) NTEX22BA ENHANCED IPF Proc and F-Bus I/F CP (NTEX22BA has 8 Mbytes of DRAM),
- OR for BCS34 and above,
 - one (1) NTEX22BB ENHANCED IPF Proc and F-Bus I/F CP (NTEX22BB has 8 Mbytes of DRAM),
- OR for NA006 and above,
 - one (1) NTEX22CA ENHANCED IPF Proc and F-Bus I/F CP (NTEX22CA has 32 Mbytes of DRAM),
- OR for A&M only, for applications not requiring more than 4 Mbytes of DRAM,
 - one (1) NTEX22AA IPF Proc and F-Bus Interface CP,

AND For each NT9X78AA, NT9X78BA, NT9X78CA, NT9X78DA, NT9X77AA, NT9X77BA or NT9X77AB LIU7 paddleboard provided, provide

- one (1) NT9X0193 STP Cable Assembly, for the paddleboard to the LIS bulkhead,

AND For each LIU7 provided, provide the appropriate 2-slot identification label:

- one (1) P0738554 LIU (NTEX22BB-NT9X76AA) ID Label or,
- one (1) P0859948 LIU (NTEX22CA-NT9X76AA) ID Label

AND for each provisioned CP listed below, provide the appropriate CP designation label:

- one (1) P0803615 Designation Label (NT9X78DA),
- one (1) P0731938 Designation Label (NT9X77BA)
- one (1) P0804444 Designation Label (NT9X77AB), or
- one (1) P0733875 Designation Label (NTEX26AA).

Ethernet Interface Unit (EIU):

For each individual two slot EIU, provide:

- For BCS33 and earlier,
 - one (1) NTEX22BA ENHANCED IPF Proc and F-Bus I/F CP (NTEX22BA has 8 Mbytes of DRAM),

- OR for BCS34 and above,
 - one (1) NTEX22BB ENHANCED IPF Proc and F-Bus I/F CP (NTEX22BB has 8 Mbytes of DRAM),
- OR for NA006 and above,
 - one (1) NTEX22CA ENHANCED IPF Proc and F-Bus I/F CP (NTEX22CA has 32 Mbytes of DRAM),
- OR for A&M only, for applications not requiring more than 4 Mbytes of DRAM,
 - one (1) NTEX22AA IPF Proc and F-Bus Interface CP,

AND

- one (1) NT9X84AA Ethernet Interface Circuit Pack,

AND to allow the ethernet standard interface for the EIU,

- one (1) NT9X85AA Ethernet Access Unit Interface PB,

AND from the EIU Paddleboard (NT9X85AA) to the LIS Bulkhead,

- one (1) NT9X0190 Ethernet Cable Assembly,

AND For each EIU provided, provide the appropriate 2-slot identification label:

- one (1) P0738387 (NTEX22BB-NT9X84AA) ID Label,
- one (1) P0859950 (NTEX22CA-NT9X84AA) ID Label

AND for each provisioned NT9X85AA, provide:

- one (1) P0711661 Designation Label.

Frame Relay Interface Unit (FRIU):

For each individual two slot FRIU, provide:

- for each channelized or non-channelized T1 access circuit required,
 - one (1) NTEX30AA Frame Relay T1 Access PB,

AND for all applications,

- one (1) NTEX31BA Frame Enhanced Relay Access Proc CP,

(When an existing office reaches BCS 34 and greater, the NTEX31AA must be upgraded to a NTEX31BA),

AND

- For BCS34 and above,
 - one (1) NTEX22BB ENHANCED IPF Proc and F-Bus I/F CP (NTEX22BB has 8 Mbytes of DRAM),
- OR for A&M only, for applications not requiring more than 4 Mbytes of DRAM,
 - one (1) NTEX22AA IPF Proc and F-Bus Interface CP,

(When an existing office reaches BCS34 and greater, the NTEX22AA must be upgraded to NTEX22BB),

The NTEX22BA IPF Proc and F-Bus Interface CP (8Meg) is not to be ordered for FRIU's,

AND from each FRIU Paddleboard to LIS Bulkhead, provide:

- two (2) NT9X0191 FRIU Cable Assemblies,

AND For each FRIU provided, provide the appropriate 2-slot identification label:

- one (1) P0732782 (NTEX22BB/NTEX31BA) FRIU ID Label,

AND for each provisioned NTEX30AA, provide:

- one (1) P0711675 Designation Label.

Network Interface Unit (NIU):

For NIU on a LIS shelf, provide:

- two (2) NTEX22BB or NTEX22CA Enhanced CPU-IPF CPs (in CP slots 18F and 20F),
- one (1) NTEX25AA Channel Bus Control Unit:0 CP,
- one (1) NTEX25BA Channel Bus Control Unit:1 CP,
- two (2) NTEX28AA DS30 Link Interface PBs (to allow the NIU to interface the Switching Network),
- four (4) NT9X7020 NIU DS30 Cable Assemblies (from the NIU Paddleboards to LIS Bulkhead),
- two (2) NT9X7021 NIU Inter CBC Cables (to connect between the NIU Paddleboards),
- one (1) P0735918 NIU ID Label Unit:0 (NTEX22BB, NTEX25AA),
- one (1) P0859952 NIU ID Label Unit:0 (NTEX22CA, NTEX25AA),

- one (1) P0735919 NIU ID Label Unit:1
(NTEX22BB, NTEX25BA),
- one (1) P0859953 NIU ID Label Unit:1
(NTEX22CA, NTEX25BA),
- two (2) P0733137 Designation Labels (NTEX28AA).

Packet Handler (XLIU):

For each XLIU on a LIS shelf, provide:

- one (1) NTEX22BB or NTEX22CA Enhanced CPU-IPF CP,
- one (1) NTFX10AA HDLC Frame Processor CP,
- one (1) NTFX09AA CBUS Interface PB
to allow the XLIU to interface the CBUS,
- one (1) P0735914 XLIU ID Label (NTEX22BB, NTFX10AA) or,
- one (1) P0859986 XLIU ID Label (NTEX22CA/NTFX10AA).
- one (1) P0732784 Designation Label (NTFX09AA).

One (1) Link Interface Shelf (LIS) will support up to ten (10) XLIUs; up to a maximum of thirty (30) XLIUs per LIM Cabinet. However, the configuration of only twenty four (24) XLIUs with 6 NIUs have been verified in the LPP cabinet. (Refer to SEB 92-02-001) For example with 6 NIUs, each shelf in a three shelf LPP, in which all the shelves contain XLIUs, should have exactly 8 XLIUs.

Application Processor Unit Running UNIX OS (APUX):

For each APUX on a LIS shelf, provide:

- one (1) NTEX22BB Enhanced CPU-IPF CP,
- one (1) NT9X14DB UNIX application processor,
- one (1) NT9X19BA paddleboard filler faceplate,
- one (1) P0735915 APUX Identification Label Front
(NTEX22BB, NT9X14DB).

There is no cabling associated with the APUX application.

The LIS shelf must be equipped with Channelized Access to use the APUX application.

A maximum of ten (10) APUXs can be assigned to one LIS shelf, up to a maximum of thirty (30) APUXs per LPP cabinet.

Voice Processing Unit (VPU):

For each VPU on a LIS shelf, provide:

- one (1) NTMX97AA Recording Announcement Processor
- one (1) P0744977 Designation Label (NTMX97AA)
- one (1) NTMX99AA 512-Channel Bus Interface Paddleboard
- one (1) P0749722 Designation Label (NTMX99AA)

For ADAS applications, provide VPUs as required for expected ADAS call traffic. Refer to ECM 682 for method of VPU provisioning calculation. Refer to RUL4 Item 3) for configuration rules.

For reliability, the LIU7s, EIUs, and FRIUs are to be spread across shelf positions 00, 13, and 26 as shown below. The ASU number is the circuit number assigned to the ASU (ie, LIU7 #0). The ASU Assignment Sequence is an example of the link assignment within the linkset, and is spread across all relevant shelves, and 'A' and 'B' Power distribution (left/right halves of the shelf). Refer to the 'Data Schema' document for data fill instructions and examples.

	L M S											
	LIU/EIU/FRIU											
ASU Numbering	0	2	4	6	8	11						
ASU assignment Sequence for LIS:01	1	7	13	19	25	31	34	28	22	16	10	4
ASU Numbering	12	14	16	18	20	23						
ASU assignment Sequence for LIS:02	5	11	17	23	29	35	32	26	20	14	8	2
ASU Numbering	24	26	28	30	32	35						
ASU assignment Sequence for LIS:03	3	9	15	21	27	33	36	30	24	18	12	6
(CP POS)	0	1	1	1	1	1	2	2	2	2	2	3
	8	0	2	4	6	8	0	2	4	6	8	0

ASSIGNMENT SEQUENCE OF ASUs
TO LINK INTERFACE MODULE

Because channelized access (with NIU) and non-channelized access equipped shelves are mounted in the LIM frame, the following shows the Numbering/Assignment sequences for 3 different configurations. The configurations can be done in two methods: Outside in or Inside Out. Either method provides the desired redundancy, however, the two methods should not be mixed.

FOR FRAMES WITH 3 SHELVES EQUIPPED WITH NIUS, USE THE NUMBERING BELOW:

	L M S											
	NIU/XLIU											
ASU Numbering	0	2	4		6	8		11				
ASU Assignment Sequence for LIS:01	1	7	13	19	25	N I U : 0	N I U : 1	28	22	16	10	4
	25	19	13	7	1			4	10	16	22	28
ASU Numbering	12	14	16		18	20		23				
ASU assignment Sequence for LIS:02	5	11	17	23	29	N I U : 0	N I U : 1	26	20	14	8	2
	29	23	17	11	5			2	8	14	20	26
ASU Numbering	24	26	28		30	32		35				
ASU assignment Sequence for LIS:03	3	9	15	21	27	N I U : 0	N I U : 1	30	24	18	12	6
	27	21	15	9	3			6	12	18	24	30
(CP POS)	0 8	1 0	1 2	1 4	1 6	1 8	2 0	2 2	2 4	2 6	2 8	3 0

from outside in
<-----
XLIUs
<-----
from inside out

XLIUs
<-----

XLIUs
<-----

ASSIGNMENT SEQUENCE OF ASUs
TO LINK INTERFACE MODULE
3 SHELVES WITH NIUS

Refer to NOTE 1 for mixing of LIU7 and EIU with FRIU on the LIM.
FOR FRAMES WITH 2 SHELVES EQUIPPED WITH NUIs AND 1 SHELF WITHOUT NUIs,
USE THE FOLLOWING NUMBERING SEQUENCE:

	L M S											
ASU Numbering	0 2 4 6 8 11											
ASU Assignment Sequence for LIS:01	1	5	9	13	17	N I U : 0	N I U : 1	20	16	12	8	4
	17	13	9	5	1	0	1	3	7	11	15	19
ASU Numbering	12 14 16 18 20 23											
ASU Assignment Sequence for LIS:02	3	7	11	15	19	N I U : 0	N I U : 1	18	14	10	6	2
	20	16	12	8	4	0	1	2	6	10	14	18
ASU Numbering	24 26 28 30 32 35											
ASU Assignment Sequence for LIS:03	1	3	5	7	9	11	12	10	8	6	4	2
(CP POS)	0 8	1 0	1 2	1 4	1 6	1 8	2 0	2 2	2 4	2 6	2 8	3 0

From outside in
<-----
XLIUs
<-----
From Inside out

XLIUs
<-----

LIUs
<-----

ASSIGNMENT SEQUENCE OF ASUs
TO LINK INTERFACE MODULE
2 SHELVES WITH NUIs AND 1 SHELF WITHOUT NUIs

FOR FRAMES WITH 1 SHELF EQUIPPED WITH NIUS AND 2 SHELVES WITHOUT NIUS,
USE THE FOLLOWING NUMBERING SEQUENCE:

	L M S											
	NIU/XLIU											
ASU Numbering	0	2	4	6	8	11						
ASU Assignment Sequence for LIS:01	1	3	5	7	9	N I U : 0	N I U : 1	10	8	6	4	2
	9	7	5	3	1			2	4	6	8	10
ASU Numbering	12	14	16	18	20	23						
ASU Assignment Sequence for LIS:02	1	5	9	13	17	21	24	20	16	12	8	4
ASU Numbering	24	26	28	30	32	35						
ASU Assignment Sequence for LIS:03	3	7	11	15	19	23	22	18	14	10	6	2
(CP POS)	0 8	1 0	1 2	1 4	1 6	1 8	2 0	2 2	2 4	2 6	2 8	3 0

From outside in
<-----
XLIUs
<-----
From inside out

LIUs
<-----

LIUs
<-----

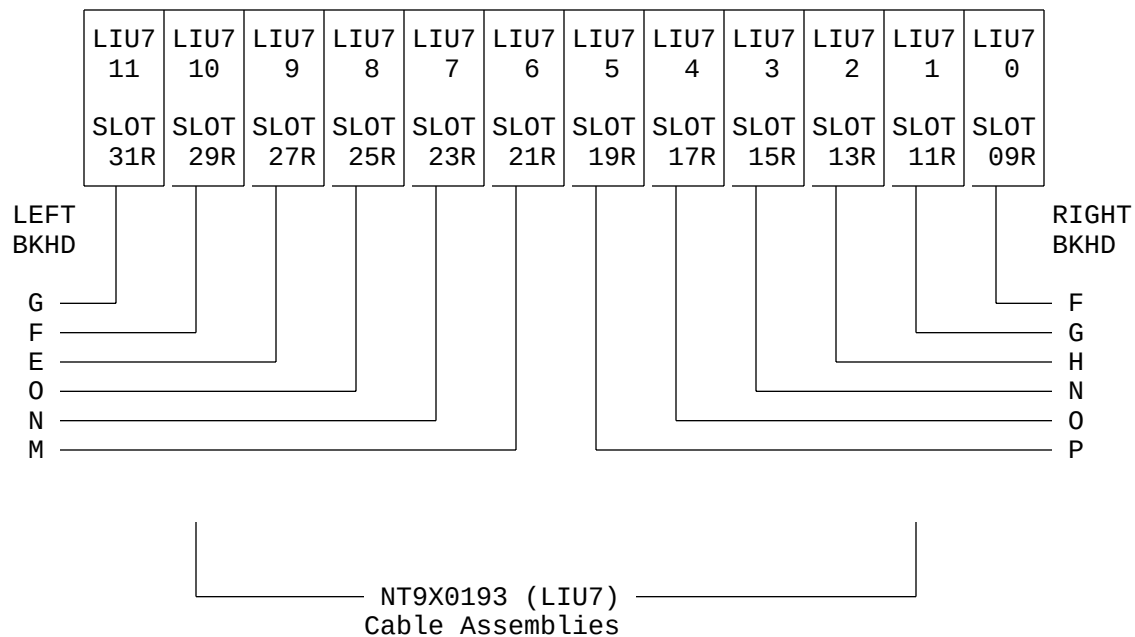
ASSIGNMENT SEQUENCE OF ASUs
TO LINK INTERFACE MODULE
1 SHELF WITH NIUS AND 2 SHELVES WITHOUT NIUS

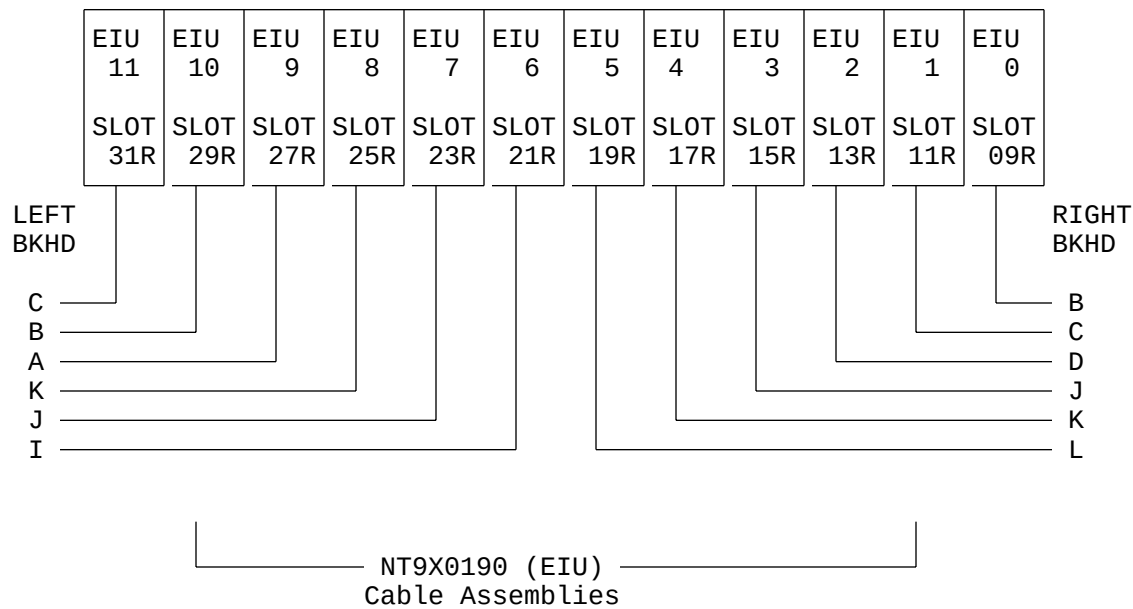
To keep Dataspan traffic off the DMS-Bus in the absence of T1 or T3 trunking, all FRIUs must be in the same LPP.

The FRIU are to be numbered sequentially in a LIM frame starting with LIS 01 (shelf position 26) (FRIU #1 through to FRIU #12), followed by LIS 02 (shelf position 13) (FRIU #1 through to FRIU #12), followed by LIS 03 (shelf position 00) (FRIU #1 through to FRIU #12).

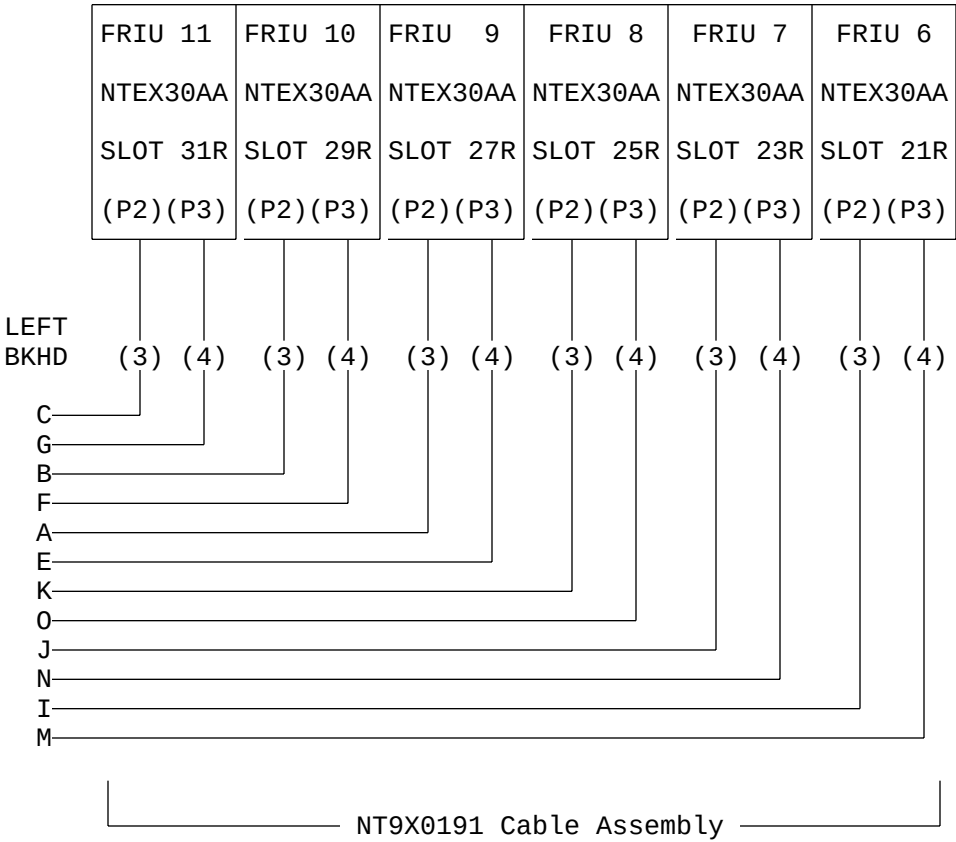
To keep Packet Handler traffic off the DMS-Bus, all the XLIUs must be located in the same LIM cabinet. Each DMS Switch can have a MAXIMUM of eleven (11) XLIUs, X.25/X.75 Link Interface Units. The NIU must be assigned to location shown below. Other applications (LIU7, EIU, FRIU, etc) shall be relocated if the need arises.

- 3) Following is the rear view of LIS 01, LIS 02, LIS 03 arrangement and cable provisioning:

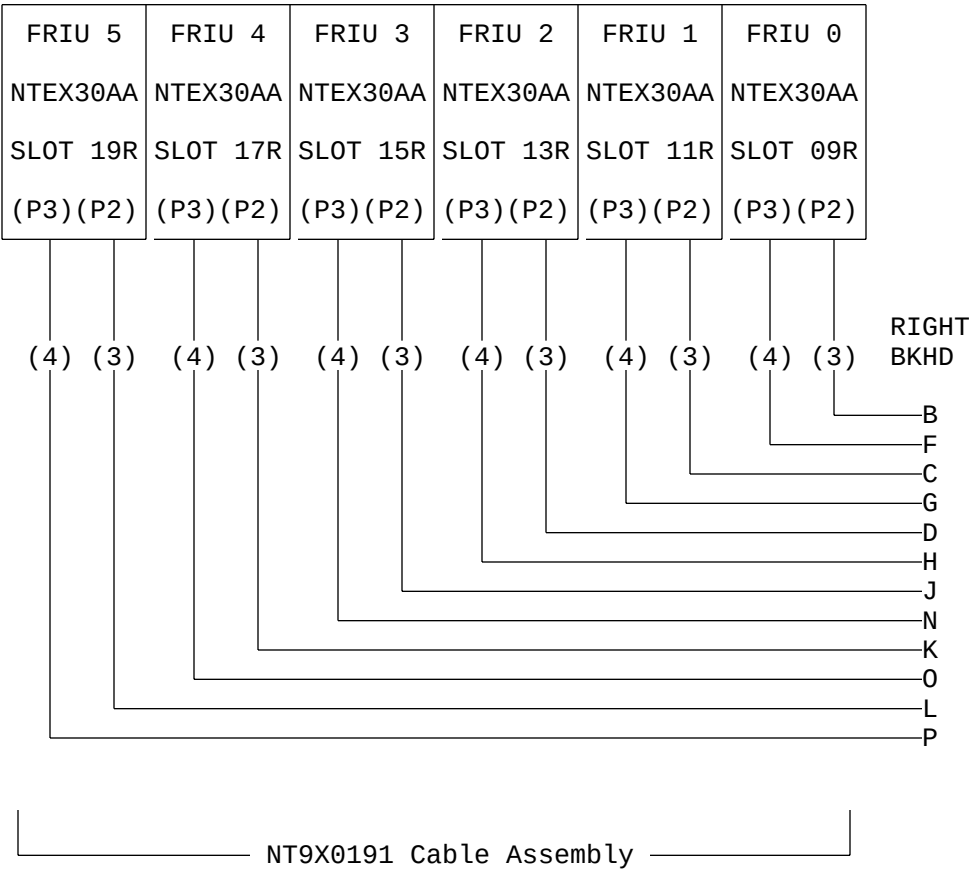




Following is the rear view of LIS 01, LIS 02, LIS 03 arrangement and cable (NT9X0191) provisioning:

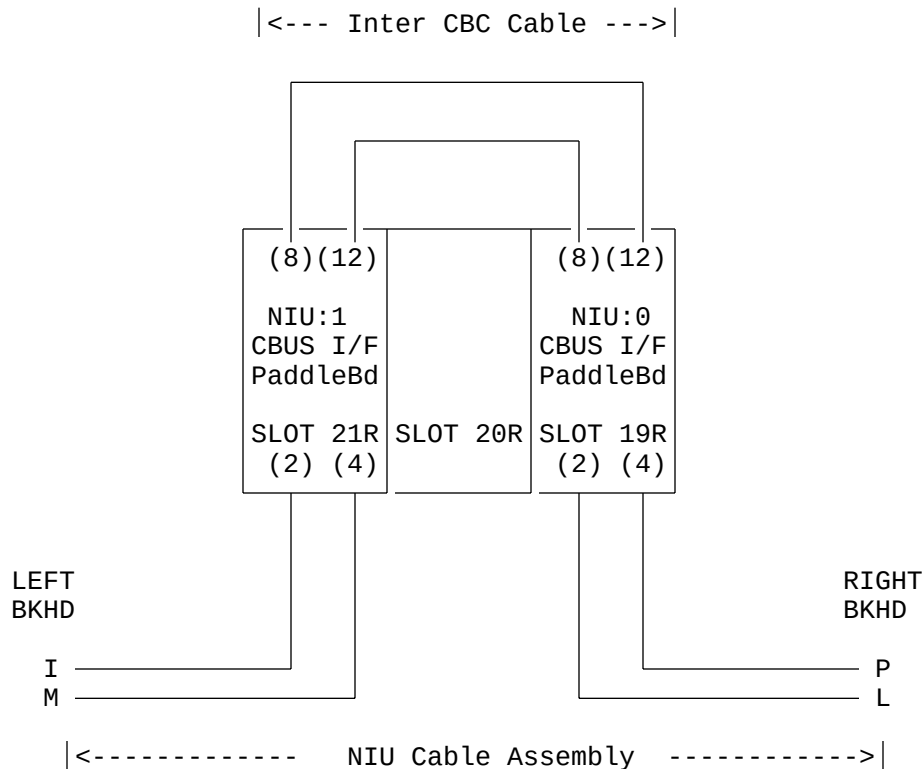


P2 and P3 are connector designations while (3) and (4) are the actual markings on the paddleboard. (Shown here for reference only)



P2 and P3 are connector designations while (3) and (4) are the actual markings on the paddleboard. (Shown here for reference only).

Following is the rear view of LIS 01, LIS 02, LIS 03 arrangement and cable provisioning for NIU:



- 4) For ADAS applications, the following diagrams show ASU mounting positions for standard ADAS configurations. In addition to the ADAS application APUs the quantities of which are provisioned according to expected call traffic, an ADAS system always requires 2 APUs which perform Voice Processing Platform (VPP) overhead functions. These two VPP APUs are always located in the first LPP used for ADAS.

In multi LPP ADAS systems, in the second and subsequent LPPs, in addition to the application APUs which are provisioned according to expected call traffic, 2 APUs, per. LPP are always required for OA&M functions. In the ADAS context, these APUs are referred to as LPP APUs.

The following diagrams illustrate the standard LIS, and ASU configurations used for ADAS. Note that the order of ASU insertion differs from the general rule given in Note 3, above.

The diagrams show the position and order of provisioning of the four types of ASU used by ADAS, i.e. LIU, EIU, APU and VPU. The sequence for each is given separately.

LIUs

In an ADAS LIS, two (2) LIUs are always provided in an ADAS LIS in slot positions 18 and 20.

EIU An EIU is always provisioned in the first ADAS LIM Cabinet in the topmost ADAS LIS in slot position 30.

APU

The order of APU provisioning is indicated by the prefix 'A', e.g. the fourth APU is indicated by 'A4'.

In general, APU order of provisioning follows the standard configuration sequence, i.e. starts at the topmost shelf at the outermost available slots at the left hand end of the LIS. The next APU is located at the outermost available slots at the right hand end of the LIS below. The third APU is located at the outermost available slots at the left hand end of the lowest LIS, in a LIM with three ADAS LIS. The fourth APU is placed in the topmost LIS in the outermost available slots at the right hand end of the LIS, and so on.

VPU

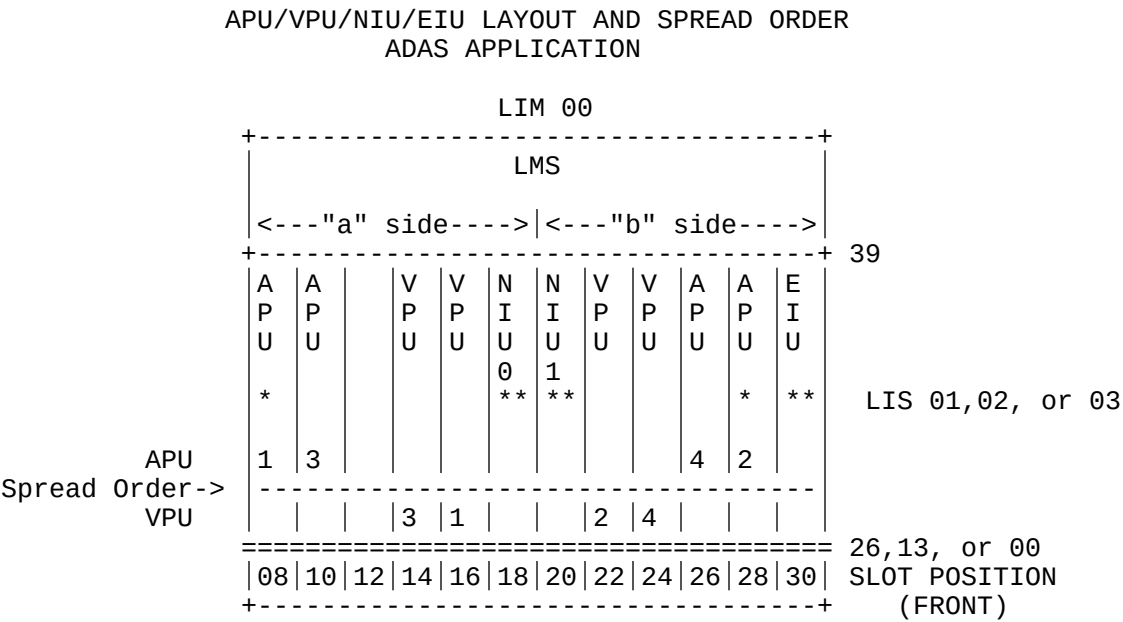
The order of VPU provisioning is indicated by the prefix 'V', e.g. the fourth VPU is indicated by 'V4'.

In general, VPU order of provisioning follows a non-standard configuration sequence, i.e. the sequence starts at the topmost shelf at the innermost available slots to the left of the NIU(s). The next VPU is located at the innermost available slots to the right of the NIUs below. The third VPU is located at the innermost available slots to the left of the lowest NIUs, in a LIM with three ADAS LIS. The fourth VPU is placed in the topmost LIS in the innermost available slots to the right of the LIUs, and so on.

LIS's used for ADAS cannot be shared with other applications.

ADAS LIS(s) can share the same LPP (not the same LIS shelf) with other applications with the exception of PACKET HANDLER using XLIU's.

HARDWARE LAYOUT ADAS - First LIM with One ADAS LIS

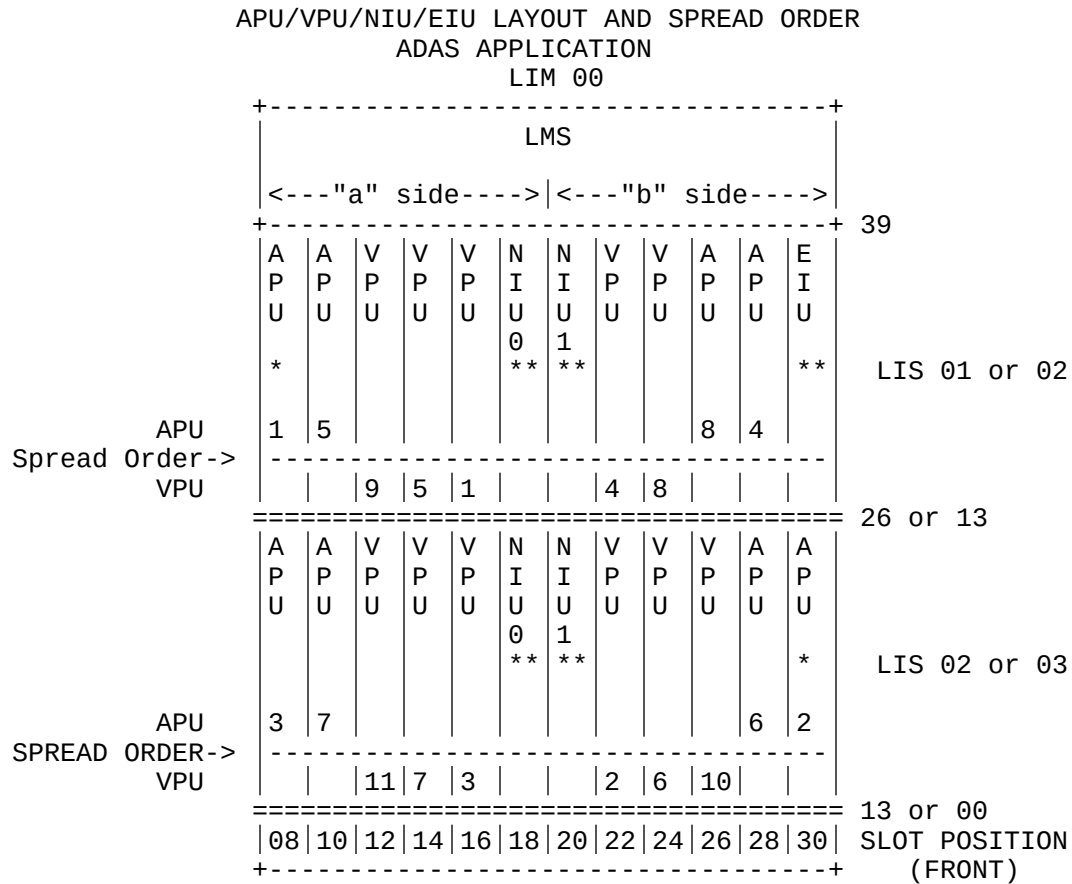


1 LIM and 1 LIS for ADAS

* VPP-APU

** Always provision NIU 0 and 1 on each ADAS LIS
and 1 EIU on 1st ADAS LIS

HARDWARE LAYOUT ADAS - First LIM with Two ADAS LIS



1 LIM and 2 LIS for ADAS

2 LIS mount in sh pos 26 and 13 OR sh 13 and 00

* Always provision APU 1 and 2 for VPP-APU

** Always provision NIU on each ADAS LIS
and 1 EIU on 1st ADAS LIS

HARDWARE LAYOUT ADAS - First LIM with Three ADAS LIS

APU/VPU/NIU/EIU LAYOUT AND SPREAD ORDER
ADAS APPLICATION

LIM 00													
LMS													
<---"a" side--->						<---"b" side--->							
A	A	V	V	V	N	N	V	V	A	A	E		
P	P	P	P	P	I	I	P	P	P	P	I		
U	U	U	U	U	U	U	U	U	U	U	U		
*					0	1					**		
1	7				**	**			10	4			LIS 01
APU Spread Order->													
VPU													
			13	7	1			4	10				
=====													26
A	A	V	V	V	N	N	V	V	V	A	A		
P	P	P	P	P	I	I	P	P	P	P	P		
U	U	U	U	U	U	U	U	U	U	U	U		
					0	1							
					**	**					*		LIS 02
5	11									8	2		
APU SPREAD ORDER->													
VPU													
			16	11	5			2	8	14			
=====													13
A	A	V	V	V	N	N	V	V	V		A		
P	P	P	P	P	I	I	P	P	P		P		
U	U	U	U	U	U	U	U	U	U		U		
					0	1							
					**	**							LIS 03
3	9										6		
APU Spread Order->													
VPU													
			15	9	3			6	12	17		6	
=====													00
08	10	12	14	16	18	20	22	24	26	28	30		SLOT POSITION (FRONT)

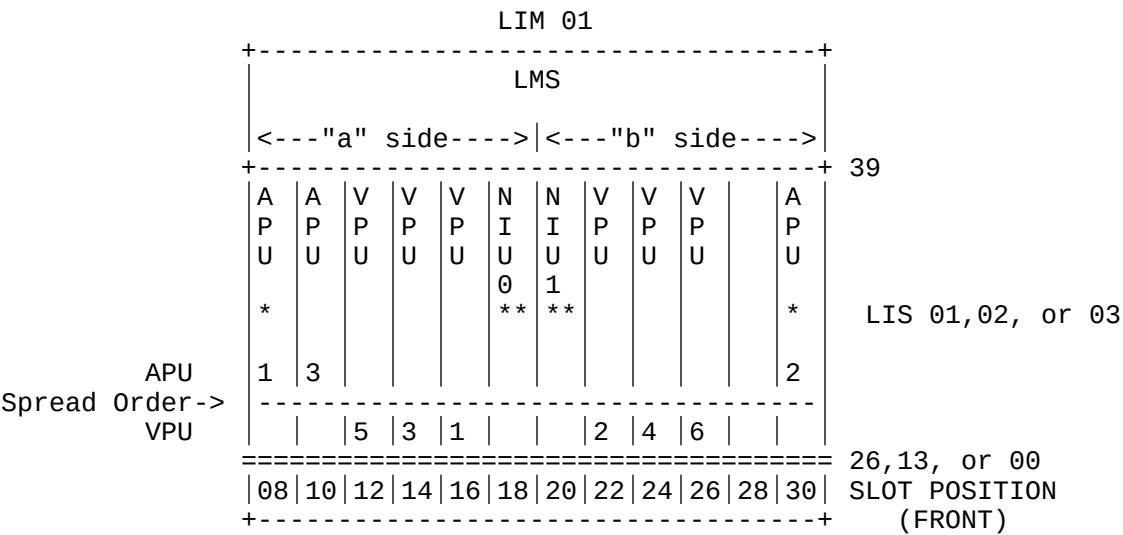
1 LIM and 3 LIS for ADAS

* Always provision APU 1 and 2 for VPP-APU

** Always provision NIU on each ADAS LIS
and 1 EIU on 1st ADAS LIS

HARDWARE LAYOUT ADAS - 1+N LIM with One ADAS LIS

APU/VPU/NIU/EIU LAYOUT AND SPREAD ORDER
1+N ADAS APPLICATION

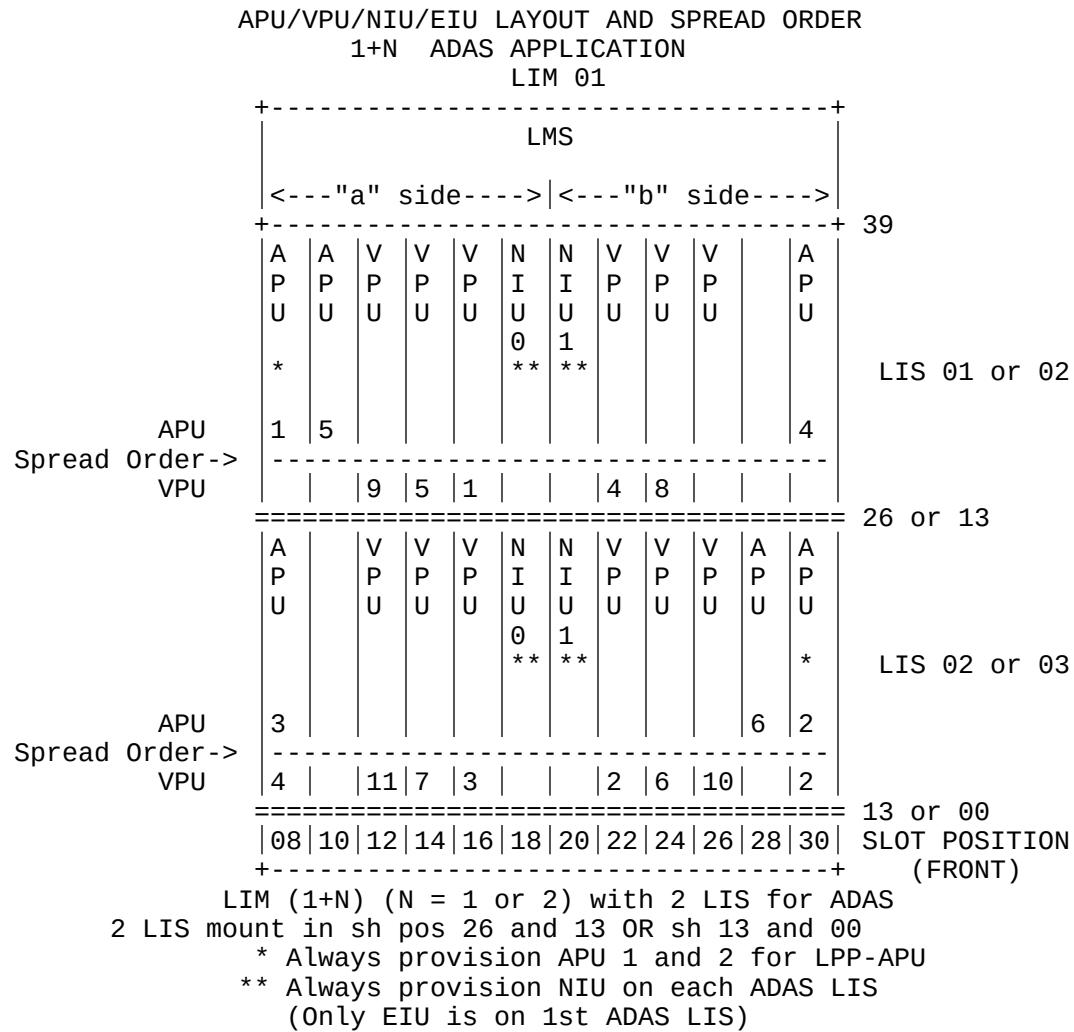


LIM (1+N) (N = 1 or 2) with 1 LIS for ADAS

* Always provision APU 1 and 2 for LPP-APU

** Always provision NIU on each ADAS LIS
(Only EIU is on 1st ADAS LIS)

HARDWARE LAYOUT ADAS - N+1 LIM with Two ADAS LIS



HARDWARE LAYOUT ADAS - 1+N LIM with Three ADAS LIS

APU/VPU/NIU/EIU LAYOUT AND SPREAD ORDER
1+N ADAS APPLICATION
LIM 01

		LMS												
		<---"a" side--->					<---"b" side--->							
APU Spread Order-> VPU		A P U	A P U	V P U	V P U	V P U	N I U 0 **	N I U 1 **	V P U	V P U	V P U		A P U	39
	*													
	1	7											4	LIS 01

			1	13	7	1				4	10	16		
=====														26
APU Spread Order-> VPU		A P U		V P U	V P U	V P U	N I U 0 **	N I U 1 **	V P U	V P U	V P U	A P U	A P U	
		5										8	*	
	5			17	11	5				2	8	14		2

APU Spread Order-> VPU		A P U	A P U	V P U	V P U	V P U	N I U 0 **	N I U 1 **	V P U	V P U	V P U		A P U	13
		3	9										6	
				15	9	3				6	12	18		6

		08	10	12	14	16	18	20	22	24	26	28	30	00
=====														SLOT POSITION (FRONT)

```
LIM (1+N) (N = 1 or 2) with 3 LIS for ADAS
* Always provision APU 1 and 2 for LPP-APU
** Always provision NIU on each ADAS LIS
    (Only EIU is on 1st ADAS LIS)
```

RUL5 1) For each unequipped slot in the front of the LIS, provide:

- one (1) NT9X19AA Filler Face plate.
- 2) For each unequipped slot in the rear of the LIS, provide:
 - one (1) NT9X19BA Filler Paddle Board.
- 3) For each LIS shelf, provide:
 - two (2) NT9X19EA Power Converter Filler Faceplates.

RUL6 1) For each LMS shelf, provide:

- two (2) NT9X30AB +5V Global Power Converter CPs,
 - two (2) NT9X52AA T-Bus Access CPs,
 - two (2) NT9X15AA Mapper CPs,
 - four (4) NT9X17AD Message Switch 4 Port CPs,
 - four (4) P0735096 Designation Labels (NT9X17AD).
 - two (2) NT9X49CC Message Switch P-Bus Term,
 - two (2) NT9X53AA Message Switch Clock CPs,
 - OR
 - two (2) NT9X53AD Message Switch Clock CPs,
 - two (2) P0803728 Designation Labels for NT9X53AD.
 - four (4) NT9X23BA DS-30 4 Port PBs,
 - two (2) NT9X79BA F-Bus Extender PBs,
 - two (2) NT9X26AB Remote Terminal I/F CPs,
 - two (2) NT9X73BA LMS F-Bus Rate Adapter CPs,
 - eight (8) NT9X19AA Filler Faceplates,
 - eighteen (18) NT9X19BA PB Filler Faceplates,
 - two (2) NT9X19EA Power Converter Faceplates,
 - two (2) P0705003 Designation Labels (NT9X26AB), and
 - two (2) P0709458 Designation Labels (NT9X73BA).
- 2) The NT9X30AA will be replaced by the NT9X30AB. The NT9X30AB will function for both the -48V and -60V powered installations.
 - 3) Hardware wise the NT9X17AD is fully compatible with the NT9X17AA. However, The NT9X17AD can only be deployed for offices with BCS34 and higher. Note that NT9X17AA is MD'd and replaced by the NT9X17AD.
 - 4) Initially the NT9X53AD may only be used in SSP offices, and LPP support of the NT9X53AD has been incorporated in the CSP05 software releases. Note that NT9X53AD can not be deployed on STPs yet.

RUL7 1) For each unused connector position on the LIS shelf bulkheads, provide one (1) NTEX5025 Bulkhead Connector Cover Plate.

The number of cover plates required per LIS shelf is equal to:

$$32 - (\begin{array}{l} \text{\#FRIUs on LIS shelf} * 2 \\ + \text{\#NIUs on LIS shelf} * 4 \\ + \text{\#LIUs on LIS shelf} \\ + \text{\#EIUs on LIS shelf} \end{array})$$

RUL8 1) Deleted.

RUL9 1) For each NT9X70BB LIM Cabinet, provide one (1) P0679484 FCC 15/CSA C108.8 Label.

RUL10 1) Provide FRIU, EIU, LIU cable routing labels per the half shelf (except LIUs with CBI, which have no cables) as shown below.

2) Provide one (1) sheet of NIU cable routing labels per shelf when NIU's are provisioned in that shelf.

Shelf	Slots	LIU/EIU Label	FRIU Label
26	31R-21R	P0735397	P0714414
26	19R-09R	P0714420	P0714415
13	31R-21R	P0735398	P0714416
13	19R-09R	P0714421	P0714417
00	31R-21R	P0735399	P0714418
00	19R-09R	P0714422	P0714419

RUL11 1) Provide one (1) NT9X9532 Stand-Alone Cabling interface kit and one (1) P0736059, Filter Capacitor Designation Label Sheet, when powering the NT9X70BB cabinet from the 7 foot PDC frame or powering from the new CPDC (NTRX31CA) cabinet, or powering from the NTRX31AA or from the NTRX31BA CPDC cabinet which is in the different lineup than the NT9X70BB. This kit includes power cables, terminal blocks and miscellaneous mounting hardware for non-Cabinetized DMS application. (The Designation Label sheet contains enough labels to fully designate the filter capacitors for one cabinet).

2) Provide one (1) NT9X9531 Horizontal power cabling interface kit and one P0736058 Terminal Block Designation strip when powering the NT9X70BB cabinet from the NTRX31AA or from the NTRX31BA CPDC cabinet which is in the same lineup as the NT9X70BB. This kit includes power cables, terminal blocks, and miscellaneous mounting hardware for Cabinetized DMS application.

- RUL12 1) Provide one (1) NT9X0324 ESP Ground Terminator Assembly in all British Telephone offices.
- RUL13 1) Deleted.
- RUL14 1) When the office is equipped with one or more NT9X70BB LIM Cabinets, provide:
- one (1) P0737499 End Guard Labels(000-011).
- When the office is equipped with 13 or more NT9X70BB LIM cabinets, provide:
- one (1) P0737500 End Guard Labels(012-023)
- RUL15 1) For each cabinet in NON-RAISED floor applications, provide:
- two (2) NT9X0171 LMS DS-30 X-Link Cable Assemblies, or
- 2) For each cabinet for RAISED floor applications, provide:
- two (2) NT9X7025 LMS DS-30 X-Link Cable Assemblies.
- 3) The NT9X0171 or the NT9X7025 must only be used for Non-Cabinetized offices and should not be provisioned for Cabinetized offices. For Cabinetized offices refer to RUL19.
- RUL16 1) Provide two NT9X74DA F-Bus Repeater CP and two P0733871 labels for each LIS that is provisioned with the cabinet. Note that the NT9X74CA has been MD'd and it is replaced by NT9X74DA.
- RUL17 1) Reference the engineering manual insert NTRX73 - Cabinetized DMS Cosmetic Endguards and EMI Sidepanels for the correct cosmetic hardware for brown, grey, overhead and under floor applications.
- RUL18 1) For each NT9X70BB LIM cabinet located in a Non-cabinetized DMS office, provide:
- four (4) NT9X0145 LMS DS-30 Cable Assembly,
 - one (1) NT9X6509 Filtered DS-30 Blkhd (left), and
 - one (1) NT9X6536 Filtered DS-30 Blkhd (right).
- RUL19 1) For each NT9X70BB LIM cabinet located in a cabinetized DMS office, provide:
- four (4) NT9X0100 LMS DS-30 Cable Assembly,
 - two (2) NT9X0107 LMS DS-30 Cable Assembly,

- one (1) NT9X6569 Non-Fltd DS-30 Blkhd (left), and
- one (1) NT9X6570 Non-Fltd DS-30 Blkhd (right).

RUL20 1) The cooling unit provisioned in RUL1 comes with three (3) replaceable blower assemblies. If the customer requests additional spares for the cooling unit, provide in customer specified quantities:

- For the NT9X95CU Cooling Unit (-48V),
 - A0383325 -48V Blower Assembly, or
- For the NT9X95GU Cooling Unit (-60V),
 - A0382103 -60V Blower Assembly.

RUL21 1) For the LMS shelf, FOR BCS35 AND LOWER provide:

- two (2) NT9X13DB CPU 16 MHZ CPs,
- two (2) P0696239 Designation Labels (NT9X13DB), and
- two (2) NT9X14BB 6Meg Memory CPs.

The NT9X14DB will be retrofitted for the NT9X14BB in existing offices equipped with the NT9X14BB, if the BCS36 (or higher) software load is too large for the 6Meg NT9X14BB (except with the NT9X13DA). Offices with the NT9X13DA should preferably be updated with the "standalone" NT9X13DD instead of the (1+24) Meg combination described below. Note that the NT9X14BB is MD'd and it is replaced by the NT9X14DB.

2) FOR BCS36 THROUGH CSP02, PROVIDE:

- two (2) NT9X13DD CPU 16 MHZ CPs, and
- two (2) P0743628 Designation Labels (NT9X13DD).

The NT9X13DD includes 16MB of DRAM which is adequate for all applications.

3) FOR CSP03 AND ABOVE:

* 16 Meg memory is MANDATORY on all LMS loads.
This is achievable using the:

- a) NT9X13DD standalone CP, in new or existing offices.

Note that NT9X13DB is MD'd and cannot be provisioned in new offices.

- b) NT9X13DB + NT9X14DB (1+24) Meg combination in existing offices.

If the (1+24) Meg is required using the NT9X13DB combination, provide:

- two (2) NT9X14DB 24Meg Memory CPs, and
- two (2) P0700802 Designation Labels NT9X14DB.

The (1+24) Meg combination is not supported with the NT9X13DA. STP offices to be provisioned with fiberized links (large STPs requiring enhanced reliability under worst-case traffic and DOUBLE FAULT conditions) have, as Gating H/W, the NT9X13DD. These STPs should migrate immediately to the NT9X13DD to avoid future churn.

NOTE: The NT9X13DD cannot be used with the NT9X14BB (6 Meg) Memory CPs, nor with the NT9X14DB (24 Meg).

- 4) For each LMS shelf, provide when no NT9X14XX CP is provisioned (in other words, when NT9X13DD is provided):
 - two (2) NT9X19AA Filler Faceplates,
 - two (2) P0709515 Designation Labels NT9X19AA,
 - two (2) NT9X19BA Filler Faceplates, and
 - two (2) P0709516 Designation Labels NT9X19BA.

RUL22 1) For EIU applications, provide one Media Access Unit (MAU) HP28685B for each EIU interface.

SINGLE SHELF LPP(FLIS) IN C42 CABINET

PEC CODE: NTEX01AB

CPC CODE: B0235821

RATING: STD

REPLACES: NTEX01AA

REPLACED BY: Not Applicable

ABBREVIATION NAME: EMC

ENGINEERING DESCRIPTION: The Single Shelf LPP(FLIS) in C42 Cabinet houses up to two (2) Link Interface Shelves (LIS). The first shelf, referred to as LIS 1, is mounted in shelf position 26. The second shelf, if equipped, is referred to as LIS 2 and is mounted in shelf position 13.

REFERENCE DOCUMENTATION: MSEX01AB 01 16
ADEX01AB 02 07
SLEX01AB 02 03
ISEX01AB 01 06
MS9X95BA 00 01

MARKETS: Applicable markets:

Canada
US
CALA
Asia/Pacific
Europe

ISSUE AUTHOR: NTI: Ganesh Ram Dept. 3471 (PPK)

MAIN CONTACT: NTI: Ganesh Ram Dept. 3471 (PPK)

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Single Shelf LPP(FLIS) in C42 Cabinet

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NTEX01AB EMA2-12-004 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 02 01	ECM 612 04	NTEX22AA is A&M. Bulkhead modification
93 06 08	ECM 612 06	Introduction of DMS Packet Handler.
94 02 16	ECM 612 08	Correct Product Rating to STANDARD.
94 03 10	ECM 612 09	Change C42 Mechanical Hardware
94 06 30	ECM 612 10	Changes per EC 018-43057
94 08 09	ECM 612 11	Changes per EC 006-19337
95 03 29	ECM 612 15	Updated per ECD 018-44239 to replace NT9X77AA with NT9X77AB.
95 08 28	ECM 612 16	Updated per ECD 018-45801.
95 12 12	ECM 612 17	Updated per ECD 018-43764.
		Updated per ECD 018-45721.
		Rearranged some rules for more clarification. Solve ET 32989.
96 03 22	ECM 612 18	Updated per ECD 018-43764.
96 06 24	ECM 612 19	Included LIU, EIU and FRIU routing labels.
97 02 28	ECM 612 20	Implement ECD: 018-47110 and include two slot Desig. label for various ASUs including NTEX22CA.
		Implement ECD: 018-48745 to change the A0368392 from provisionable to AP in the stocklist of NT9X70BB.
		MD NT9X78BA per ECD:018-46903
97 09 05	ECM 612 21	MD'ing NT9X77AA as per EC: 018-49051.
		Change the A0368932 to A0368392 in the Previous issue history section.
		Remove the NT9X78CA from the previous issue history section.
		MD NT0X24BT and NT0X24CN as per ECD: 018-51456. The replacement NT9X0105 is always included with the cabinet Stocklist.

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Single Shelf LPP(FLIS) in C42 Cabinet

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The Single Shelf LPP(FLIS) in C42 Cabinet is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
C42 Cabinet Mechanical Assy	NT9X95BA	FW	1			AP
Frame Supervisory Panel	NT9X03AA	FSP		52		RUL15
Cooling Unit	NT9X95CU	CU		00		RUL15
Frame Supervisory Panel(-60V)	NT9X03BA	FSP		52		RUL15
Cooling Unit (-60V)	NT9X95GU	CU		00		RUL15
Link Interface Shelf Assy	NT9X7204		1	26		RUL1
Link Interface Shelf Assy	NT9X7204		1	13		RUL1
Blank Shelf Assembly	NT0X24BD		1	13		RUL1
Screws & Washers	P097F813		4	13		RUL1
	P0284154		1			RUL1
	P0183220		1			RUL1
# +5V Power Converter	NT9X30AA		2	26, 13	04F, 36F	RUL19
# -5V Power Converter	NT9X31AA		2	26, 13	01F, 33F	RUL19
Global +5V, 86A PWR Converter	NT9X30AB		2	26, 13	04F, 36F	RUL19
Designation Label	P0737682		2	26, 13	04F, 36F	RUL19
Global -5V, 20A PWR Converter	NT9X31AB		2	26, 13	01F, 33F	RUL19
Designation Label	P0709513		2	26, 13	01F, 33F	RUL19
Power Converter CP	NTDX16AA		4	26, 13	04F, 36F	RUL20
					01F, 33F	
Power Interface Unit	NT9X2825		2	26, 13	01F-04F	RUL20
					33F-36F	
Power Interface Kit	NT9X7214		2	26, 13	01F-04F	RUL21
					33F-36F	
LIS F-Bus Controller CP	NT9X96AA		2	26, 13	07F, 32F	RUL2
LIS Fiber INTF Paddle Board	NT9X98AA		2	26, 13	07R, 32R	RUL2
F-Bus A Terminator PB	NTEX20AA		1	26, 13	30R	RUL2
F-Bus B Terminator PB	NTEX20BA		1	26, 13	8R	RUL2
PB Filler Face Plate	NT9X19BA		10	26, 13	10R, 12R	RUL2
					14R, 16R,	
					18R, 20R,	
					22R, 24R,	
					26R, 28R,	
Bulkhead Assembly Left	NT9X6534		2	26, 13		RUL6
Bulkhead Assembly Right	NT9X6580		2	26, 13		RUL6
Intra Shelf Comm. Cable Assy.	NT9X9820			26, 13		RUL6
Composite Clock Cable Assy	NTEX0120			26, 13		RUL6
Enhanced CPU-IPF CP	NTEX22BB			26, 13	08F, 10F,	RUL3
					12F, 14F,	
					16F, 18F,	
					20F, 22F,	
					24F, 13F,	

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Single Shelf LPP(FLIS) in C42 Cabinet

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EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
32MB ASU Processor & FBUS Controller	NTEX22CA			26, 13	28F, 30F 8F, 10F, 12F, 14F,	RUL3

STP Signalling Terminal CP	NT9X76AA	26, 13	16F, 18F, 20F, 22F, 24F, 26F, 28F, 30F, 09F, 11F, 13F, 15F, 17F, 19F, 21F, 23F, 25F, 27F, 29F, 31F	RUL3
# V.35 Interface PB	NT9X77AA	26, 13	09R, 11R, 13R, 15R, 17R, 19R, 21R, 23R, 25R, 27R, 29R, 31R	RUL3
V.35 Interface PB - ISG	NT9X77AB	26, 13	09R, 11R, 13R, 15R, 17R, 19R, 21R, 23R, 25R, 27R, 29R, 31R	RUL3
# Enhanced DS0A Interface PB	NT9X78BA	26, 13	09R, 11R, 13R, 15R, 17R, 19R, 21R, 23R, 25R, 27R, 29R, 31R	RUL3
STP DS0-A Interface PB	NT9X78DA	26, 13	9R, 11R, 13R, 15R, 17R, 19R, 21R, 23R, 25R, 27R, 29R, 31R	RUL3
NIU Cha. Bus Controller CP Unit 0	NTEX25AA	26, 13	19F	RUL3
NIU Cha. Bus Controller CP Unit 1	NTEX25BA	26, 13	21F	RUL3
DS-30 I/F PB	NTEX28AA	26, 13	19R, 21R	RUL3
Channel Bus Interface PB	NTEX26AA	26, 13	9R, 11R, 13R, 15R, 17R, 23R, 25R, 27R,	RUL3

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EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
DMS Packet Handler Proc. CP	NTFX10AA		26, 13	29R, 31R, 11F, 13F, 15F, 17F, 23F, 25F, 27F, 29F		RUL3
DMS Packet Handler I/F PB	NTFX09AA		26, 13	11R, 13R, 15R, 17R,		RUL3

Ethernet Interface CP	NT9X84AA	26,13	23R, 25R, 27R, 29R 9F, 11F, 13F, 15F, 17F, 19F, 21F, 23F, 25F, 27F, 29F, 31F	RUL3
Ethernet Access Unit I/F PB	NT9X85AA	26,13	9R, 11R, 13R, 15R, 17R, 19R, 21R, 23R, 25R, 27R, 29R, 31R	RUL3
Enhanced Frame Relay I/F CP	NTEX31BA	26,13	9F, 11F, 13F, 15F, 17F, 19F, 21F, 23F, 25F, 27F, 29F, 31F	RUL3
Frame Relay Service I/F PB	NTEX30AA	26,13	9R, 11R, 13R, 15R, 17R, 19R, 21R, 23R, 25R, 27R, 29R, 31R	RUL3
Filler Face Plate	NT9X19AA	26,13	08F-31F	RUL4
PADBD Filler Face Plate	NT9X19BA	26,13	09R, 11R, 13R, 15R, 17R, 19R, 21R, 23R, 25R, 27R, 29R, 31R	RUL4
V.35/DS0/DS0A Cable Assy.	NT9X0193	26,13		RUL3
Inter CBC Cable Assembly	NT9X7021	26,13		RUL3
NIU Cable Assembly	NT9X7020	26,13		RUL3
EIU Cable Assembly	NT9X0190	26,13		RUL3
FRU Cable Assembly	NT9X0191	26,13		RUL3
NT9X76AA Designation Label	P0727757			RUL3

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Single Shelf LPP(FLIS) in C42 Cabinet

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EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
NTEX28AA Designation Label	P0733137					RUL3
NTEX26AA Designation Label	P0733875					RUL3
NT9X85AA Designation Label	P0711661					RUL3
NTEX30AA Designation Label	P0711675					RUL3
NTFX09AA Designation Label	P0732784					RUL3
NTEX22BB Designation Label	P0735913					RUL3
Desig. Label NTEX22CA	P0837660					RUL3
NT9X77AA Designation Label	P0704358					RUL3
NT9X77AB Designation Label	P0804444					RUL3
NT9X78BA Designation Label	P0704359					RUL3
Desig. Label NT9X78DA	P0803615					RUL3

NIU Cable Routing Labels	P0735393	26	RUL3
NIU Cable Routing Labels	P0735391	13	RUL3
NTEX22BB/NTEX25AA I.D Label (2 Slots)	P0735918		RUL3
NTEX22BB/NTEX25BA I.D Label (2 Slots)	P0735919		RUL3
NTEX22BB/NTFX10AA I.D Label (2 Slots)	P0735914		RUL3
NTEX22BB/NT9X84AA I.D Label (2 Slots)	P0738387		RUL3
NTEX22BB/NTEX31BA I.D Label (2 Slots)	P0735916		RUL3
LIU ID Label (NTEX22CA/NT9X76AA)	P0859948		RUL3
EIU ID Label Front (NTEX22CA, NT9X84AA)	P0859950		RUL3
NIU ID Label Unit:0 (NTEX22CA,NTEX25AA)	P0859952		RUL3
NIU ID Label Unit:1 (NTEX22CA,NTEX25BA)	P0859953		RUL3
XLIU ID Label (NTEX22CA,NTFX10AA)	P0859986		RUL3
NTDX16AA Designation Label	P0748922		RUL20
Horizontal Power Cab. Kit	NT9X9531	1	RUL9
Stand-alone Power Cab. Kit	NT9X9532	1	RUL9
Bulkhead Cover Plate Assy.	NTEX5025	26, 13	RUL11
LIU Cable Routing Labels (Sheet)	P0714420	1 26	RUL12
	P0714421	1 13	RUL12
LIU Cable Routing Labels (Sheet)	P0735397	1 26	RUL12
	P0735398	1 13	RUL12
FRIU Cable Routing Labels (Sheet)	P0714414	1 26	RUL12
	P0714415	1 26	RUL12
	P0714416	1 13	RUL12
	P0714417	1 13	RUL12
Ext. Cab.Label (EMC 00-05)	P0733690	1	RUL13

Active Equipment
Single Shelf LPP(FLIS) in C42 Cabinet

NTEX01AB
EMA2-12-004
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EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Ext. Cab.Label (EMC 06-11)	P0733691		1			RUL13
Ext. Cab.Label (EMC 12-16)	P0733692		1			RUL13
PDC Designation Label	P0733693		1			RUL13
FSP Designation Label	P0733694		1			RUL13
Power Filter Labels	P0736059		1			RUL16
Terminal Block Desig. Strip	P0736058		1			RUL16
Optical Fiber label	P0736273					RUL16
Optical Fiber label(German)	P0737638					RUL16
ESP Ground Terminal Assy.	NT9X0324		1			RUL16
Rear Bot Design Strip Label	P0739095			26,13		RUL18
Rear Top Design Strip Label	P0739096			26,13		RUL18
Front Top Design Strip Label	P0800327			26,13		RUL18
FLIS Shelf Des. strip(REAR)	P0730475		1	26,13		RUL18
C42 Cabinet Mechanical Assy	NT9X95BA					NOTE1
Blank Shelf Assembly	NT0X24BD		1	39		RUL1
Blank Shelf Assembly	NT0X24BD		1	00		RUL1

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT9X30AA	MD *	NT9X30AB
NT9X31AA	MD *	NT9X31AB
NT9X76BA	MD *	NT9X76DA
NT9X77AA	MD *	NT9X77AB
NT0X24BT	MD	NT9X0105 (Note 2)
NT0X24CN	MD	NT9X0105 (Note 2)

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 manufac-
tured and cannot be ordered.

* Meaning this part is MD'd only in this product. It may not
have been MD'd in other products. Check the availability in
other products.

NOTES:

- 1) Refer to NT9X95BA(EMA4-07-001) for additional mechanical hardware requirements for C42 Cabinet.
- 2) The Provisionable Frame fail lights NT0X24BT and P0674502 (in Brown) or NT0X24CN and P0699441 (in Grey) have been removed from this document. The new NT9X0105 Black LAMP Bezel will always be provided with the cabinet.

RULES:

- AP 1) When PEC NTEX01AB is ordered, these items are provided.
- 2) The NT9X95BA contains the NT9X9575 Cabinet Framework.
- The NT9X9575 framework provides earthquake and EMI protection. The framework is 72" high, 28" deep and 42" wide.
- Refer to NT9X95BA(EMA4-07-001) for additional mechanical hardware requirements for C42(S/DMS) Cabinet.
- RUL1 1) Provision one (1) NT9X7204 Link Interface Shelf Assembly in shelf position 26.
- 2) Provision one (1) NT9X7204 Link Interface Shelf Assembly in shelf position 13 if more than twelve (12) LIUs are required. Otherwise, provision one (1) NT0X24BD Blank Shelf Assembly in shelf position 13.
- 3) Provision four (4) P097F813 screws, one (1) P0284154 washer and one (1) P0183220 locker washer when a link interface shelf assembly NT9X7204 is required in shelf position 13.
- 4) Provision one (1) NT0X24BD Blank Shelf Assembly in shelf position 39.
- 5) Provision one (1) NT0X24BD Blank Shelf Assembly in shelf position 00.
- RUL2 1) For each NT9X7204 LIS shelf assembly, provide:
- two (2) NT9X96AA LIS FBUS controller CP's
 - two (2) NT9X98AA LIS Fiber Interface PB's
 - one (1) NTEX20AA Intra FBUS A Termination PB
 - one (1) NTEX20BA Intra FBUS B Termination PB
 - ten (10) NT9X19BA Filler Paddleboards
- NOTE: An office to be equipped with a (F)LIS has to be pre-configured with
- NT9X13DC Processor (to raise MS memory capacity to 10 MB)
 - 2 Inter MS Links(IMLS)
- RUL3 1) Each Link Interface Unit (LIU) is composed of two circuit packs and one paddleboard. The first circuit pack is the

NTEX22 IPF Proc. and F-Bus Interface and is provisioned in an even-numbered slot from 8F to 30F.

- 1A) The NTEX22CA is fully backward compatible with the 4-MB NTEX22AA and the 8-MB NTEX22BA/BB ASU processors, and can co-exist with either or both, on the same shlef. CSP06 will be the first platform software release supporting the NTEX22CA.
- 1B) The first application for the NTEX22CA is for the Cellular Digital Packet Data (CDPD) services. The CDPD provides the functionality of transporting datagrams between the Mobile-End Systems (M-ES) and Private/Public Data Networks. There are three types of Application Specific Units such as EIU, XLIU and NIU that provide support for CDPD service. The NTEX22CA can only be used on these ASUs used on CDPD services. Note that the APU (APUX), VPU and the FRIU applications are not supported by the NTEX22CA at this time.

The second circuit pack is the NT9X76AA STP Signalling Terminal and is provisioned in the next highest (odd-numbered) slot (from 9F to 31F). The paddleboard is either an NT9X77AA/AB V.35 Interface or an NT9X78BA/DA Enhanced DS0A Interface and is provisioned behind the NT9X76AA (in an odd-numbered slot from 9R to 31R). Note that NT9X78BA is MD'd and replaced by the NT9X78DA.

These three cards make up a single Link Interface Unit.

Refer to Figure 1.

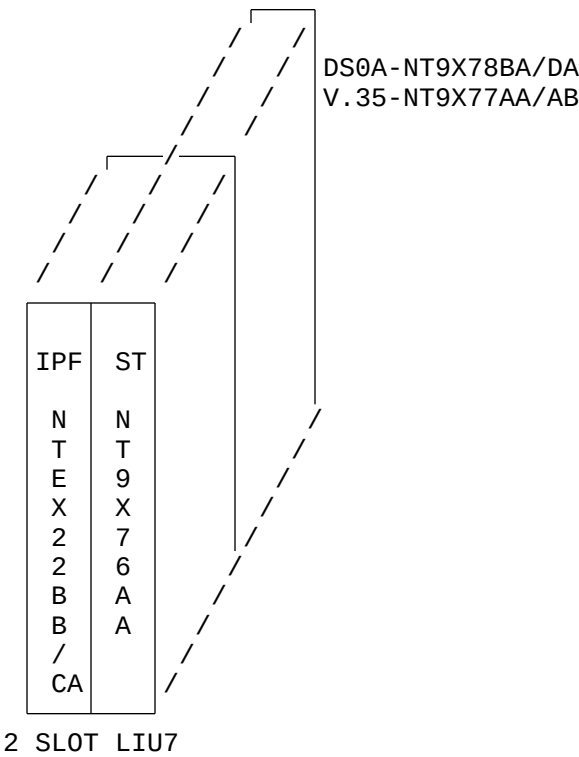


Figure 1 LIU7 CONFIGURATION

Up to twelve (12) LIUs may be provisioned per LIS shelf, with the left-most LIU occupying slots 8F, 9F and 9R, and the right-most LIU occupying slots 30F, 31F and 31R.

If only one LIS shelf is provisioned, LIUs forming a pair should be provisioned in different halves of the shelf with LIUs being assigned from the sides towards the middle. Refer to Figure 2. Links in a linkset should be spread across LIU7s in the this order. Also, office sites should be consecutively datafilled as shown below.

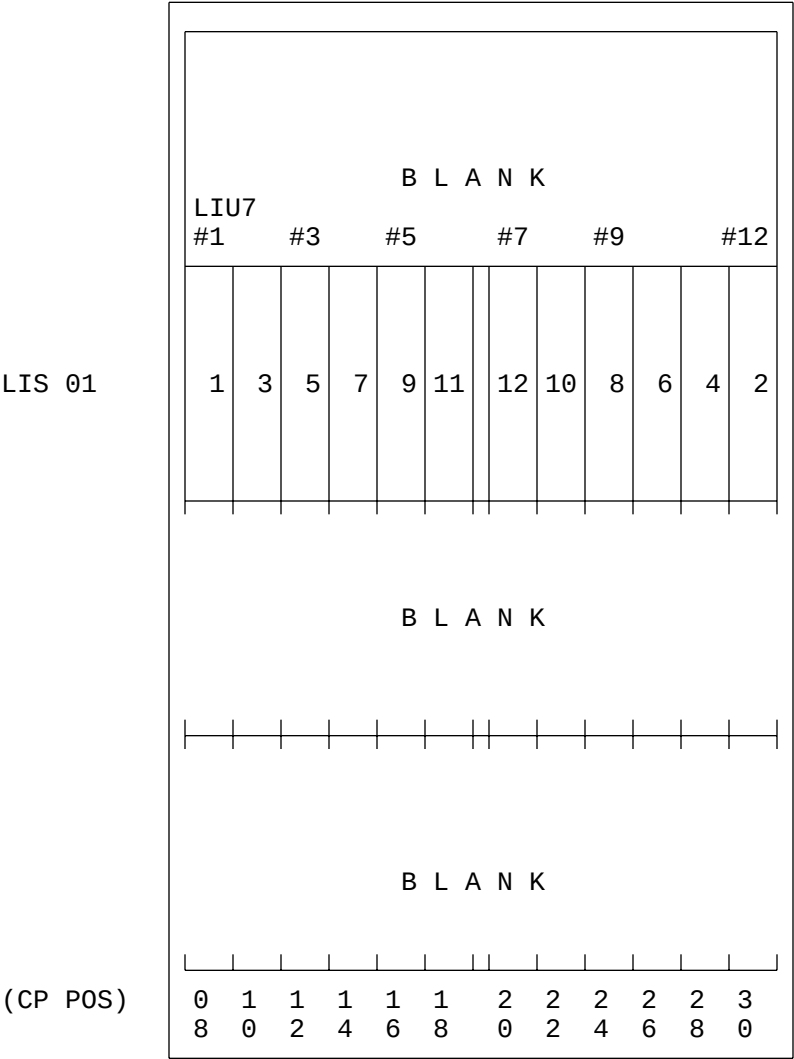


Figure 2 LIU7 ASSIGNMENT SEQUENCE

If two LIS shelves are provisioned, LIUs forming a pair should be provisioned in opposite halves of different shelves with LIUs being assigned from the sides towards the middle of each shelf. Refer to Figure 3.

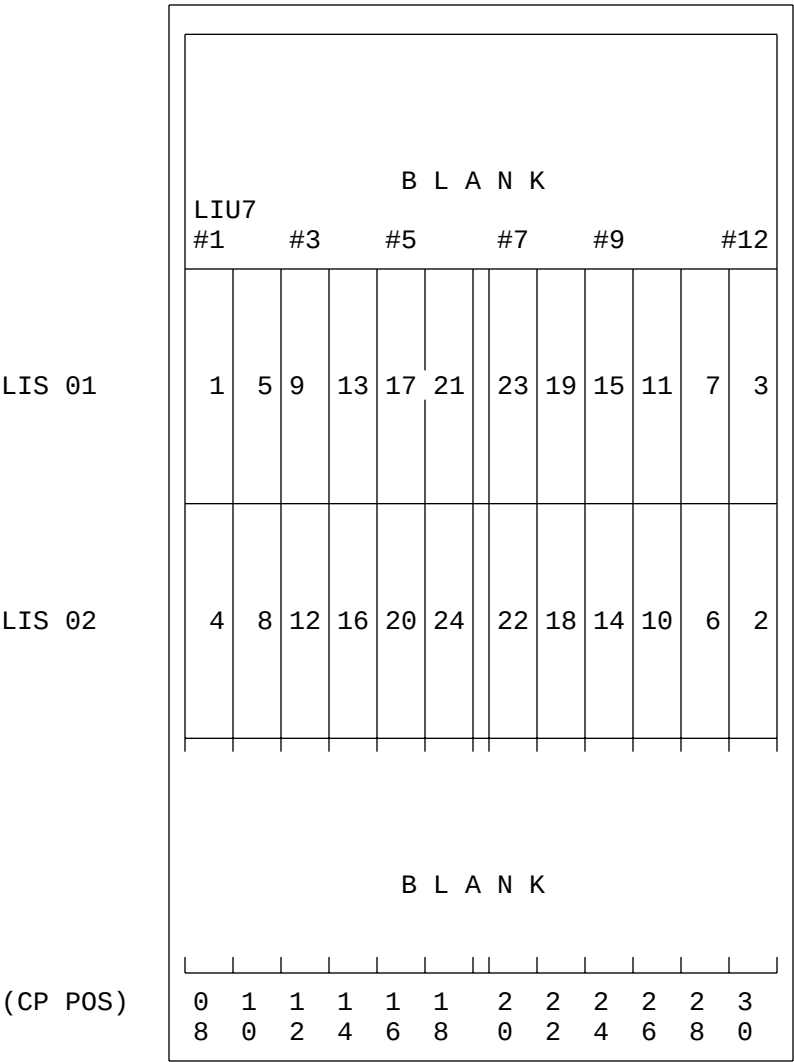


Figure 3 LIU7 ASSIGNMENT SEQUENCE

- 2) One LIS will support one pair of Network Interface Unit (NIU) and upto a maximum of TWO per SSLPP Cabinet. The NIU can be located only in the centre of the LIS shelf, and it is divided into two halves. Unit 0 for Plane 0 and Unit 1 for Plane 1 respectively. The NIU provides a connection from the SSLPP Cabinet to the network, and unit 0 and unit 1 cannot be split over two shelves.

The NIU pair is a six-card redundant unit consisting of two of each of the following cards:

- 1) NTEX25 CBC interfaces the network planes with parallel C-bus to the XLIU and other ASUs. Two different models of CBC card are supplied with the NIU pair, one for NIU unit 0 and the other for NIU unit 1.
- 2) NTEX22 IPF.
- 3) NTEX28AA DS-30 link interface paddle board supports four
- (4) DS30 links for the DMS PH.

Refer to Figure 4 below for Unit 0 and Unit 1.

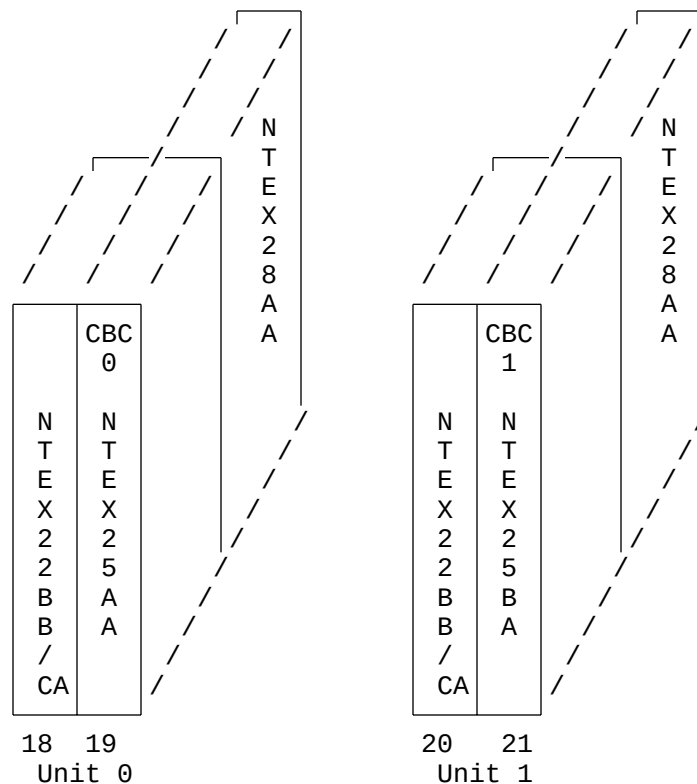


Figure 4 NIU Unit 0 and Unit 1 Configuration.

- 3) One LIS will support up to eight (8) DMS Packet Handler plus two (2) LIU7s per application. The SSLPP cabinet can support up to a maximum of eight (8) DMS packet handler and two LIU7s.

Each DMS Packet Handler is composed of two circuit packs and one paddleboard. Note that LIS MUST be provisioned with NIUs to use the DMS Packet Handler configuration, and NIUs cannot be split over two shelves. Refer to Figure 5 below.

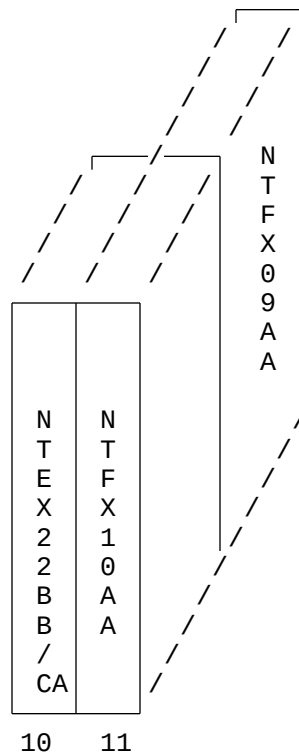


Figure 5 DMS - Packet Handler Configuration

- 4) Channelized access provides access to the SSLPP over the network without the need of an external OEM Channel Bank. An OEM channel bank was previously required to interface 56/64 Kbps LIU7 to the PCM30.

Channelized Access also provides the advantage of LIU sparing and also increases the number of applications available through the SSLPP. Refer to Figure 6 below for Channelized configuration.

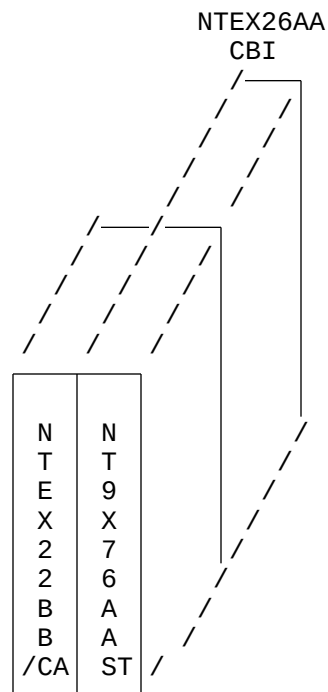


Figure 6 LIU configuration requiring channelized access.

Provide one (1) NTEX26AA for each LIU requiring channelized access. The Channel Bus Interface Paddleboard (NTEX26AA) provides an interface from the CBUS to the ST (Signalling Terminal) card (NT9X76AA), and hence, does not have any external cable connections to it. When in receive mode, the CBI selects data from the CBUS, selects the proper channel then transfers the data serially to the NT9X76AA. In transmit mode, the CBI drives the proper channels on both CBUSs. The CBI also provides CBUS functions related to fault detection and isolation.

- 5) The Frame Relay Service (FRS) is a new high speed, connection oriented, switched packet data service. DATASPAN is the Northern Telecom trade name for this service. The slot provisioning for the FRIU are identical to its provisioning on the LPP LIS.

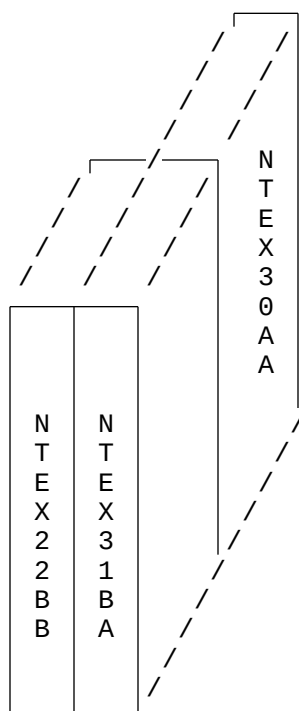


Figure 7 Frame Relay Interface Unit (FRIU).

- 6) The Ethernet Interface Unit (EIU) is an interface between DMS-BUS and an Ethernet Local Area Network (LAN). This allows for support of a variety of industry standard external communications interfaces (i.e. synchronous, asynchronous) and attachment of computers and work stations to the switch. It is based on the industry standard IEEE 802.3 10BASE5. The slot provisioning for the EIU are identical to its provisioning on the LPP LIS.

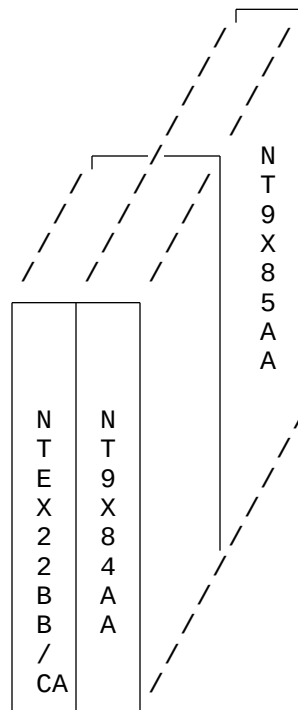


Figure 7 Ethernet Interface Unit (EIU).

- 6) Provision one (1) NT9X0193 STP Cable Assembly from each LIU paddleboard to the LIS bulkhead.
- 7) Provision one (1) NT9X0190 EIU Cable Assembly from each paddleboard (NT9X85AA) to the LIS bulkhead.
- 8) Provision two (2) NT9X0191 FRU Cable Assembly from each paddleboard (NTEX30AA) to the LIS bulkhead.

Provision one (1) P0735918 NIU (two slot) Identification Label for Unit 0 provisioned.

Provision one (1) P0735919 NIU (two slot) Identification Label for Unit 1 provisioned.

Provision one (1) P0733137 Designation Label per NTEX28AA paddle board provisioned.

Provision labels as required for different Application Specification Units (ASUs) provisioned.

- 9) Provision two (2) NT9X7021 Cable assemblies for the LIS shelf requiring NIUs (Network Interface Units). These cables cross connect the two NTEX28AA paddleboards. Also provision four (4) NT9X7020 cable assemblies for the LIS shelf with NIUs. These cables connect the paddleboard to the bulkheads.

Refer to Figure below. The numbers 2,4,8,12 represent the paddle boards connections.

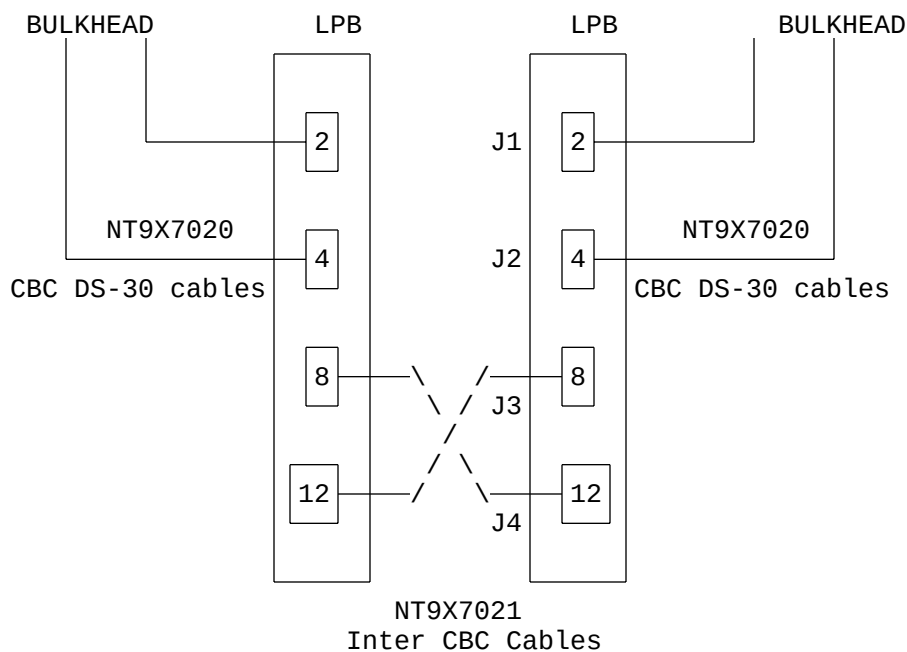


Figure: NIU cable connection

Provision one (1) sheet of NIU cable routing labels when NIUs are provisioned in that shelf.

- RUL4 1) Provision NT9X19AA Filler Face Plates and NT9X19BA Paddleboard Filler Face Plates for the unoccupied slots.
- RUL5 1) Deleted.
- RUL6 1) For each LIS shelf, provision one (1) NT9X6534 Bulkhead Assembly Left, one (1) NT9X6580 Bulkhead Assembly Right, one (1) NT9X9820 FLIS Cable Assembly and two (2) NTEX0120 Composite Clock Cable Assemblies.
- RUL7 1) Deleted.
- RUL9 1) Provide one (1) NT9X9532 stand-alone Cabling Interface Kit when powering the NTEX01AB cabinet from the 7 foot PDC frame OR powering from the new CPDC (NTRX31CA) cabinet, OR powering from the NTRX31AA or from the NTRX31BA CPDC cabinet which is in the different lineup than the NTEX01AB. This kit includes cables, filters, and miscellaneous mounting hardware.
- 2) Provide one (1) NT9X9531 Horizontal Power Cabling Interface Kit when powering the NTEX01AB cabinet from the NTRX31AA or from the NTRX31BA CPDC cabinet which is in the same lineup as the NTEX01AB. This kit includes power cables, terminal blocks, and miscellaneous mounting hardware.
- RUL10 1) Deleted
- RUL11 1) Provision one (1) NTEX5025 Bulkhead cover plate assembly for each unequipped position in the NT9X6534 or NT9X6580 bulkheads.
- RUL12 1) Provide one sheet of Routing Labels per half shelf when ASUs are provisioned in that shelf.

		FRIU	LIU, EIU
SHELF	SLOTS	LABEL	LABEL
26	31R-21R	P0714414	P0735397
26	19R-09R	P0714415	P0714420
13	31R-21R	P0714416	P0735398
13	19R-09R	P0714417	P0714421

- RUL13 1) The Following Labels are field applied and they are to be shipped loose to sight.
- 2) Provision P0733690 for EMC cabinets numbered from 00-05.
 - 3) Provision P0733691 for EMC cabinets numbered from 06-11.
 - 4) Provision P0733692 for EMC cabinets numbered from 12-16.
 - 4) Provision one (1) P0733693 PDC label per office.
 - 5) Provision one (1) P0733694 FSP label per office.
- RUL14 1) Deleted.
- RUL15 1) For the NTEX01AB Cabinet,
- For 48VDC applications,
 - one (1) NT9X03AA Frame Super. Panel (-48V), and
 - one (1) NT9X95CU Cooling Unit (-48V), or
 - For 60VDC applications (German market),
 - one (1) NT9X03BA Frame Super. Panel (-60V), and
 - one (1) NT9X95GU Cooling Unit (-60V).
- 2) Provide one (1) NT9X95CU, Cooling Unit, per cabinet for -48V powered installations. This unit comes with 3 replaceable blower assemblies(A0383325), installed, however customers may desire spares. The Cooling Unit mounts immediately below position 00.
 - 3) Provide one (1) NT9X95GU, Cooling Unit, per cabinet for -60V powered installations. This unit comes with 3 replaceable blower assemblies(A0382103), and a replaceable electronic module (A0383326) installed, however customers may desire spares. The Cooling Unit mounts immediately below position 00.
- RUL16) 1) Provide one (1) P0736059 power filter label per EMC cabinet when powering the NTEX01AB cabinet in a non-streamline(stand-alone) application. Note that P0732513 Power Filter Labels are MD'd for FLIS application.
- 2) Provide one (1) P0736058 terminal block designation strip per EMC when powering the NTEX01AB cabinet in a streamline application Note that P0732510 terminal block designation stirp is MD'd for FLIS application.
 - 3) Provide one (1) P0736273 optical fiber danger label per link interface shelf assembly NT9X7204.

- 4) Provide one (1) P0737638 optical fiber danger label (German) per link interface shelf assembly NT9X7204.
- 5) Provide one (1) NT9X0324 ESP Ground terminator assembly in all British telephone offices.

RUL17 1) Deleted.

RUL18 1) Provision one (1) rear bottom designation label, one (1) rear top designation label, one (1) front top designation label, and one (1) FLIS Designation strip (REAR) per LIS shelf provisioned.

RUL19 1) Provide TWO (2) NT9X30AB, TWO (2) P0737682 Designation Labels and TWO (2) NT9X31AB power converters, TWO (2) P0709513 Designation labels for each NT9X7204 shelf in -48V or in -60V Powered installation when the DUAL POWER REDUNDANCY feature is not required. Note that NT9X30AA and the NT9X31AA are MD for FLIS application.

RUL20 1) Provide FOUR (4) NTDX16AA Power Converter, FOUR (4) P0748922 Designation Labels and TWO (2) NT9X2825 Power Interface Units per shelf NT9X7204 when DUAL POWER REDUNDANCY is required or as per customer requirement. (-60V DUAL POWER REDUNDANCY is not a valid option on the FLIS frame). (Power converters -48V option is not available until BASE04/TL03 and above).

RUL21 1) Provide TWO (2) NT9X7214 Power Interface Kits for field upgrade per shelf NT9X7204 when DUAL POWER REDUNDANCY is required.

ENHANCED LINK PERIPHERAL PROCESSOR CABINET
AND HIGH SPEED LINK INTERFACE UNIT (HLIU)

PEC CODE: NT9X70CA

CPC CODE: B0232456

RATING: Limited

REPLACES: Not Applicable

REPLACED BY: Not Applicable

| ABBREVIATION NAME: LIM

ENGINEERING DESCRIPTION: The Enhanced Link Peripheral Processor in C42(S/DMS) Cabinet houses one Local Message Switch Shelf and three Link interface Shelves. The ELPP cabinet is intended to eliminate the capacity bottleneck imposed by the current DS30 MS-LMS link interface. The LIS shelf in this cabinet can house the High Speed Link Interface Unit (HLIU) and receive DS-1 signal.

REFERENCE DOCUMENTATION: Appendix D of the LPP Product Spec Issue 6.1
IS9X70CA 01 01
MS9X70CA 01 01
SL9X70CA 01 01
STP004.0. Issue AD04.
Various Design Specs.

MARKETS: Applicable markets:

US
Canada

ISSUE AUTHOR: NTI: Ganesh Ram Dept. 3471 (PPK)

MAIN CONTACT: NTI: Ganesh Ram Dept. 3471 (PPK)

NT9X70CA EMA2-12-005 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 09 15	ECM 721 01	Initial release of this section. 1) Naming of this cabinet is changed to LIM from ELPP. ELPP was used in the API570 Issue 01. 2) Removed item 3 in the note section. 3) 26R and 27R are not assignable slots for NT9X19BA in the LMS shelf. 4) Included Label for NTEX22CA.

The Enhanced Link Peripheral Processor Cabinet and High Speed Link Interface Unit (HLIU) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
C42 Cabinet Mechanical Assy	NT9X95BA	FW	1			AP
Cabinetized DMS Cosmetic	NTRX73					NOTE3
Endguards and EMI Sidepanels						
Frame Super. Panel (-48V)	NT9X03AA	FSP		52		RUL1
Frame Super. Panel (-60V)	NT9X03BA	FSP		52		RUL1
Local Msg Switch Shf Assy	NT9X7101	LMS	1	39		AP
Global -5V Power Converter	NT9X31AB			39	1F, 33F	RUL2
Global +5V Power Converter	NT9X30AB			39	4F, 36F	RUL2
Message Switch P-Bus Term.	NT9X49CC			39	7F, 32F	RUL2
Message Switch 4 Port CP	NT9X17AD			39	9F, 10F, 29F, 30F	RUL2
LMS F-BUS Rate Adapter CP	NT9X73BB			39	11F-13F 26F-28F	RUL2 RUL2
Mapper CP	NT9X15AA			39	15F, 24F	RUL2
CPU 16 MHz CP	NT9X13DE			39	17F, 22F	RUL2
Message Switch Clock	NT9X53AD			39	18F, 21F	RUL2
T-Bus Access CP	NT9X52AA			39	19F, 20F	RUL2
Filler Faceplate	NT9X19AA			39	8F, 14F, 16F, 23F 25F, 31F	RUL2
SR128 Fiber Paddle Board	NT9X62BB			39	9R, 10R, 29R, 30R	RUL2
F-Bus Extender PB	NT9X79BB			39	11R-13R 26R-28R	RUL2 RUL2
Remote Terminal I/F CP	NT9X26AB			39	17R, 22R	RUL2
PB Filler Faceplate	NT9X19BA			39	7R, 8R, 14R-16R, 18R-21R, 23R-25R, 31R-32R	RUL2
Designation Label NT9X30AB	P0738496					RUL2
Designation Label NT9X31AB	P0709513					RUL2
Designation Label NT9X49CC	P0735103			39		RUL2
Designation Label NT9X17AD	P0735096			39		RUL2
Designation Label NT9X73BB	P0869685			39		RUL2
Designation Label NT9X53AD	P0803728			39		RUL2
Designation Label NT9X15AA	P0727359			39		RUL2
Designation Label NT9X13DE	P0869684			39		RUL2
Designation Label NT9X52AA	P0727364			39		RUL2
Designation Label NT9X19AA	P0709515			39		RUL2
Designation Label NT9X26AB	P0705003			39		RUL2

Active Equipment
Enhanced Link Peripheral Processor Cabinet
and High Speed Link Interface Unit (HLIU)

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EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Designation Label NT9X62BB	P0869682			39		RUL2
Designation Label NT9X79BB	P0869683			39		RUL2
Designation Label NT9X19BA	P0709516			39		RUL2
Filtered DS-30 Blkhd (left) (24 Single ports)	NT9X6582			39		RUL3
Filtered DS-30 Blkhd (right) (24 Single ports)	NT9X6583			39		RUL3
DS-30 Blkhd (left) (12 Single ports)	NT9X6584			39		RUL3
DS-30 Blkhd (right) (12 Single ports)	NT9X6585			39		RUL3
Upper cable for LIS 3	NT9X0231		2			RUL3
Lower cable for LIS 3	NT9X0232		2			RUL3
Upper cable for LIS 2	NT9X0233		2			RUL3
Lower cable for LIS 2	NT9X0234		2			RUL3
Upper cable for LIS 1	NT9X0235		2			RUL3
Lower cable for LIS 1	NT9X0236		2			RUL3
SR-128 Fiber optic Cable	A0370149		2	39		RUL3
Composite Clock Cable Assy	NT9X0170		6	39		RUL3
Link I/F Unit Shelf Assy	NT9X7204	LIS	3	00,13,26		AP
Bulkhead Assembly	NT9X6534		6	00,13,26		AP
Bulkhead Config. Label	P0735163			XX		RUL5
Global +5V Power Converter	NT9X30AB			XX	4F,36F	RUL4
Power Converter Face Plate	NT9X19EA			XX	1F,33F	RUL4
Power Conv. (-48V/-60V) CP	NTDX16AA			XX	4F,36F	RUL4
				XX	1F,33F	RUL4
Power Interface Unit	NT9X2825			XX	1F-4F	RUL4
				XX	33F-36F	RUL4
INTRA F-Bus A Term. PB	NTEX20AA			XX	30R	RUL5
Designation Label NTEX20AA	P0704360			XX	30R	RUL5
INTRA F-Bus B Term. PB	NTEX20BA			XX	8R	RUL5
Designation Label NTEX20BA	P0704361			XX	8R	RUL5
F-Bus Repeater CP	NT9X74DA			XX	7F,32F	RUL5
F-Bus Extender Paddleboard	NT9X79BA			XX	7R,32R	RUL5
Enhanced CPU-IPF CP	NTEX22BB			XX	8F,10F, 12F,14F, 16F,18F, 20F,22F, 24F,26F, 28F,30F	RUL6,7
32MB ASU Processor & FBUS Controller	NTEX22CA			XX	8F,10F, 12F,14F, 16F,18F,	RUL6,7

Active Equipment
Enhanced Link Peripheral Processor Cabinet
and High Speed Link Interface Unit (HLIU)

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EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
STP Signaling Terminal CP	NT9X76AA			XX	20F, 22F, 24F, 26F, 28F, 30F 9F, 11F, 13F, 15F, 17F, 19F, 21F, 23F, 25F, 27F, 29F, 31F	RUL7
STP DS0-A I/F PB	NT9X78DA			XX	9R, 11R, 13R, 15R, 17R, 19R, 21R, 23R, 25R, 27R, 29R, 31R	RUL7
V.35 Interface Paddleboard	NT9X77AB			XX	9R, 11R, 13R, 15R, 17R, 19R, 21R, 23R, 25R, 27R, 29R, 31R	RUL7
High Speed Sig. Terminal CP (HLIU)	NTEX76AA			XX	9F, 11F, 13F, 15F, 17F, 19F, 21F, 23F, 25F, 27F, 29F, 31F	RUL7
DS-1 Paddle Board (HLIU)	NTEX78AA			XX	9R, 11R, 13R, 15R, 17R, 19R, 21R, 23R, 25R, 27R, 29R, 31R	RUL7
Desig. Label NT9X30AB	P0738496					RUL4
Desig. Label NTDX16AA	P0748922					RUL4
Desig. Label NT9X74DA	P0733871					RUL5
Desig. Label NT9X79BA	P0689622					RUL5
Desig. Label NTEX22BB	P0735913					RUL6, 7
Desig. Label NTEX22CA	P0837660					RUL6, 7
LIU ID Label (NTEX22BB/NT9X76AA)	P0738554					RUL7
LIU ID Label (NTEX22CA/NT9X76AA)	P0859948					RUL7
HLIU ID Label (NTEX22CA/NTEX76AA)	P0869687					RUL7
Desig. Label NT9X77AB	P0804444					RUL7

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Desig. Label NT9X78DA	P0803615					RUL7
Desig. Label NTEX78AA	P0869686					RUL7
STP Cable Assembly	NT9X0193		1	XX		RUL7
HLIU Cable	NT9X0191		2	XX		RUL7
Filler Face Plate	NT9X19AA			XX	08F-31F	RUL8
PB Filler Face Plate	NT9X19BA			XX	9R-29R, 31R	RUL8
Bulkhead Conn Cover Plate	NTEX5025			XX		RUL9
Cooling Unit (-48V)	NT9X95CU	CU				RUL1
Cooling Unit (-60V)	NT9X95GU	CU				RUL1
-48V Blower Assembly (NPS25122-65L5)	A0383325					RUL1
-60V Blower Assembly	A0382103					RUL1
Filter	A0377837					AP
LIU Cable Routing Labels	P0714420			26		RUL10
LIU Cable Routing Labels	P0735397			26		RUL10
LIU Cable Routing Labels	P0714421			13		RUL10
LIU Cable Routing Labels	P0735398			13		RUL10
LIU Cable Routing Labels	P0714422			00		RUL10
LIU Cable Routing Labels	P0735399			00		RUL10
HLIU Cable Routing Labels	P0714414			26		RUL10
HLIU Cable Routing Labels	P0714415			26		RUL10
HLIU Cable Routing Labels	P0714416			13		RUL10
HLIU Cable Routing Labels	P0714417			13		RUL10
HLIU Cable Routing Labels	P0714418			00		RUL10
HLIU Cable Routing Labels	P0714419			00		RUL10
End Guard Labels(000-011)	P0737499					RUL10
End Guard Labels(012-023)	P0737500					RUL10
Stand-Alone Pwr Cabling Kit	NT9X9532					RUL11
Horizontal Pwr Cabling Kit	NT9X9531					RUL11
Terminal Block Desig Strips	P0736058					RUL11
Filter Capacitor Desig Sheet	P0736059					RUL11
FSP Term Block Cover Assy	A0368392					AP
ESP Ground Terminal Assy	NT9X0324					RUL12
C42 Cabinet Mechanical Assy	NT9X95BA					NOTE2

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 can be either shelf position 00, 13 or 26.
- 2) Refer to NT9X95BA(EMA4-07-001) for additional mechanical hardware requirements for C42 Cabinet.

RULES:

- AP 1) When PEC NT9X70CA is ordered, these items are provided.
- 2) The NT9X95BA contains the NT9X9575 Cabinet Framework.
- The NT9X9575 framework provides earthquake and EMI protection. The framework is 72" high, 28" deep and 42" wide.
- Refer to NT9X95BA (EMA4-07-001) for additional mechanical hardware requirements for C42 (S/DMS) Cabinet.
- 3) Reference the engineering manual insert NTRX73 - Cabinetized DMS Cosmetic Endguards and EMI Sidepanels for the correct cosmetic hardware for brown, grey, overhead and under floor applications.

- RUL1 1) For each cabinet, provide:

- For 48VDC applications,
 - one (1) NT9X03AA Frame Super. Panel (-48V), and
 - one (1) NT9X95CU Cooling Unit (-48V), or
 - For 60VDC applications (German market),
 - one (1) NT9X03BA Frame Super. Panel (-60V), and
 - one (1) NT9X95GU Cooling Unit (-60V).
- 2) The cooling unit provisioned in RUL1 comes with three (3) replaceable blower assemblies. If the customer requests additional spares for the cooling unit, provide in customer specified quantities:
- For the NT9X95CU Cooling Unit (-48V),
 - A0383325 -48V Blower Assembly (NPS25122-65L5), or
 - For the NT9X95GU Cooling Unit (-60V),
 - A0382103 -60V Blower Assembly.
- RUL2 1) For each LMS shelf, provision all circuit packs (CP) and paddle boards (PB) listed in the equipment list against this RUL and also include all the labels for each CP and PB as applicable.
- 2) For STP004.0 and subsequent releases the 16 Meg memory is MANDATORY on all LMS loads. This is achievable using the NT9X13DE in all offices.
- RUL3 1) Provide one (1) of each Bulkhead plate assembly NT9X6582 and NT9X6583, per ELPP cabinet, when the ELPP is NOT USED in Cabinetized offices.
- (OR)
- 1A) Provide one (1) of each Bulkhead plate assembly NT9X6584 and NT9X6585, per ELPP cabinet, when the ELPP is installed in the Cabinetized offices.
- 1C) Provide two (2) A0370149 Inter-LMS SR-128 Fiber optic cable since the LMS is equipped with the NT9X62 SR-128 Fiber Paddle boards.
- 1D) Provide six (6) NT9X0170 composite clock cable assemblies.
- 1E) Provide two (2) each of the following Cable assemblies to support the triple F-Bus.
- NT9X0231 - Upper cable for LIS 3
 - NT9X0232 - Lower cable for LIS 3
 - NT9X0233 - Upper cable for LIS 2
 - NT9X0234 - Lower cable for LIS 2

NT9X0235 - Upper cable for LIS 1
NT9X0236 - Lower cable for LIS 1

- RUL4 1) For each LIS shelf, provide two (2) NT9X30AB +5V Global Power Converter CPs, and two (2) P0738496 NT9X30AB labels. Note that the NT9X30AB can be used in both the -48VDC and the -60VDC applications. Also provide two (2) NT9X19EA Power Converter Filler Faceplates.

(OR)

- 1A) Provide four (4) NTDX16AA Power Converter (-48V/-60V) cps, four (4) P0748922 Designation Labels (NTDX16AA) and two (2) NT9X2825 Power Interface Units, for 48VDC/60VDC Dual Power Redundancy Applications.

- RUL5 1) For each LIS shelf, provide:
- one (1) NTEX20AA INTRA F-Bus A Termination Paddleboard, and
 - one (1) NTEX20BA INTRA F-Bus B Termination Paddleboard.
 - two (2) NT9X74DA F-Bus Repeater CP
 - two (2) P0733871 Labels for NT9X74DA
 - two (2) NT9X79BA F-Bus Repeater CP
 - two (2) P0689622 Labels for NT9X79BA
 - include all the labels for each CP and PB as applicable.

- 1A) For each LIS shelf, provide two (2) P0735163 Bulkhead Configuration Labels. The labels are mounted on the inside of the rear cabinet doors adjacent to the shelf bulkheads. The labels provide a surface that allows the customer to record cabling configuration information for each bulkhead.

- RUL6 1) The NTEX22BB IPF Proc and F-Bus I/F CP has 8 Mbytes of DRAM, and the NTEX22CA ENHANCED IPF Proc and F-Bus I/F CP has 32 Mbytes of DRAM. Note that NA006 is the first software release supporting the NTEX22CA. and is fully backward compatible with the 8-MB NTEX22BB ASU processors. The NTEX22BB can co-exist with NTEX22CA on the same shelf.

- RUL7 1) Link Interface Unit SS7 (LIU7):

For each individual two slot LIU7, when interfacing a V.35 signaling link, provide:

- one (1) NT9X77AB V.35 Interface Paddleboard (ISG Compliant),
- one (1) P0804444 Designation Label (NT9X77AB), or

AND

- one (1) NT9X76AA STP - Signaling Terminal CP,

AND

- one (1) NTEX22BB ENHANCED IPF Proc and F-Bus I/F CP
(NTEX22BB has 8 Mbytes of DRAM),
OR for NA006 and above,
 - one (1) NTEX22CA ENHANCED IPF Proc and F-Bus I/F CP
(NTEX22CA has 32 Mbytes of DRAM),
- 2) For each individual two slot LIU7, when interfacing a DS0A signaling link with Link Fault Sectionalization Feature provide:
- one (1) NT9X78DA Interface Paddleboard,
 - one (1) P0803615 Designation Label (NT9X78DA),
- AND
- one (1) NT9X76AA STP - Signaling Terminal CP,
- AND
- one (1) NTEX22BB ENHANCED IPF Proc and F-Bus I/F CP
(NTEX22BB has 8 Mbytes of DRAM),
OR for NA006 and above,
 - one (1) NTEX22CA ENHANCED IPF Proc and F-Bus I/F CP
(NTEX22CA has 32 Mbytes of DRAM),
- 3) Provide one (1) NT9X0193 STP Cable Assembly, for the paddleboard to the LIS bulkhead, and for each LIU7 provided, provide the appropriate 2-slot identification label:
- one (1) P0738554 LIU (NTEX22BB-NT9X76AA) ID Label or,
 - one (1) P0859948 LIU (NTEX22CA-NT9X76AA) ID Label
- 4) High Speed Link Interface Unit (HLIU)
- For each individual HLIU provide:
- one (1) NTEX78AA DS-1 Interface Paddleboard,
 - one (1) P0869686 Designation Label (NTEX78AA),
- AND
- one (1) NTEX76AA High Speed signaling Terminal CP,
- AND
- one (1) NTEX22CA ENHANCED IPF Proc and F-Bus I/F CP
(NTEX22CA has 32 Mbytes of DRAM),
- 4A) Provide two (2) NT9X0191 HLIU cable per NTEX78AA DS-1 Paddle board. Two cables because of one for TX (transmit) and one for RX (receive) pairs. The cable NT9X0191, interconnects the NTEX78AA PB to the bulkhead for HLIU interfaces. External connectors on the bulkhead are routed to DSX.
- 5) Provide one (1) P0869687 HLIU (NTEX22CA-NTEX76AA), the 2-slot identification label.

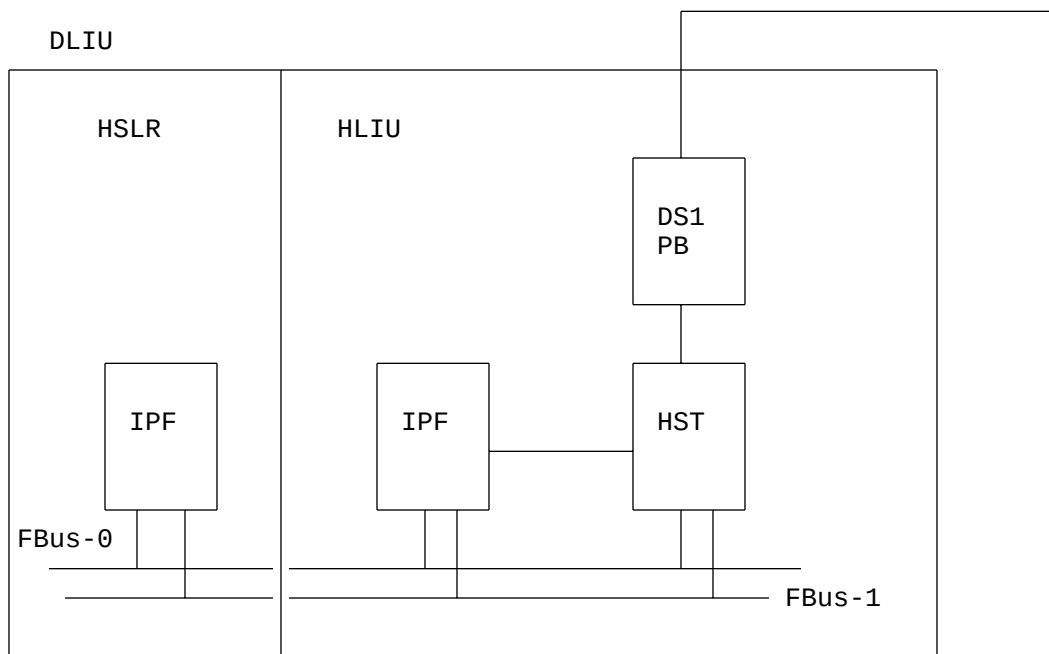
- 6) For reliability, the LIU7s, or the HLIUs are to be spread across shelf positions 00, 13, and 26 as shown below. The ASU number is the circuit number assigned to the ASU (ie, LIU7 #0). The ASU Assignment Sequence is an example of the link assignment within the linkset, and is spread across all relevant shelves, and 'A' and 'B' Power distribution (left/right halves of the shelf). Refer to the 'Data Schema' document for data fill instructions and examples.

	L M S											
	LIU7/HLIU											
ASU Numbering	0	2	4	6	8	11						
ASU assignment Sequence for LIS:01	1	7	13	19	25	31	34	28	22	16	10	4
ASU Numbering	12	14	16	18	20	23						
ASU assignment Sequence for LIS:02	5	11	17	23	29	35	32	26	20	14	8	2
ASU Numbering	24	26	28	30	32	35						
ASU assignment Sequence for LIS:03	3	9	15	21	27	33	36	30	24	18	12	6
(CP POS)	0	1	1	1	1	1	2	2	2	2	2	3
	8	0	2	4	6	8	0	2	4	6	8	0

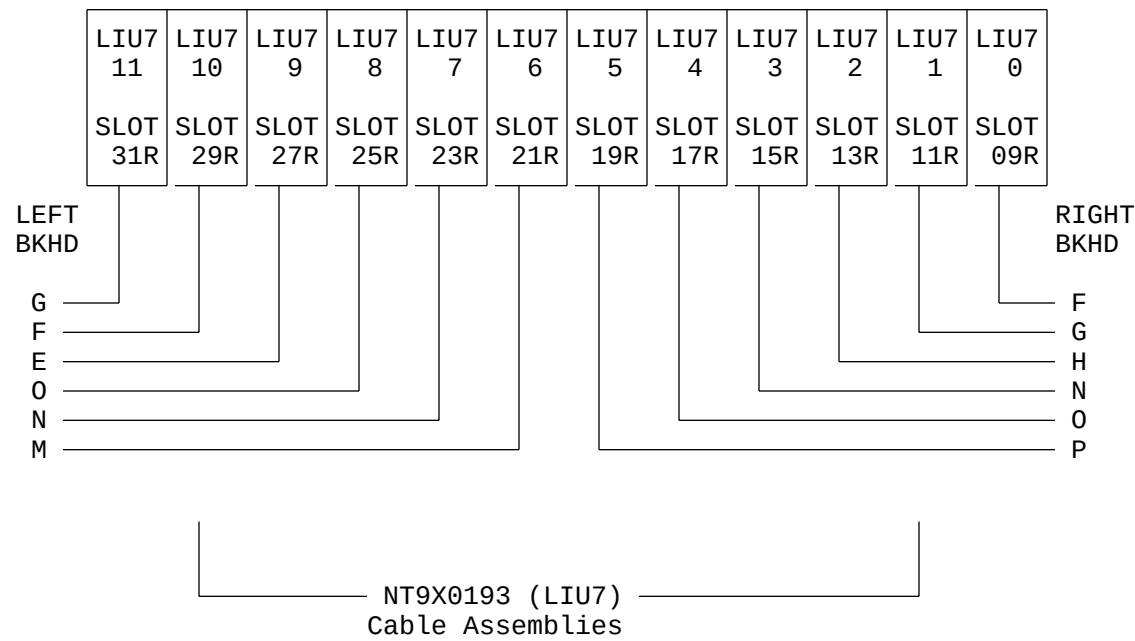
ASSIGNMENT SEQUENCE OF ASUs
TO LINK INTERFACE MODULE

- 7) When Dual Processor HLIUs are used, upto 12 HLIUs may be configured per ELPP for ISUP traffic and upto 10 HLIUs per ELPP for TCAP traffic. For example with 12 DLIUs, each half shelf in a three shelf ELPP, in which all the half

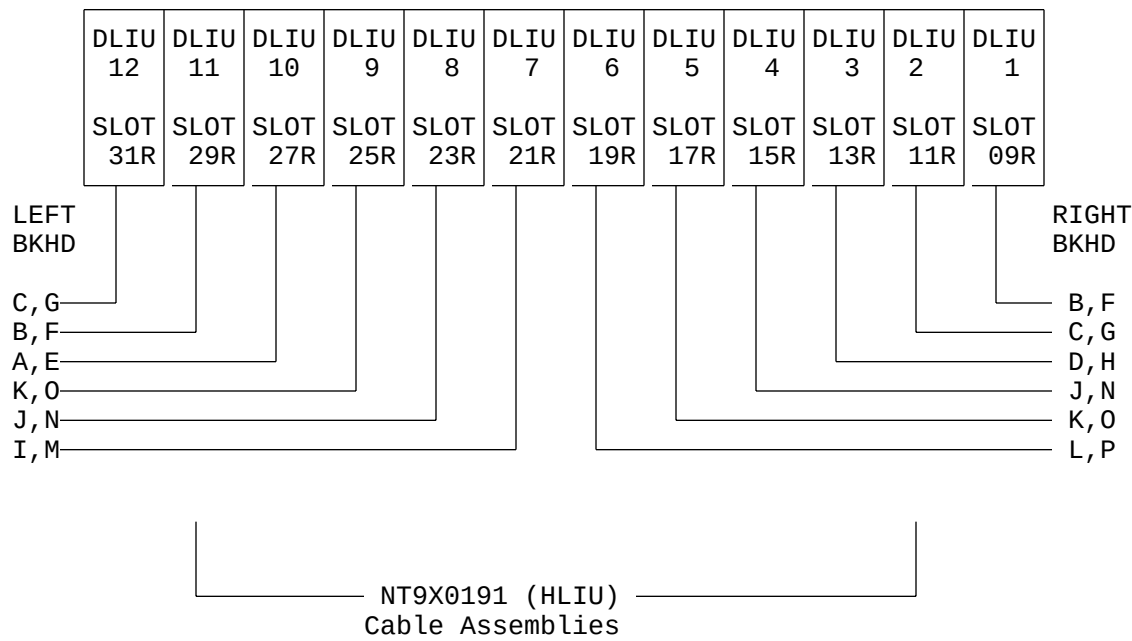
shelves contain DLIUs, should have exactly 2HSLRs and 2 HLIUs. Note that since HSLR and HLIU are working together, configure the HSLR at the 'n' location and the HLIU at the 'n+1' location in the shelf. Note configure the 'n-1' location with the filler for HSLR. Refer to the figure below



- 8) Following is the rear view of LIS 01, LIS 02, LIS 03 arrangement and LIU7 cable provisioning:



9) Following is the rear view of LIS 01, LIS 02, LIS 03 arrangement and HLIU cable provisioning:



Note P2, and P3 are connector designations while 3 and 4 are the actual markings on the paddleboard. (Not shown in the figure below)

- RUL8 1) For each unequipped slot in the front of the LIS, provide one (1) NT9X19AA Filler Face plate.
- 2) For each unequipped slot in the rear of the LIS, provide one (1) NT9X19BA Filler Paddle Board.

- RUL9 1) For each unused connector position on the LIS shelf bulkheads, provide one (1) NTEX5025 Bulkhead Connector Cover Plate.

The number of cover plates required per LIS shelf is equal to:

$$32 - (\text{ \#LIUs on LIS shelf} + \text{ \#HLIUs on LIS shelf})$$

- RUL10 1) When the office is equipped with one or more NT9X70CA ELPP Cabinets, provide one (1) P0737499 End Guard Labels(000-011).

- 2) When the office is equipped with 13 or more NT9X70BB LIM cabinets, provide one (1) P0737500 End Guard Labels(012-023)
- 3) Provide LIU, HLIU cable routing labels per the half shelf shown below:

Shelf	Slots	LIU Label	HLIU Label
26	31R-21R	P0735397	P0714414
26	19R-09R	P0714420	P0714415
13	31R-21R	P0735398	P0714416
13	19R-09R	P0714421	P0714417
00	31R-21R	P0735399	P0714418
00	19R-09R	P0714422	P0714419

- RUL11 1) Provide one (1) NT9X9532 Stand-Alone Cabling interface kit and one (1) P0736059, Filter Capacitor Designation Label Sheet, when powering the NT9X70BB cabinet from the 7 foot PDC frame or powering from the new CPDC (NTRX31CA) cabinet, or powering from the NTRX31AA or from the NTRX31BA CPDC cabinet which is in the different lineup than the NT9X70BB. This kit includes power cables, terminal blocks and miscellaneous mounting hardware for non-Cabinetized DMS application. (The Designation Label sheet contains enough labels to fully designate the filter capacitors for one cabinet).
- 2) Provide one (1) NT9X9531 Horizontal power cabling interface kit and one P0736058 Terminal Block Designation strip when powering the NT9X70BB cabinet from the NTRX31AA or from the NTRX31BA CPDC cabinet which is in the same lineup as the NT9X70BB. This kit includes power cables, terminal blocks, and miscellaneous mounting hardware for Cabinetized DMS application.
- RUL12 1) Provide one (1) NT9X0324 ESP Ground Terminator Assembly in all British Telephone offices.

BATTERY CHARGING UNIT COMMON CP

NT8X03AA

RATING: Standard

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The Battery Charging Unit provides control
for the battery strings of the OPM.

REFERENCE DOCUMENTATION: N/A

The Battery Charging Unit Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Battery Charger Control CP	NT8X02AA		1		1	AP
Battery Charger Control CP	NT8X02AA		1		3	AP
Desig. Label for NT8X02AA	P0657679		2			AP

RULE:

AP 1) When PEC NT8X03AA is ordered, these items are provided.

LCM COMMON CP

PEC CODE: NT8X04AC

| CPC CODE: B0240606

| RATING: Standard

| REPLACES: NT8X04AB

REPLACED BY: Not Applicable

ABBREVIATION NAME: LCM

ENGINEERING DESCRIPTION: The Line Concentration Module (LCM) is identical to the host LCM supporting up to ten (10) line drawers at 64 line cards per drawer. The OPAC LCM supports all of the line features available at the host. This includes POTS, party lines, coin lines, IBN stations, Business Sets, Data Units, Attendant Consoles and DataPath. The RLCM features Intra-Switching and Emergency Stand Alone are also available with the OPAC.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Canada
US

ISSUE AUTHOR: NTI: Mark Sorrell Dept. 3471 (PPK)

MAIN CONTACT: NTI: Mark Sorrell Dept. 3471 (PPK)

NT8X04AC EMA2-13-LCM-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
96 10 23	ECM 562 15	Show NT8X04AC as the replacement for NT8X04AB per EC 024-96698.

The LCM Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Power Converter	NT6X53AA		1	33	1	AP
LCM Processor	NT6X51AC		1	33	4	AP
Digroup Controller	NT6X52AA		1	33	5	AP
Designation Label	P0800469		1	33		AP
Power Converter	NT6X53AA		1	19	1	AP
LCM Processor	NT6X51AC		1	19	4	AP
Digroup Controller	NT6X52AA		1	19	5	AP
Designation Label	P0800469		1	19		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 NT8X04AC is ordered, these items are provided.

LCM COMMON CP

PEC CODE: NT8X04BD

CPC CODE: B0240607

RATING: Standard

REPLACES: NT8X04BA

REPLACED BY: Not applicable

ABBREVIATION NAME: LCM

ENGINEERING DESCRIPTION: The Line Concentration Module-Combined(LCM-C) has the same redundancy capabilities as the standard LCM. The line drawers mounted in the LCM-C are the same standard line drawers used in the LCM. The LCM-C supports up to four(4) line drawers at 64 cards per drawer. Five(5) line drawer control cables will be equipped on the controller backplanes and tied off to facilitate future line expansion capabilities. The OPM-256 LCM-C supports all of the line features available at the host. This includes POTS, party lines, coin lines, IBN stations, Business Sets, Data Units, Attendant Consoles and Data Path. The RLCM features Intra- Switching and Emergency Stand Alone are also available with the OPM-256.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Canada
US

| ISSUE AUTHOR: NTI: Mark Sorrell Dept. 3471 (PPK)

MAIN CONTACT: NTI: Mark Sorrell Dept. 3471 (PPK)

NT8X04BD EMA2-13-LCM-5 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
----- 94 06 27 97 05 05	----- ECM 619 23 ECM 514 17	Previous history not available Reformat EMS. MD NT8X04BA and replace with NT8X04BD per EC 024-96698.

The LCM Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Power Converter	NT6X53AA		1	33	1	AP
LCM Processor	NT6X51AC		1	33	4	AP
Digroup Controller	NT6X52AA		1	33	5	AP
Power Converter	NT6X53AA		1	33	22	AP
LCM Processor	NT6X51AC		1	33	25	AP
Digroup Controller	NT6X52AA		1	33	26	AP
Desig.Label	P0726429		2	33		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 manufac-
tured and cannot be ordered.

NOTES:

RULES:

AP 1) When PEC NT8X04BD is ordered, these items are provided.

OPM OUTSIDE PLANT MODULE (256)

PEC CODE: NT8X01BC

CPC CODE: B0233453

RATING: MD

REPLACES: NTZZ19AB

REPLACED BY: OPAC/NTRX60AA

ABBREVIATION NAME: OPM-256

ENGINEERING DESCRIPTION: The Outside Plant Module - 256 (OPM-256) is similar to the RLCM in features, capacity etc., however, the equipment is housed in an environmentally controlled cabinet. It may be mounted in an outdoor or an indoor environment. The OPM-256 supports up to 256 lines standard and may be upgraded to 576 lines. It employs from 2-6 DS1 links to communicate with the host DMS.

The following equipment is provisioned standard in the OPM-256 cabinet: HIE, LCM-C, RMM, FSP shelves, DF, Battery Charging Unit, Power Control Unit, AC Breakers, ECUs, Fans, and Heaters. ;

REFERENCE DOCUMENTATION: SL8X01BC 00 11
MS8X01BC 00 12 ;

MARKETS: Applicable markets:

Canada
US
CALA

ISSUE AUTHOR: NTI: Mark Sorrell Dept. 3471 (PPK)

MAIN CONTACT: NTI: Mark Sorrell Dept. 3471 (PPK)

NT8X01BC EMA2-13-001 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 03 31	ECM 514 16	Create a Detail EMS that the OPM can be updated with to document engineering changes. MD NT8X04BA and replace with NT8X04BD per EC 024-96698.
97 05 05	ECM 514 17	Per EC 024-97291, EC 011-22123, and EC 028-15577 introduce ISDN Line Drawer.

The OPM Outside Plant Module (256) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
OPM-256 Cabinet	NT8X01BC		1			AP
OPM Cabinet Assy Maple Brown	NT0X19AC					RUL1
OPM Cabinet Assy Grey-Green	NT0X19AD					RUL1
OPM Cabinet Assy Ivory	NT0X19AE					RUL1
Touch-Up Paint Maple Brown	R0115495					RUL1
Touch-Up Paint Grey-Green	R0115496					RUL1
Touch-Up Paint Ivory	R0115497					RUL1
Mounting Hardware Kit	NT0X1935					RUL2
Mounting Template	NT0X1934					RUL2
Mounting Plate Assembly	NT0X1929					RUL2
Installers Assy Kit (4Pin)	NT8X0176					RUL3
Installers Assy Kit (5Pin)	NT8W0138					RUL3
OPM Maintenance Tools	NTZZ19MA					RUL3
OPM Warning Label	P0678472		1			RUL20
OPM Caution Label	P0685443		1			RUL20
External Generator Connector	A0367245		1			RUL20
Warning Label (French)	P0686878					RUL4
Caution Label (French)	P0685441					RUL4
Warning Label (French)	P0685442					RUL4

NTZZ19AC Outside Plant Equipment (OPE) Row "A" BAY 0:

Des Label OPE 00 0 - 43 0	P0660996					RUL5
Des Label OPE 44 0 - 87 0	P0660997					RUL5
Des Label OPE 88 0 - 99 0	P0660998					RUL5
Booster Fan Unit	NT8X06BA	BFU	1	46		AP-01
Alarm Card CP	NT6X36AE		1	46		AP-06
Line Concentration Array Shf	NT8X0404	LCA 0	1	33		AP-01
Des Label LCM 00 0 - 99 0	P0660999					RUL5
Des Label LCM 00 1 - 99 1	P0661200					RUL5
Designation Labels (LSG)	P0631765		1	33		RUL20
#LCM-C Common CP	NT8X04BA	LCM-C	1	33		RUL6
LCM-C Common CP	NT8X04BD	LCM-C	1	33		RUL6

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
#LCM Processor CP	NT6X51AB		2	33		AP-02
LCM Processor CP	NT6X51AC		2	33		AP-02
Digroup Controller CP	NT6X52AA		2	33		AP-02
Power Converter 5V/15V CP	NT6X53AA		2	33		AP-02
Desig Strip For NT8X04BD	P0726429		2	33		AP-02
LCM-C Common CP	NT6X04AE	LCM-C	1	33		RUL6
Processor Upgrade Kit	NT6X04XZ	LCM-C	1	33		RUL6
Line Drawer	NT6X05AA			33		RUL6
ISDN Line Drawer	NT6X05DA			33		RUL6
Line Cards	AR			33		RUL6
Filler Panel	NT0X84AA	FP		19		RUL7
320 Line UG W/4Pin-Stubless	NT8X09AB	LCA	1	19		RUL8
320 Line UG W/5Pin-Stubless	NT8X09AD	LCA	1	19		RUL8
320 Line UG W/5Pin-50ft Stub	NT8X09AC	LCA	1	19		RUL8
25-Pair Bix Connector	QCBE1B			LHC		RUL8
NT Fiber Sh FMT-150B Mtg Kit	NT0X1978			20		RUL9
AT&T Fib Sh DDM-1000 Mtg Kit	NT0X1979			20		RUL9
DE-4E Mtg Kit 4Pin-Stubless	NT0X1980			20		RUL9
DE-4E Mtg Kit 5Pin-Stubless	NT0X1981			20		RUL9
DE-4E Mtg Kit 5Pin-50ft Stub	NT0X1982			20		RUL9
Host Interface Equip Assy	NT6X1108	HIE	1	05		AP-01
Desig Strip for HIE	P0701836		1	05		RUL20
Ringing Generator	NT6X60CA		2	05	1,5	RUL20
Desig Label for NT6X60CA	P0740744		2	05	1,5	RUL20
Filler Face Plate	NT0X50AG		1	05	09	RUL20
Filler Face Plate 0.875	NT0X50AA		1	05	12	RUL20
Filler Face Plate 0.875	NT0X50AA		1	05	13	RUL20
# OPM ESA CP Package	NTZZ19QA			05	14	RUL10
OPM ESA CP Package	NTZZ19QB			05	14	RUL10
PC Kit (NTZZ19QA to QB)	NTZZ99AF			05	14	RUL10
Filler Face Plate 0.875	NT0X50AA			05	14-16	RUL10
Link Control CP	NT6X73AA		2	05	17,18	AP
DS-1 Interface	NT6X50AA			05	19-21	RUL11
DS-1 Interface	NT6X50AB			05	19-21	RUL11
Desig Label for NT6X50AA	P0626878			05	21	RUL11
Desig Label for NT6X50AB	P0690976			05	19-21	RUL11
Filler Face Plate 0.875	NT0X50AA			05	21	RUL11

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
# Power Converter +/-5V, +/-12V	NT2X70AE		2	05	22, 25	RUL20
Power Converter +/-5V, +/-12V	NT2X70AF		2	05	22, 25	RUL20
Desig Label for NT2X70AF	P0809960		2	05	22, 25	RUL20
Environmental Control Unit	NT8X06AB	ECU	1	00		AP-01
Heater	A0302484		1	00		RUL20
NTZZ19AC OPE Row "A" Bay 1:						
Des Label OPE 00 1 - 43 1	P0661767					RUL5
Des Label OPE 44 1 - 87 1	P0661768					RUL5
Des Label OPE 88 1 - 99 1	P0661201					RUL5
Filler Panel	P0728301			39		RUL18
Power Control Unit	NT8X05AA		1	35		AP-01
Battery Charging Unit Assy	NT8X0301	BCU	1	32		AP-01
Battery Charger Common CP	NT8X03AC		1	32		RUL20
Battery Control CP	NT8X02AB		2	32	1, 3	AP-04
Design Label NT8X02AB	P0726700		1	32	1, 3	AP-04
Des Label BCU:000 - 104	P0660994					RUL5
Des Label BCU:105 - 199	P0660995					RUL5
Rectifier	NT5C90DB	RECT	1	28		AP-01
Frame Supervisory Panel	NT6X25BC	FSP	1	19		AP-01
Fault Loc/Order Wire Access	QPP519			19	1	RUL12
Office Repeater	QRY18			19	2-7	RUL12
Filler Face Plate	NT0X50AJ			19	1-7	RUL12
Remote Maintenance Mod Assy	NT8X0415	RMM	1	05		AP-01
RMM Common CP	NT6X13AB		1	05		AP
Design Strip NT6X13AB	P0653639		1	05		AP-05
Group Codec CP	NT2X59AA		1	05	1	AP-05
RMM Control Card	NT6X74AB		1	05	2	AP-05
Multi-Ln Test Unit Analog	NT2X10BA		1	05	3	RUL20
Multi-Ln Test Unit Digital	NT2X11BA		1	05	4	RUL20
Rmt Metallic Test Access	NT3X09BA		1	05	5	RUL20
Rmt Metallic Test Access	NT3X09AA		1	05	6	RUL20
Filler Face Plate	NT0X50AC			05	7	RUL13
Scan Card	NT0X10AA		1	05	8	RUL20
Incoming/Outgoing Test Trk	NT2X90AD		2	05	9, 10	RUL20
Daughter Board	NT2X77AA		2	05	9, 10	RUL20
4 Chan Digitone Receiver	NT2X48AB			05	11	RUL10

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Face Plate	NT0X50AC			05	11,12	RUL10
Service Circuit Packs	AR			05	13-16	RUL13
Filler Face Plate	NT0X50AC			05	13-16	RUL13
Multi O/P Pwr Converter	NT2X09AA		1	05	17	AP-05
Filler Face Plate	NT0X50AA		1	05	19	AP-05
Pwr Converter Comm Feat.	NT2X06AB		1	05	20	AP-05
Environmental Control Unit	NT8X06AB	ECU	1	00		AP-01
Heater	A0302484		1	00		RUL20
Des Label ECU:000 - 104	P0660990					RUL5
Des Label ECU:105 - 209	P0660991					RUL5
Des Label ECU:210 - 314	P0660992					RUL5
Des Label ECU:315 - 399	P0660993					RUL5

NTZZ19AC OPE Bay 0 ROW B (BACK WALL):

Single FMT-6 Kit	NT0X1989			33		RUL19
Dual FMT-6 Kit	NT0X1990			33		RUL19
FMT6 PC Kit (Single To Dual)	NT8X01ZA			33		RUL19
Single-Mode Pigtail	NT3E19AA			33		RUL19
Multi-Mode Pigtail	NT3E44AA			33		RUL19
LRS Test Head Mtg Kit	NT8X09AA			05		RUL14

NTZZ19AC OPE Bay 1 ROW B (BACK WALL):

Eagle-Picher Batteries	A0386201					RUL17
Battery Tray Assembly	NT0X2056					RUL17
Screw	P097F813					RUL17
OPM Battery H/W Kit	NT8W0154					RUL17
Desig Label For Batteries	P0664827					RUL17
Battery Label Plate (U.S.)	P0688741					RUL17
Batt Warning Label (U.S.)	P0686456					RUL17
Cable Assy EP Bat String #0	NT8W0142					RUL17
Cable Assy EP Bat String #0	NT8W0146					RUL17
Cable Assy EP Bat String #4	NT8W0143					RUL17
Cable Assy EP Bat String #4	NT8W0147					RUL17
Cable Assy EP Bat String #1	NT8W0144					RUL17
Cable Assy EP Bat String #1	NT8W0149					RUL17
Cable Assy EP Bat String #5	NT8W0145					RUL17
Cable Assy EP Bat String #5	NT8W0151					RUL17

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Cable Assy EP Bat String #2	NT8W0148					RUL17
Cable Assy EP Bat String #2	NT8W0152					RUL17
Cable Assy EP Bat String #6	NT8W0150					RUL17
Cable Assy EP Bat String #6	NT8W0153					RUL17
# YUASA Batteries	A0323985					RUL17
# YUASA Batteries	A0377761					RUL17
Battery Tray Assembly	NT0X2056					RUL17
Desig Label For Batteries	P0664827					RUL17
Screw	P097F813					RUL17
Cable Assembly	NT8X0126					RUL17
Battery Label Plate (U.S.)	P0688741					RUL17
Batt Warning Label (U.S.)	P0686456					RUL17
Cable Assy YU Bat String #0	NT8X0143					RUL17
Cable Assy YU Bat String #0	NT8X0151					RUL17
Cable Assy YU Bat String #4	NT8X0147					RUL17
Cable Assy YU Bat String #4	NT8X0155					RUL17
Cable Assy YU Bat String #1	NT8X0144					RUL17
Cable Assy YU Bat String #1	NT8X0152					RUL17
Cable Assy YU Bat String #5	NT8X0148					RUL17
Cable Assy YU Bat String #5	NT8X0140					RUL17
Cable Assy YU Bat String #2	NT8X0145					RUL17
Cable Assy YU Bat String #2	NT8X0153					RUL17
Cable Assy YU Bat String #6	NT8X0128					RUL17
Cable Assy YU Bat String #6	NT8X0157					RUL17
Cable Assy YU Bat String #3	NT8X0129					RUL17
Cable Assy YU Bat String #3	NT8X0154					RUL17
Cable Assy YU Bat String #7	NT8X0150					RUL17
Cable Assy YU Bat String #7	NT8X0158					RUL17
GNB Batteries	A0386144					RUL17
Battery Tray Assembly	NT0X2056					RUL17
Screw	P097F813					RUL17
OPM Battery H/W Kit (GNB)	NT8W0168					RUL17
Desig Label For Batteries	P0664827					RUL17
Battery Label Plate (U.S.)	P0688741					RUL17
Batt Warning Label (U.S.)	P0686456					RUL17
Cable Assy GN Bat String #0	NT8W0156					RUL17
Cable Assy GN Bat String #0	NT8W0160					RUL17
Cable Assy GN Bat String #4	NT8W0157					RUL17
Cable Assy GN Bat String #4	NT8W0161					RUL17
Cable Assy GN Bat String #1	NT8W0158					RUL17
Cable Assy GN Bat String #1	NT8W0163					RUL17
Cable Assy GN Bat String #5	NT8W0159					RUL17

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Cable Assy GN Bat String #5	NT8W0165					RUL17
Cable Assy GN Bat String #2	NT8W0162					RUL17
Cable Assy GN Bat String #2	NT8W0166					RUL17
Cable Assy GN Bat String #6	NT8W0164					RUL17
Cable Assy GN Bat String #6	NT8W0167					RUL17
NTZZ19AC End Compartment Access:						
Prt Schm 4Pin-Stubless (256)	NT8X08BB			LHC		RUL15
Prt Schm 5Pin-Stubless (256)	NT8X08BF			LHC		RUL15
Prt Schm 5Pin 50ft Stub(256)	NT8X08BE			LHC		RUL15
Cable Stub 50ft 100-Pair	NT8X0804			LHC		RUL15
Desig. Label 4-Pin (256)	P0702395					RUL15
Non-UL 4-Pin Label (256)	P0728600					RUL15
Desig. Label 5-Pin (256)	P0713151					RUL15
UL 5-Pin Label (256)	P0739144					RUL15
LC Warning Label 5-Pin	P0740625					RUL15
25-Pair Bix Connector	QCBE1B			LHC		RUL15
Green BIX Retainer	QRE3A			LHC		RUL15
Right Hand Col Maple Brn	NT0X2005			RHC		RUL15
25-Pair Bix Connector	QCBE1B			RHC		RUL15
Green BIX Retainer	QRE3A			RHC		RUL15
# Prt Mod Gas Tube 4Pin	QMP6A4G					RUL16
Prt Mod Gas Tube 5Pin	303M-08S1GA					RUL16
Prt Mod Sld St 4Pin W/ Heat	QMP12A4					RUL16
Prt Mod Sld St 4Pin W/O Heat	QMP11A5					RUL16
Prt Mod Sld St 5Pin W/ Heat	303M-12A1GA					RUL16
Prt Mod Sld St 5Pin W/O Heat	303M-11A1G0					RUL16
Des Card line pr 1-600	P0613827					RUL5
Des Card line pr 601-1200	P0613828					RUL5
Des Card line pr 1201-1800	P0613829					RUL5

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT0J42AA	CANCEL	None
NT0J41BA	CANCEL	None
NT2X70AE	MD	NT2X70AF
NTZZ19QA	MD	NTZZ19QB
A0323985	MD	A0377761
A0377761	A&M	A0386201
QMP6A4G	MD	None
NT8X04BA	MD	NT8X04BD
NT6X51AB	MD	NT6X51AC

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 NT8X01BC is ordered, these items are provided.

AP-01 1) When PEC NT8X01BC is provided these items are Always Provided.

AP-02 1) When PEC NT8X04BD is provided these items are Always Provided.

AP-03 1) When PEC NT6X11AB is provided these items are Always Provided.

AP-04 1) When PEC NT8X03AC is provided these items are Always Provided.

AP-05 1) When PEC NT6X13AB is provided these items are Always Provided.

- AP-06 1) When PEC NT8X06BA is provided these items are Always Provided.
- RUL1 1) Provide one (1) Cabinet Assembly, NT0X19AC/AD/AE, in accordance with the desired color option for the OPM-256. Also, provide one (1) Touch-Up Paint to be shipped-loose to the OPM site. NOTE: If color option other than NT0X19AC (Maple Brown) is selected, delivery time is increased by two weeks.
- RUL2 1) Provide one (1) NT0X1934 and one (1) NT0X1935 when the OPM-256 is to be mounted on a concrete pad.
- 2) For all NTZZ19AC installations engineered in the U.S., an RFS for advance shipment of the above items must be initiated by the Systems Engineer as soon as the mounting arrangement is identified. An advance ship note must be placed in the specification.
- 3) For all NTZZ19AC's engineered in Canada, the mounting template NT0X1934 will be merchandise ordered and the NT0X1935 is shipped loose with the OPM-256. The Customer Engineer must ensure that the Telco is aware of this requirement.
- 4) Provide one (1) NT0X1929 and one (1) NT0X1935 when the OPM-256 is to be mounted on railroad ties.
- RUL3 1) Provide either the NT8X0176 Installers Assembly Kit (4Pin), or the NT8W0138 Installers Assembly Kit (5Pin) per Telco specifications. These kits are used for installation purposes.
- 2) BIX and MPC Test and Maintenance Tools are available per Telco request.
- RUL4 1) Provision the following labels for each OPM requiring French labels:
- One (1) P0686878 Warning Label (French)
One (1) P0685441 Caution Label (French)
Two (2) P0685442 Caution Label (French)
- RUL5 1) Provision designation labels as required.
- RUL6 1) Provision line cards for OPM per customer requirements.
- 2) Existing OPMs can be upgraded to the NT6X04AE LCM-C by providing one (1) NT6X04ZX LCM Processor CP Kit. This kit upgrades the LCM Processor and labels to NT6X51DAs re-

quired for Clear Channel capability. Use of the NT6X04AE requires the use of NT6X50ABs in both the host and remote equipment.

The ISDN Line Drawer can only be provided for North American markets only.

- 3) Two (2) of the ten Line Drawers for each OPM may be NT6X05DA ISDN Line Drawers, one per shelf. Use of an NT6X05DA ISDN Line Drawer requires use of NT6X04AE and NT6X50AB's for clear channel capability.
- 4) Only 1 ILD can be defined in each LCA (Line Concentrating Array). ISDN Line Drawer can not be applied to positions 0 or 10. Preferred positions for locating the ISDN Line Drawer is 8 or 18. This means that if the ILD drawer number of the first ILD is within the range 2 - 8, the next ILD to be defined in this LCM will have its drawer number within the range 12 - 18. This limitation exists in order to permit an optimal heat dispersion in the LCM.

RUL7 1) Provide one NT0X84AA (Filler Panel) in Bay 0 shelf position 19 if the optional equipment shelves are not provisioned at shelf position 19 or 20.

RUL8 1) Provide the 320-Line Upgrade with 4-Pin Stubless, or 5-Pin Stubless, or 5-Pin with 50ft Stub as per Telco specifications. The option chosen must be of the same configuration as the original 256-Line option. These kits contain the Line Shelf, Line Drawers, and all required installation/wiring hardware to upgrade an OPM from 256 Lines to 576 Lines, EXCEPT for the Bix Connectors. Provide twelve (12) QCBE1B Bix Connectors when any of the 320-Line Upgrade Kits are ordered. The Bix Retainers are included in the kits.

- 2) The Line Upgrade shelves, Fiber Shelves, and Channel Bank shelf occupy the same physical space when installed. Therefore, installing one of these options automatically prohibits the use of the other choices on the same OPM.

RUL9 1) Provide the appropriate Fiber Shelf Hardware Kit which corresponds to the unit being provisioned (NT FMT-150B or ATT DDM-1000). These kits contain the mounting hardware and required wiring only. The Telco must purchase the actual shelf from the vendor.

When a Fiber Shelf is provided for the OPM the Fault Locate/Order Wire CPs and Repeaters are not required in the

FSP, provide 7 NT0X50AJ (Filler Face Plates) instead. See Rule 12.

- 2) Provide the appropriate DE-4E Channel Bank Kit which corresponds to the Protection Scheme ordered on this OPM (See Rule 15). These kits contain the mounting hardware and required wiring only. The Telco must purchase the actual DE-4E Shelf (NT4S42CA) from the vendor.
- 3) Provide one (1) NT0X10AA, Scan Card, in Slot 07 of the RMM for Fiber Shelf/Channel Bank alarms.
- 4) The Line Upgrade Shelves, Fiber Shelves, and Channel Bank Shelf occupy the same physical space when installed. Therefore, installing one of these options automatically prohibits the use of the other choices on the same OPM.

- RUL10 1) Provide one (1) NTZZ19QB, OPM ESA CP Package, when the ESA option is specified. This package provides the following cards and their designation labels:

One (1) NT6X47AC CP in Slot 14 of HIE Shelf
One (1) NT6X45AF CP in Slot 15 of HIE Shelf
One (1) NT6X75AA CP in Slot 15 of HIE Shelf

If the ESA option is not specified, provide one (1) NT0X50AA, Filler Face Plate, in Slots 14-16 of the HIE Shelf.

- 2) If the ESA option is specified, also provide a minimum of one (1) NT2X48AB, 4 Channel Digitone Receiver, in Slot 11 of the RMM Shelf. The NT2X48AB is a 2-slot card which takes up Slots 11-12. If the ESA option is not specified, instead provide one (1) NT0X50AC, Filler Face Plate, in Slots 11-12 of the RMM Shelf.

The actual number of NT2X48AB CPs to be provided shall be based on traffic. Any additional Digitone Receivers required above the minimum of one (1) shall be located in Slots 13-16 of the RMM Shelf.

- 3) Existing OPMS with the NTZZ19QA, OPM ESA CP Package, that are going to BCS-33 need to be upgraded to the NTZZ19QB, OPM ESA CP Package. Provide one (1) NTZZ99AF, Product Change Kit (NTZZ19QA to QB), for each OPM requiring this upgrade.

- RUL11 1) Provide two (1) NT6X50AA, DS-1 Interface, in position 19-20 of each OPM HIE. The labels for these two cards are included on the HIE Designation Strip.

If the Telco prefers or ISDN line drawers are provisioned, provide two (2) NT6X50AB, DS-1 Interface, in position 19-20 of each OPM HIE. Also, provide two (2) P0690976, Designation Label for NT6X50AB.

For ISDN applications NT6X50AAs must be replaced with NT6X50ABs in both the Remote and HOST equipment. Provide designation strips for each NT6X50AB provisioned.

- 2) Provide one (1) NT6X50AA/AB, DS-1 Interface, in position 21 of each OPM HIE when the DS-1 links 5 and 6 are required to the Host. This NT6X50 CP MUST be the same vintage as already ordered for position 19-20. Also, provide one (1) designation label for position 21.

Otherwise, provide (1) Filler Face Plate for each unequipped position 21 in the OPM HIE.

- RUL12 1) The OPM FSP Fault Locate/Order-Wire Access cards are not required when a Fiber shelf is provided. However, if a Fiber shelf is not provided, provision one (1) Fault Locate/Order-Wire card and up to six (6) Repeaters as required.

* Fault Locate/Order-Wire (FL/OW) Access Unit in card slot #1. These cards may be one of the following:

- FL/OW Access Unit with Dial-Pulse Correction Circuits (QPP519A). See Rule 12 Item 2 below.
- FL/OW Access Unit with simple jack access to order Wire (QPP519B). See Rule 12 Item 3 below.

Note: The Fault Locate Filter either the Dual-Amplified Type (QFB127) or the Single Passive Type (QFB128) must be provided in conjunction with the FL/OW Access unit and is installed on the rear of the unit. This circuit filters the fault locate signal to provide the proper fault locate tone.

* T1 Span Office Repeaters. This circuit is available in several configurations which are assignable to slots 2 thru 7. Refer to Item 5 for details.

- * If none of the above units are supplied then the Filler Face Plates (NT0X50AJ) are required in slots 1 thru 7.
- 2) Provide one (1) QPP519A in slot #1 if the Fault-Signal Loopback feature, Dial-Pulse correction, termination of the order-wire pair, and jack access for both a 2-wire telephone and a 4-wire headset is required. The QPP519A provides mounting space for a Mini-T1 line fault locate filter, either a switchable dual amplifier filter (QFB127) or a single input passive filter (QFB128). These circuits allow fault location to be performed from the host when the OPM is unmanned. (See Item #4)
- 3) Provide the one QPP519B in slot #1 if, the Fault-Signal Loopback feature, the simple through connection between the Order-Wire pair and the CO switching equipment, and jack access to the Order-Wire pair via a 2-Wire telephone only is required. The QPP519B provides mounting space for a Mini-T1 line fault locate filter, either a switchable dual amplifier filter (QFB127) or a single input passive filter (QFB128). These circuits allow fault location to be performed from the host when the OPM is unmanned. (See Item #4)
- 4) Provide one (1) Fault Locate Filter in conjunction with a FL/OW Access Unit QPP519 to provide the BandPass Frequency specified by the Telco. Two types are available and are provided to support Telco applications as follows:
 - * Provide the QFB127 (Dual-Amplified Filter) to provide two amplifiers under the control of a Fault Locator Access Voltage from the CO to select regenerators 1 or 2. This filter supports from 12 to 24 repeaters split evenly between the amplifiers. Add the suffix (A thru M) to select the BandPass Frequency as specified by the Telco per the chart below.
 - * Provide the QFB128 (Single Passive Filter) to provide a common output from regenerators 1 and 2. This unit supports up to 12 repeaters. Add suffix (A thru M) to select the BandPass Frequency as specified by the Telco per the chart below.
- * BANDPASS FILTER CHART

Dual Amplified
Type QFB127

Single Passive
Type QFB128

FILTER	FREQUENCY	FILTER	FREQUENCY
QFB127A	832 Hz	QFB128A	832 Hz
QFB127B	928	QFB128B	928
QFB127C	1048	QFB128C	1048
QFB127D	1206	QFB128D	1206
QFB127E	1340	QFB128E	1340
QFB127F	1508	QFB128F	1508
QFB127G	1722	QFB128G	1722
QFB127H	2008	QFB128H	2008
QFB127J	2193	QFB128J	2193
QFB127K	2413	QFB128K	2413
QFB127L	2680	QFB128L	2680
QFB127M	3017	QFB128M	3017

- 5) Provision one (1) Office Repeaters (QRY18) for each DS-1 link to the host. Select these units in accordance with the features required by the Telco and order by quoting the complete "Q-Code" to feature cross reference given in the table below.

QRY18 REPEATER CODE	FEATURE/APPLICATION MATRIX	
	LINE POWERING REQUIRED	PERFORMANCE MONITOR and FAULT-SIGNAL LOOPBACK REQUIRED
QRY18A	YES	NO
QRY18B1	YES	YES
QRY18C	NO	NO
QRY18D1	NO	YES
QRY18F	*YES	NO
QRY18G1	*YES	YES

* These units apply negative voltage only for line powering.

Note: Office Repeaters are to be assigned per the following Information:

HIE SHELF		FSP
6X50 CP	DS1	REPEATER
POSITION	PORT	CP POS

19	0	2
19	2	3
20	3	6
20	1	7
21	4	4
21	5	5

- 6) Provide one (1) NT0X50AJ Filler Face Plate for each unequipped position 1-7.

RUL13 1) Provide one (1) NT0X50AC for each unequipped position 7,13-16.

- 2) Card slot No. 7 should be reserved for an additional NT0X10AA which is required when a Fiber or Channel Bank shelf is installed in the OPM.

- 3) If additional service circuits are required in card slot 13- 16 refer to section T_RMM_CARDS and provision as required.

RUL14 1) Provide one (1) NT8X09AA, LRS Test Head Mounting Kit, when the LRS Test Head is required in the OPM. Also, provide one (1) PC8X09AA Drawing. The LRS Test Head Unit shall be provided by the Telco.

RUL15 1) When provisioning the End Compartment the provisioner must choose the circuit termination methodology. This selection is totally dependant on the Telco's preference. However, please note that the 5-Pin versions are U.L. Compliant. Select one of the option groups below and order the items listed:

4-Pin Stubless:

Provide one (1) NT8X08BB, Prt Schm 4Pin-Stubless (256)

Provide one (1) P0702395, Designation Label 4-Pin (256)

Provide one (1) P0728600, Non-UL 4-Pin Label (256)

5-Pin Stubless:

Provide one (1) NT8X08BF, Prt Schm 5Pin-Stubless (256)

Provide one (1) P0713151, Designation Label 5-Pin (256)

Provide one (1) P0739144, UL 5-Pin Label (256)

Provide one (1) P0740625, LC Warning Label 5-Pin

5-Pin With 50ft Stub:

Provide one (1) NT8X08BE, Prt Schm 5Pin-50' Stub (256)

Provide four (4) NT8X0804, Cable Stub 50ft 100-Pair

Provide one (1) P0713151, Designation Label 5-Pin (256)
Provide one (1) P0739144, UL 5-Pin Label (256)
Provide one (1) P0740625, LC Warning Label 5-Pin

Each of the option groups listed above supplies the Left Hand Column (LHC) and enough Bix Connectors/Retainers to terminate the LCM-C, HIE and RMM equipment.

- 2) In order to use the End Compartment as a cross-connect facility for outside plant pairs, additional BIX Connectors/Retainers must be provisioned. Each BIX Connector can terminate up to 25 pairs, and one BIX Retainer is required for every BIX Connector. The LHC can mount an additional 29 BIX Connectors/Retainers capable of terminating up to 725 outside plant pairs.

If more than 725 outside plant pairs need to be terminated, provision the NT0X2005 Right Hand Column (RHC). The RHC can mount an additional 41 BIX Connectors/Retainers capable of terminating up to 1025 outside plant pairs.

- RUL16 1) Protectors are provisioned on a one (1) per Outside Plant Pair basis where Outside Plant Pairs = (No. of Lines + 96 Service Circuits + Telco Required Spares). The following protector modules are available. Provision the appropriate protector modules based on the type of Protection Scheme ordered for the OPM (i.e. 4-Pin or 5-Pin).

303M-08S1GA -Protector Mod Gas tube 5Pin
QMP12A4 -Protector Mod Solid State 4Pin W/ Heat Coil
QMP11A5 -Protector Mod Solid State 4Pin W/O Heat Coil
303M-12A1GA -Protector Mod Solid State 5Pin W/ Heat Coil
303M-11A1G0 -Protector Mod Solid State 5Pin W/O Heat Coil

- RUL17 1) Provision Battery Strings when battery backup is a requirement in the OPM. The battery options available for the OPM are: Eagle-Picher, YUASA, GNB (GTE Only), or Telco-Provided Batteries. Provide the Eagle-Picher Batteries for all Initial OPMS, unless the Telco prefers to provide their own batteries. The YUASA Batteries are only available for Additions and Maintenance (A&M) of Existing OPMS. The GNB Batteries are only available for GTE OPMS. DO NOT mix batteries in OPM. Refer to the appropriate section in this Rule for provisioning information on these options.

- 2) EAGLE-PICHER BATTERIES:

One (1) Eagle-Picher Battery String provides 1.25 hours of battery backup, and these must be provided in the following string pairs for a maximum of six (6) strings:

Pair 1 Strings 0 and 4
 Pair 2 Strings 1 and 5
 Pair 3 Strings 2 and 6

For each Battery String required, provision the following:

Four (4) A0386201 Eagle-Picher Batteries
 One (1) NT0X2056 Battery Tray Assembly
 Six (6) P097F813 Screws
 One (1) NT8W0154 OPM Battery H/W Kit (EP)
 One (1) P0664827 Desig Label For Batteries

Provide one cable assembly for each equipped Battery String as shown below:

STRING NUMBER	CABLE ASSEMBLY	STRING NUMBER	CABLE ASSEMBLY
0	NT8W0142	4	NT8W0143
0	NT8W0146	4	NT8W0147
1	NT8W0144	5	NT8W0145
1	NT8W0149	5	NT8W0151
2	NT8W0148	6	NT8W0150
2	NT8W0152	6	NT8W0153

In U.S. - Provide one (1) Battery Label Plate (U.S.) and one (1), Battery Warning Label (U.S.) for every Battery String ordered.

3) YUASA BATTERIES:

One (1) YUASA Battery String provides one (1) hour of battery backup, and these must be provided in the following string pairs for a maximum of eight (8) strings:

Pair 1 Strings 0 and 4
 Pair 2 Strings 1 and 5
 Pair 3 Strings 2 and 6
 Pair 4 Strings 3 and 7

For each Battery String required, provision the following:

Four (4) A0377761 YUASA Batteries
 One (1) NT0X2056 Battery Tray Assembly
 One (1) P0664827 Desig Label For Batteries
 Eight (8) P097F813 Screws
 Three (3) NT8X0126 Cable Assembly

Provide one cable assembly for each equipped Battery String as shown below:

STRING NUMBER	CABLE ASSEMBLY	STRING NUMBER	CABLE ASSEMBLY
0	NT8X0143	4	NT8X0147
0	NT8X0151	4	NT8X0155
1	NT8X0144	5	NT8X0148
1	NT8X0152	5	NT8X0140
2	NT8X0145	6	NT8X0128
2	NT8X0153	6	NT8X0157
3	NT8X0129	7	NT8X0150
3	NT8X0154	7	NT8X0158

In U.S. - Provide one (1) Battery Label Plate (U.S.) and one (1), Battery Warning Label (U.S.) for every Battery String ordered.

4) GNB BATTERIES (GTE OPMs Only):

One (1) GNB Battery String provides 1.25 hours of battery backup, and these must be provided in the following string pairs for a maximum of six (6) strings:

Pair 1 Strings 0 and 4
 Pair 2 Strings 1 and 5
 Pair 3 Strings 2 and 6

For each Battery String required, provision the following:

Four (4) A0386144 GNB Batteries
 One (1) NT0X2056 Battery Tray Assembly
 Six (6) P097F813 Screws
 One (1) NT8W0168 OPM Battery H/W Kit (GNB)
 One (1) P0664827 Desig Label For Batteries

Provide one cable assembly for each equipped Battery String as shown below:

STRING NUMBER	CABLE ASSEMBLY	STRING NUMBER	CABLE ASSEMBLY
0	NT8W0156	4	NT8W0157
0	NT8W0160	4	NT8W0161
1	NT8W0158	5	NT8W0159
1	NT8W0163	5	NT8W0165
2	NT8W0162	6	NT8W0164
2	NT8W0166	6	NT8W0167

In U.S. - Provide one (1) Battery Label Plate (U.S.) and one (1), Battery Warning Label (U.S.) for every Battery String ordered.

5) TELCO-PROVIDED BATTERIES:

Telco-Provided Batteries must be provided in the following string pairs for a maximum of eight (8) strings:

Pair 1 Strings 0 and 4
 Pair 2 Strings 1 and 5
 Pair 3 Strings 2 and 6
 Pair 4 Strings 3 and 7

For each Battery String required, provision the following:

One (1) NT0X2056 Battery Tray Assembly
 One (1) P0664827 Desig Label For Batteries
 Eight (8) P097F813 Screws
 Three (3) NT8X0126 Cable Assembly

Provide one cable assembly for each equipped Battery String as shown below:

STRING NUMBER	CABLE ASSEMBLY	STRING NUMBER	CABLE ASSEMBLY
0	NT8X0143	4	NT8X0147
0	NT8X0151	4	NT8X0155
1	NT8X0144	5	NT8X0148

1	NT8X0152	5	NT8X0140
2	NT8X0145	6	NT8X0128
2	NT8X0153	6	NT8X0157
3	NT8X0129	7	NT8X0150
3	NT8X0154	7	NT8X0158

In U.S. - Provide one (1) Battery Label Plate (U.S.) and one (1), Battery Warning Label (U.S.) for every Battery String ordered.

RUL18 1) Provision one (1) P0728301 Filler Panel in position 39.

RUL19 1) Provide one (1) NT0X1989, Single FMT-6 Kit, when a fiber interface (without redundancy) from the Host to the OPM is required. Also provide, EITHER two (2) NT3E19AA, Single-Mode Pigtail, if the OPM is connected to the Host via singlemode outside plant fiber; OR two (2) NT3E44AA, Multi-Mode Pigtail, if the OPM is connected to the Host via multimode outside plant fiber.

2) Provide one (1) NT0X1990, Dual FMT-6 Kit, when a fiber interface from the Host to the OPM is required AND redundancy and/or more than four (4) links are required. Also provide, EITHER four (4) NT3E19AA, Single-Mode Pigtail, if the OPM is connected to the Host via singlemode outside plant fiber; OR four (4) NT3E44AA, Multi-Mode Pigtail, if the OPM is connected to the Host via multimode outside plant fiber.

3) Provide one (1) NT0X10AA, Scan Card, in Slot 07 of the RMM for FMT-6 alarms.

4) When the FMT-6 option is provided for the OPM the Fault Locate/Order Wire CPs and Repeaters are not required in the FSP, provide (7) NT0X50AJ (Filler Face Plates) instead. See Rule 12.

5) When the FMT-6 Fiber Interface is provisioned in the OPM, a matching configuration is required for the Host Office end. Contact the Transmission Networks Division of Northern Telecom for ordering and provisioning the FMT-6 Fiber Interface in the Host Office.

| RUL20 1) When NT8X01BC is ordered provide this equipment.

OUTSIDE PLANT MODULE 640

PEC CODE: NT8X01AC

CPC CODE: B0233452

RATING: MD

REPLACES: NTZZ19PC

REPLACED BY: OPAC/NTRX60AA

ABBREVIATION NAME: OPM-640

ENGINEERING DESCRIPTION: The Outside Plant Module - 640 (OPM-640) is similar to the RLCM in features, capacity etc., however, the equipment is housed in an environmentally controlled cabinet. It may be mounted in an outdoor or an indoor environment. The OPM-640 supports up to 640 lines. It employs from 2-6 DS1 links to communicate with the host DMS.

The following equipment is provisioned standard in the OPM-640 cabinet: HIE, LCM-C, RMM, FSP, DF, Battery Charging Unit, Power Control Unit, AC Breakers, ECUs, Fans, and Heaters. ;

REFERENCE DOCUMENTATION: SL8X01AC 00 12
MS8X01AC 00 12 ;

MARKETS: Applicable markets:

Canada
US
CALA

ISSUE AUTHOR: NTI: Mark Sorrell Dept. 3471 (PPK)

MAIN CONTACT: NTI: Mark Sorrell Dept. 3471 (PPK)

NT8X01AC EMA2-13-002 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 03 31	ECM 514 16	Create a Detail EMS that the OPM can be updated with to document engineering changes. MD NT8X04AB and replace with NT8X04AC.
97 05 05	ECM 514 17	Per EC 024-97291, EC 011-22123, and EC 028-15577 introduce ISDN Line Drawer.

The Outside Plant Module 640 is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
OPM-640 Cabinet	NT8X01AC		1			AP
OPM Cabinet Assy Maple Brown	NT0X19AC					RUL1
OPM Cabinet Assy Grey-Green	NT0X19AD					RUL1
OPM Cabinet Assy Ivory	NT0X19AE					RUL1
Touch-Up Paint Maple Brown	R0115495					RUL1
Touch-Up Paint Grey-Green	R0115496					RUL1
Touch-Up Paint Ivory	R0115497					RUL1
Mounting Hardware Kit	NT0X1935					RUL2
Mounting Template	NT0X1934					RUL2
Mounting Plate Assembly	NT0X1929					RUL2
Installers Assy Kit (4Pin)	NT8X0176					RUL3
Installers Assy Kit (5Pin)	NT8W0138					RUL3
OPM Maintenance Tools	NTZZ19MA					RUL3
OPM Warning Label	P0678472		1			RUL7
OPM Caution Label	P0685443		1			RUL7
External Generator Connector	A0367245		1			RUL7
Warning Label (French)	P0686878					RUL4
Caution Label (French)	P0685441					RUL4
Caution Label (French)	P0685442					RUL4

NTZZ19PC Outside Plant Equipment (OPE) Row "A" BAY 0:

Des Label OPE 00 0 - 43 0	P0660996					RUL5
Des Label OPE 44 0 - 87 0	P0660997					RUL5
Des Label OPE 88 0 - 99 0	P0660998					RUL5
Booster Fan Unit	NT8X06BA	BFU	1	46		AP-01
Alarm Card CP	NT6X36AE		1	46		AP-06
Des Label LCM 00 0 - 99 0	P0660999					RUL5
Des Label LCM 00 1 - 99 1	P0661200					RUL5
Designation Labels (LSG)	P0631765		1	19		RUL7
#LCM Common CP	NT8X04AB	LCM	1	19		RUL6
LCM Common CP	NT8X04AC	LCM	1	19		RUL6

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
#LCM Processor CP	NT6X51AB		2	19, 33		AP-02
LCM Processor CP	NT6X51AC		2	19, 33		AP-02
Digroup Controller CP	NT6X52AA		2	19, 33		AP-02
Power Converter 5V/15V CP	NT6X53AA		2	19, 33		AP-02
Designation Strip	P0726429		2	19, 33		AP-02
LCM-C Common CP	NT6X04AE	LCM-C	1	19, 33		RUL6
Processor Upgrade Kit	NT6X04ZX	LCM-C	1	19, 33		RUL6
Line Drawer	NT6X05AA			19		RUL6
Line Drawer	NT6X05AA			33		RUL6
ISDN Line Drawer	NT6X05DA			19		RUL6
ISDN Line Drawer	NT6X05DA			33		RUL6
Host Interface Equip Assy	NT6X1108	HIE	1	05		AP-01
Desig Strip for HIE	P0701836		1	05		RUL7
Ringing Generator	NT6X60CA		2	05	1, 5	RUL7
Desig Label for NT6X60CA	P0740744		2	05	1, 5	RUL7
Filler Face Plate	NT0X50AG		1	05	09	RUL7
Filler Face Plate 0.875	NT0X50AA		1	05	12	RUL7
Filler Face Plate 0.875	NT0X50AA		1	05	13	RUL7
# OPM ESA CP Package	NTZZ19QA			05	14	RUL10
OPM ESA CP Package	NTZZ19QB			05	14	RUL10
PC Kit (NTZZ19QA To QB)	NTZZ99AF			05	14	RUL10
Filler Face Plate 0.875	NT0X50AA			05	14-16	RUL10
Link Control CP	NT6X73AA		2	05	17, 18	RUL7
DS-1 Interface	NT6X50AA			05	19-21	RUL11
DS-1 Interface	NT6X50AB			05	19-21	RUL11
Design Label for NT6X50AA	P0626878			05	21	RUL11
Design Label for NT6X50AB	P0690976			05	19-21	RUL11
Filler Face Plate 0.875	NT0X50AA			05	21	RUL11
# Power Converter +/-5V, +/-12V	NT2X70AE		2	05	22, 25	RUL7
Power Converter +/-5V, +/-12V	NT2X70AF		2	05	22, 25	RUL7
Desig Label for NT2X70AF	P0809960		2	05	22, 25	RUL7
Environmental Control Unit	NT8X06AB	ECU	1	00		AP-01
Heater	A0302484		1	00		RUL7
NTZZ19PC OPE Row "A" Bay 1:						
Des Label OPE 00 1 - 43 1	P0661767					RUL5
Des Label OPE 44 1 - 87 1	P0661768					RUL5
Des Label OPE 88 1 - 99 1	P0661201					RUL5
Filler Panel	P0728301		1	39		RUL18

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Power Control Unit	NT8X05AA		1	35		AP-01
Battery Charging Unit Assy	NT8X0301	BCU	1	32		AP-01
Battery Charger Common CP	NT8X03AC		1	32		RUL7
Battery Control CP	NT8X02AB		2	32	1,3	AP-04
Design Label NT8X02AB	P0726700		1	32	1,3	AP-04
Des Label BCU:000 - 104	P0660994					RUL5
Des Label BCU:105 - 199	P0660995					RUL5
Rectifier	NT5C90DB	RECT	1	28		AP-01
Frame Supervisory Panel	NT6X25BC	FSP	1	19		AP-01
Fault Loc/Order Wire Access	QPP519			19	1	RUL12
Office Repeater	QRY18			19	2-7	RUL12
Filler Face Plate	NT0X50AJ			19	1-7	RUL12
Remote Maintenance Mod Assy	NT8X0415	RMM	1	05		AP-01
RMM Common CP	NT6X13AB		1	05		AP
Design Strip NT6X13AB	P0653639		1	05		AP-05
Group Codec CP	NT2X59AA		1	05	1	AP-05
RMM Control Card	NT6X74AB		1	05	2	AP-05
Met. Test Unit Analog	NT2X10BA		1	05	3	AP
Met. Test Unit Digital	NT2X11BA		1	05	4	AP
Rmt Metallic Test Access	NT3X09BA		1	05	5	AP
Rmt Metallic Test Access	NT3X09AA		1	05	6	AP
Filler Face Plate	NT0X50AC			05	7	RUL13
Scan Card	NT0X10AA		1	05	8	AP
Incoming/Outgoing Test Trk	NT2X90AD		2	05	9,10	AP
Daughter Board	NT2X77AA		2	05	9,10	AP
4 Chan Digitone Receiver	NT2X48AB			05	11	RUL10
Filler Face Plate	NT0X50AC			05	11,12	RUL10
Service Circuit Packs	AR			05	13-16	RUL13
Filler Face Plate	NT0X50AC			05	13-16	RUL13
Multi O/P Pwr Converter	NT2X09AA		1	05	17	AP-05
Filler Face Plate	NT0X50AA		1	05	19	AP-05
Pwr Converter Comm Feat.	NT2X06AB		1	05	20	AP-05
Environmental Control Unit	NT8X06AB	ECU	1	00		AP-01
Heater	A0302484		1	00		AP-01
Des Label ECU:000 - 104	P0660990					RUL5
Des Label ECU:105 - 209	P0660991					RUL5
Des Label ECU:210 - 314	P0660992					RUL5
Des Label ECU:315 - 399	P0660993					RUL5

NTZZ19PC OPE Bay 0 ROW B (BACK WALL):

Active Equipment
Outside Plant Module 640NT8X01AC
EMA2-13-002
Page 5

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Single FMT-6 Kit	NT0X1989			33		RUL19
Dual FMT-6 Kit	NT0X1990			33		RUL19
FMT6 PC Kit (Single To Dual)	NT8X01ZA			33		RUL19
Single-Mode Pigtail	NT3E19AA			33		RUL19
Multi-Mode Pigtail	NT3E44AA			33		RUL19
LRS Test Head Mtg Kit	NT8X09AA			05		RUL14

NTZZ19PC OPE Bay 1 ROW B (BACK WALL):

Eagle-Picher Batteries	A0386201					RUL17
Battery Tray Assembly	NT0X2056					RUL17
Screw	P097F813					RUL17
OPM Battery H/W Kit	NT8W0154					RUL17
Desig Label For Batteries	P0664827					RUL17
Battery Label Plate (U.S.)	P0688741					RUL17
Batt Warning Label (U.S.)	P0686456					RUL17
Cable Assy EP Bat String #0	NT8W0142					RUL17
Cable Assy EP Bat String #0	NT8W0146					RUL17
Cable Assy EP Bat String #4	NT8W0143					RUL17
Cable Assy EP Bat String #4	NT8W0147					RUL17
Cable Assy EP Bat String #1	NT8W0144					RUL17
Cable Assy EP Bat String #1	NT8W0149					RUL17
Cable Assy EP Bat String #5	NT8W0145					RUL17
Cable Assy EP Bat String #5	NT8W0151					RUL17
Cable Assy EP Bat String #2	NT8W0148					RUL17
Cable Assy EP Bat String #2	NT8W0152					RUL17
Cable Assy EP Bat String #6	NT8W0150					RUL17
Cable Assy EP Bat String #6	NT8W0153					RUL17
# YUASA Batteries	A0323985					RUL17
# YUASA Batteries	A0377761					RUL17
Battery Tray Assembly	NT0X2056					RUL17
Desig Label For Batteries	P0664827					RUL17
Screw	P097F813					RUL17
Cable Assembly	NT8X0126					RUL17
Battery Label Plate (U.S.)	P0688741					RUL17
Batt Warning Label (U.S.)	P0686456					RUL17
Cable Assy YU Bat String #0	NT8X0143					RUL17
Cable Assy YU Bat String #0	NT8X0151					RUL17

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Cable Assy YU Bat String #4	NT8X0147					RUL17
Cable Assy YU Bat String #4	NT8X0155					RUL17
Cable Assy YU Bat String #1	NT8X0144					RUL17
Cable Assy YU Bat String #1	NT8X0152					RUL17
Cable Assy YU Bat String #5	NT8X0148					RUL17
Cable Assy YU Bat String #5	NT8X0140					RUL17
Cable Assy YU Bat String #2	NT8X0145					RUL17
Cable Assy YU Bat String #2	NT8X0153					RUL17
Cable Assy YU Bat String #6	NT8X0128					RUL17
Cable Assy YU Bat String #6	NT8X0157					RUL17
Cable Assy YU Bat String #3	NT8X0129					RUL17
Cable Assy YU Bat String #3	NT8X0154					RUL17
Cable Assy YU Bat String #7	NT8X0150					RUL17
Cable Assy YU Bat String #7	NT8X0158					RUL17
GNB Batteries	A0386144					RUL17
Battery Tray Assembly	NT0X2056					RUL17
Screw	P097F813					RUL17
OPM Battery H/W Kit (GNB)	NT8W0168					RUL17
Desig Label For Batteries	P0664827					RUL17
Battery Label Plate (U.S.)	P0688741					RUL17
Batt Warning Label (U.S.)	P0686456					RUL17
Cable Assy GN Bat String #0	NT8W0156					RUL17
Cable Assy GN Bat String #0	NT8W0160					RUL17
Cable Assy GN Bat String #4	NT8W0157					RUL17
Cable Assy GN Bat String #4	NT8W0161					RUL17
Cable Assy GN Bat String #1	NT8W0158					RUL17
Cable Assy GN Bat String #1	NT8W0163					RUL17
Cable Assy GN Bat String #5	NT8W0159					RUL17
Cable Assy GN Bat String #5	NT8W0165					RUL17
Cable Assy GN Bat String #2	NT8W0162					RUL17
Cable Assy GN Bat String #2	NT8W0166					RUL17
Cable Assy GN Bat String #6	NT8W0164					RUL17
Cable Assy GN Bat String #6	NT8W0167					RUL17

NTZZ19PC End Compartment Access:

Prt Schm 4Pin-Stubless(640)	NT8X08BA	LHC	RUL15
Prt Schm 5Pin-Stubless(640)	NT8X08BD	LHC	RUL15
Prt Schm 5Pin-50' Stub(640)	NT8X08BC	LHC	RUL15
Cable Stub 50ft 100-Pair	NT8X0804	LHC	RUL15

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Desig. Label 4-Pin (640)	P0688770					RUL15
Non-UL 4-Pin Label (640)	P0728601					RUL15
Desig. Label 5-Pin (640)	P0726699					RUL15
UL 5-Pin Label (640)	P0739143					RUL15
LC Warning Label 5-Pin	P0740625					RUL15
25-Pair BIX Connector	QCBE1B			LHC		RUL15
Green BIX Retainer	QRE3A			LHC		RUL15
Right Hand Column Maple Brn	NT0X2005			RHC		RUL15
25 Pair BIX Connector	QCBE1B			RHC		RUL15
Green BIX Retainer	QRE3A			RHC		RUL15
# Prt Mod Gas Tube 4Pin	QMP6A4G					RUL16
Prt Mod Gas Tube 5Pin	303M-08S1GA					RUL16
Prt Mod Sld St 4Pin W/ Heat	QMP12A4					RUL16
Prt Mod Sld St 4Pin W/O Heat	QMP11A5					RUL16
Prt Mod Sld St 5Pin W/ Heat	303M-12A1GA					RUL16
Prt Mod Sld St 5Pin W/O Heat	303M-11A1G0					RUL16
Des Card line pr 1-600	P0613827					RUL5
Des Card line pr 601-1200	P0613828					RUL5
Des Card line pr 1201-1800	P0613829					RUL5

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT0J42AA	CANCEL	None
NT0J41BA	CANCEL	None
NT2X70AE	MD	NT2X70AF
NTZZ19QA	MD	NTZZ19QB
A0323985	MD	A0377761
A0377761	A&M	A0386201
QMP6A4G	MD	None
NT8X04AB	MD	NT8X04AC
NT6X51AB	MD	NT6X51AC

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 NT8X01AC is ordered, these items are provided.
- AP-01 1) When PEC NT8X01AC is provided these items are Always Provided.
- AP-02 1) When PEC NT8X04AC is provided these items are Always Provided.
- AP-03 1) When PEC NT6X11AB is provided these items are Always Provided.
- AP-04 1) When PEC NT8X03AC is provided these items are Always Provided.
- AP-05 1) When PEC NT6X13AB is provided these items are Always Provided.
- AP-06 1) When PEC NT8X06BA is provided these items are Always Provided.
- RUL1 1) Provide one (1) Cabinet Assembly, NT0X19AC/AD/AE, in accordance with the desired color option for the OPM-640. Also, provide one (1) Touch-Up Paint to be shipped-loose to the OPM site. NOTE: If color option other than NT0X19AC (Maple Brown) is selected, delivery time is increased by two weeks.
- RUL2 1) Provide one (1) NT0X1934 and one (1) NT0X1935 when the OPM-640 is to be mounted on a concrete pad.
- 2) For all NTZZ19PC installations engineered in the U.S., and RFS for advance shipment of the above items must be initi-

ated by the Systems Engineer as soon as the mounting arrangement is identified. An advance ship note must be placed in the specification.

- 3) For all NTZZ19PC's engineered in Canada, the mounting template NT0X1934 will be merchandise ordered and the NT0X1935 is shipped loose with the OPM-640. The Customer Engineer must ensure that the Telco is aware of this requirement.

- 4) Provide one (1) NT0X1929 and one (1) NT0X1935 when the OPM-640 is to be mounted on railroad ties.

RUL3 1) Provide either the NT8X0176 Installers Assembly Kit (4Pin), or the NT8W0138 Installers Assembly Kit (5Pin) per Telco specifications. These kits are used for installation purposes.

- 2) BIX and MPC Test and Maintenance Tools are available per Telco request.

RUL4 1) Provision the following labels for each OPM requiring French labels:

One (1) P0686878 Warning Label (French)
One (1) P0685441 Caution Label (French)
Two (2) P0685442 Caution Label (French)

RUL5 1) Provision designation labels as required.

RUL6 1) Provision line cards for OPM per customer requirements.

- 2) For non ISDN applications provide the NT8X04AC.

- 3) Existing OPMs can be upgraded to the NT6X04AE LCM-C by providing one (1) NT6X04ZX LCM Processor CP Kit. This kit upgrades the LCM Processor and labels to NT6X51DAs required for Clear Channel capability. NT6X04AE requires the use of NT6X50ABs in both the host and remote equipment.

The ISDN Line Drawer can only be applied to North American markets only.

- 4) Two (2) of the possible ten Line Drawers for each OPM may be NT6X05DA ISDN Line Drawers, one per shelf. Use of a NT6X05DA ISDN Line Drawer requires use of NT6X40AE and NT6X50ABs for clear channel capability.

- 5) Only 1 ILD can be defined in each LCA (Line Concentrating Array). ISDN Line Drawer can not be applied to positions 0 or 10. Preferred positions for locating the ISDN Line Drawer is 8 or 18. This means that if the ILD drawer number of the first ILD is within the range 2 - 8, the next ILD to be defined in this LCM will have its drawer number within the range 12 - 18. This limitation exists in order to permit an optimal heat dispersion in the LCM.

RUL7 1) When the NT8X01BC is ordered provide this equipment.

RUL8 1) Reserved for future use.

RUL9 1) Reserved for future use.

RUL10 1) Provide one (1) NTZZ19QB, OPM ESA CP Package, when the ESA option is specified. This package provides the following cards and their designation labels:

One (1) NT6X47AC CP in Slot 14 of HIE Shelf
One (1) NT6X45AF CP in Slot 15 of HIE Shelf
One (1) NT6X75AA CP in Slot 16 of HIE Shelf

If the ESA option is not specified, provide one (1) NT0X50AA, Filler Face Plate, in Slots 14-16 of the HIE Shelf.

- 2) If the ESA option is specified, also provide a minimum of one (1) NT2X48AB, 4 Channel Digitone Receiver, in Slot 11 of the RMM Shelf. The NT2X48AB is a 2-slot card which takes up Slots 11-12. If the ESA option is not specified, instead provide one (1) NT0X50AC, Filler Face Plate, in Slots 11-12 of the RMM Shelf.

The actual number of NT2X48AB CPs to be provided shall be based on traffic. Any additional Digitone Receivers required above the minimum of one (1) shall be located in Slots 13-16 of the RMM Shelf.

- 3) Existing OPMs with the NTZZ19QA, OPM ESA CP Package, that are going to BCS-33 need to be upgraded to the NTZZ19QB, OPM ESA CP Package. Provide one (1) NTZZ99AF, Product Change Kit (NTZZ19QA to QB), for each OPM requiring this upgrade.

RUL11 1) Provide two (1) NT6X50AA, DS-1 Interface, in position 19-20 of each OPM HIE. The labels for these two cards are included on the HIE Designation Strip.

If the Telco prefers or ISDN line drawer is provisioned, provide two (2) NT6X50AB, DS-1 Interface, in position 19-20 of each OPM HIE. Also, provide two (2) P0690976, Designation Label for NT6X50AB.

For ISDN applications NT6X50AAs must be replaced with NT6X50ABs in both the Remote and Host equipment. Provide designation strips for each 6X50AB provisioned for use with NT6X05DA.

- 2) Provide one (1) NT6X50AA/AB, DS-1 Interface, in position 21 of each OPM HIE when the DS-1 links 5 and 6 are required to the Host. This NT6X50 CP MUST be the same vintage as already ordered for position 19-20. Also, provide one (1) designation label for position 21.

Otherwise, provide (1) Filler Face Plate for each unequipped position 21 in the OPM HIE.

- RUL12 1) The OPM FSP Fault Locate/Order-Wire Access cards are not required when a Fiber shelf is provided. However, if a Fiber shelf is not provided, provision one (1) Fault Locate/Order-Wire cards and up to six (6) Repeaters as required.

* Fault Locate/Order-Wire (FL/OW) Access Unit in card slot #1. These cards may be one of the following:

- FL/OW Access Unit with Dial-Pulse Correction Circuits (QPP519A). See Rule 12 Item 2 below.
- FL/OW Access Unit with simple jack access to order Wire (QPP519B). See Rule 12 Item 3 below.

Note: The Fault Locate Filter either the Dual-Amplified Type (QFB127) or the Single Passive Type (QFB128) must be provided in conjunction with the FL/OW Access unit and is installed on the rear of the unit. This circuit filters the fault locate signal to provide the proper fault locate tone.

* T1 Span Office Repeaters. This circuit is available in several configurations which are assignable to slots 2 thru 7. Refer to Item 5 for details.

* If none of the above units are supplied then the Filler Face Plates (NT0X50AJ) are required in slots 1 thru 7 (See Rule 11 Item 6).

- 2) Provide one (1) QPP519A in slot #1 if the Fault-Signal Loopback feature, Dial-Pulse correction, termination of the order-wire pair, and jack access for both a 2-wire telephone and a 4-wire headset is required. The QPP519A provides mounting space for a Mini-T1 line fault locate filter, either a switchable dual amplifier filter (QFB127) or a single input passive filter (QFB128). These circuits allow fault location to be performed from the host when the OPM is unmanned. (See Item #4)
- 3) Provide the one QPP519B in slot #1 if, the Fault-Signal Loopback feature, the simple through connection between the Order-Wire pair and the CO switching equipment, and jack access to the Order-Wire pair via a 2-Wire telephone only is required. The QPP519B provides mounting space for a Mini-T1 line fault locate filter, either a switchable dual amplifier filter (QFB127) or a single input passive filter (QFB128). These circuits allow fault location to be performed from the host when the OPM is unmanned. (See Item #4)
- 4) Provide one (1) Fault Locate Filter in conjunction with a FL/OW Access Unit QPP519 to provide the BandPass Frequency specified by the Telco. Two types are available and are provided to support Telco applications as follows:
 - * Provide the QFB127 (Dual-Amplified Filter) to provide two amplifiers under the control of a Fault Locator Access Voltage from the CO to select regenerators 1 or 2. This filter supports from 12 to 24 repeaters split evenly between the amplifiers. Add the suffix (A thru M) to select the BandPass Frequency as specified by the Telco per the chart below.
 - * Provide the QFB128 (Single Passive Filter) to provide a common output from regenerators 1 and 2. This unit supports up to 12 repeaters. Add suffix (A thru M) to select the BandPass Frequency as specified by the Telco per the chart below.
 - * BANDPASS FILTER CHART

Dual Amplified Type QFB127		Single Passive Type QFB128	
FILTER	FREQUENCY	FILTER	FREQUENCY

QFB127A	832 Hz	QFB128A	832 Hz
QFB127B	928	QFB128B	928
QFB127C	1048	QFB128C	1048
QFB127D	1206	QFB128D	1206
QFB127E	1340	QFB128E	1340
QFB127F	1508	QFB128F	1508
QFB127G	1722	QFB128G	1722
QFB127H	2008	QFB128H	2008
QFB127J	2193	QFB128J	2193
QFB127K	2413	QFB128K	2413
QFB127L	2680	QFB128L	2680
QFB127M	3017	QFB128M	3017

- 5) Provision one (1) Office Repeaters (QRY18) for each DS-1 link to the host. Select these units in accordance with the features required by the Telco and order by quoting the complete "Q-Code" to feature cross reference given in the table below.

QRY18 REPEATER CODE	FEATURE/APPLICATION MATRIX	
	LINE POWERING REQUIRED	PERFORMANCE MONITOR and FAULT-SIGNAL LOOPBACK REQUIRED
QRY18A	YES	NO
QRY18B1	YES	YES
QRY18C	NO	NO
QRY18D1	NO	YES
QRY18F	*YES	NO
QRY18G1	*YES	YES

* These units apply negative voltage only for line powering.

Note: Office Repeaters are to be assigned per the following Information:

HIE SHELF 6X50 CP CP POS	DS1 PORT	FSP REPEATER CP POS
19	0	2
19	2	3

20	3	6
20	1	7
21	4	4
21	5	5

- 6) Provide one (1) NT0X50AJ Filler Face Plate for each unequipped position 1-7.

RUL13 1) Provide one (1) NT0X50AC for each unequipped position 7,13-16.

- 2) Card slot No. 7 should be reserved for an additional NT0X10AA which is required when a Fiber or Channel Bank shelf is installed in the OPM.

- 3) If additional service circuits are required in card slot 13- 16 refer to section T_RMM_CARDS and provision as required.

RUL14 1) Provide one (1) NT8X09AA, LRS Test Head Mounting Kit, when the LRS Test Head is required in the OPM. Also, provide one (1) PC8X09AA Drawing. The LRS Test Head Unit shall be provided by the TELCO.

RUL15 1) When provisioning the End Compartment the provisioner must choose the circuit termination methodology. This selection is totally dependant on the Telco's preference. However, please note that the 5-Pin versions are U.L. Compliant. Select one of the option groups below and order the items listed:

4-Pin Stubless:

Provide one (1) NT8X08BA, Prt Schm 4Pin-Stubless (640)
Provide one (1) P0688770, Designation Label 4-Pin (640)
Provide one (1) P0728601, Non-UL 4-Pin Label (640)

5-Pin Stubless:

Provide one (1) NT8X08BD, Prt Schm 5Pin-Stubless (640)
Provide one (1) P0726699, Designation Label 5-Pin (640)
Provide one (1) P0739143, UL 5-Pin Label (640)
Provide one (1) P0740625, LC Warning Label 5-Pin

5-Pin With 50ft Stub:

Provide one (1) NT8X08BC, Prt Schm 5Pin-50' Stub (640)
Provide eight (8) NT8X0804, Cable Stub 50ft 100-Pair
Provide one (1) P0726699, Designation Label 5-Pin (640)
Provide one (1) P0739143, UL 5-Pin Label (640)

Provide one (1) P0740625, LC Warning Label 5-Pin

Each of the option groups listed above supplies the Left Hand Column (LHC) and enough Bix Connectors/Retainers to terminate the LCM, HIE and RMM equipment.

- 2) In order to use the End Compartment as a cross-connect facility for outside plant pairs, additional BIX Connectors/Retainers must be provisioned. Each Bix Connector can terminate up to 25 pairs, and one Bix Retainer is required for every Bix Connector. The LHC can mount an additional 29 BIX Connectors/Retainers capable of terminating up to 725 outside plant pairs.

If more than 725 outside plant pairs need to be terminated, provision the NT0X2005 Right Hand Column (RHC). The RHC can mount an additional 41 BIX Connectors/Retainers capable of terminating up to 1025 outside plant pairs.

- RUL16 1) Protectors are provisioned on a one (1) per Outside Plant Pair basis, where Outside Plant Pairs = (No. of Lines + 96 Service Circuits + Telco Required Spares). The following protector modules are available. Provision the appropriate protector modules based on the type of Protection Scheme ordered for the OPM (i.e. 4-Pin or 5-Pin).

303M-08S1GA -Protector Mod Gas Tube 5Pin
QMP12A4 -Protector Mod Solid State 4Pin W/ Heat Coil
QMP11A5 -Protector Mod Solid State 4Pin W/O Heat Coil
303M-12A1GA -Protector Mod Solid State 5Pin W/ Heat Coil
303M-11A1G0 -Protector Mod Solid State 5Pin W/O Heat Coil

- RUL17 1) Provision Battery Strings when battery backup is a requirement in the OPM. The battery options available for the OPM are: Eagle-Picher, YUASA, GNB (GTE Only), or Telco-Provided Batteries. Provide the Eagle-Picher Batteries for all Initial OPMS, unless the Telco prefers to provide their own batteries. The YUASA Batteries are only available for Additions and Maintenance (A&M) of Existing OPMS. The GNB Batteries are only available for GTE OPMS. DO NOT mix batteries in OPM. Refer to the appropriate section in this Rule for provisioning information on these options.

- 2) EAGLE-PICHER BATTERIES:

One (1) Eagle-Picher Battery String provides 1.25 hours of battery backup, and these must be provided in the following string pairs for a maximum of six (6) strings:

Pair 1 Strings 0 and 4
 Pair 2 Strings 1 and 5
 Pair 3 Strings 2 and 6

For each Battery String required, provision the following:

Four (4) A0386201 Eagle-Picher Batteries
 One (1) NT0X2056 Battery Tray Assembly
 Six (6) P097F813 Screws
 One (1) NT8W0154 OPM Battery H/W Kit (EP)
 One (1) P0664827 Desig Label For Batteries

Provide one cable assembly for each equipped Battery String as shown below:

STRING NUMBER	CABLE ASSEMBLY	STRING NUMBER	CABLE ASSEMBLY
0	NT8W0142	4	NT8W0143
0	NT8W0146	4	NT8W0147
1	NT8W0144	5	NT8W0145
1	NT8W0149	5	NT8W0151
2	NT8W0148	6	NT8W0150
2	NT8W0152	6	NT8W0153

In U.S. - Provide one (1) Battery Label Plate (U.S.) and one (1), Battery Warning Label (U.S.) for every Battery String ordered.

3) YUASA BATTERIES:

One (1) YUASA Battery String provides one (1) hour of battery backup, and these must be provided in the following string pairs for a maximum of eight (8) strings:

Pair 1 Strings 0 and 4
 Pair 2 Strings 1 and 5
 Pair 3 Strings 2 and 6
 Pair 4 Strings 3 and 7

For each Battery String required, provision the following:

Four (4) A0377761 YUASA Batteries
 One (1) NT0X2056 Battery Tray Assembly
 One (1) P0664827 Desig Label For Batteries

Eight (8) P097F813 Screws
Three (3) NT8X0126 Cable Assembly

Provide one cable assembly for each equipped Battery String as shown below:

STRING NUMBER	CABLE ASSEMBLY	STRING NUMBER	CABLE ASSEMBLY
0	NT8X0143	4	NT8X0147
0	NT8X0151	4	NT8X0155
1	NT8X0144	5	NT8X0148
1	NT8X0152	5	NT8X0140
2	NT8X0145	6	NT8X0128
2	NT8X0153	6	NT8X0157
3	NT8X0129	7	NT8X0150
3	NT8X0154	7	NT8X0158

In U.S. - Provide one (1) Battery Label Plate (U.S.) and one (1), Battery Warning Label (U.S.) for every Battery String ordered.

4) GNB BATTERIES (GTE OPMs Only):

One (1) GNB Battery String provides 1.25 hours of battery backup, and these must be provided in the following string pairs for a maximum of six (6) strings:

Pair 1 Strings 0 and 4
Pair 2 Strings 1 and 5
Pair 3 Strings 2 and 6

For each Battery String required, provision the following:

Four (4) A0386144 GNB Batteries
One (1) NT0X2056 Battery Tray Assembly
Six (6) P097F813 Screws
One (1) NT8W0168 OPM Battery H/W Kit (GNB)
One (1) P0664827 Desig Label For Batteries

Provide one cable assembly for each equipped Battery String as shown below:

STRING NUMBER	CABLE ASSEMBLY	STRING NUMBER	CABLE ASSEMBLY
0	NT8W0156	4	NT8W0157
0	NT8W0160	4	NT8W0161
1	NT8W0158	5	NT8W0159
1	NT8W0163	5	NT8W0165
2	NT8W0162	6	NT8W0164
2	NT8W0166	6	NT8W0167

In U.S. - Provide one (1) Battery Label Plate (U.S.) and one (1), Battery Warning Label (U.S.) for every Battery String ordered.

5) TELCO-PROVIDED BATTERIES:

Telco-Provided Batteries must be provided in the following string pairs for a maximum of eight (8) strings:

Pair 1 Strings 0 and 4
 Pair 2 Strings 1 and 5
 Pair 3 Strings 2 and 6
 Pair 4 Strings 3 and 7

For each Battery String required, provision the following:

One (1) NT0X2056 Battery Tray Assembly
 One (1) P0664827 Desig Label For Batteries
 Eight (8) P097F813 Screws
 Three (3) NT8X0126 Cable Assembly

Provide one cable assembly for each equipped Battery String as shown below:

STRING NUMBER	CABLE ASSEMBLY	STRING NUMBER	CABLE ASSEMBLY
0	NT8X0143	4	NT8X0147
0	NT8X0151	4	NT8X0155
1	NT8X0144	5	NT8X0148
1	NT8X0152	5	NT8X0140
2	NT8X0145	6	NT8X0128

2	NT8X0153	6	NT8X0157
3	NT8X0129	7	NT8X0150
3	NT8X0154	7	NT8X0158

In U.S. - Provide one (1) Battery Label Plate (U.S.) and one (1), Battery Warning Label (U.S.) for every Battery String ordered.

RUL18 1) Provide one (1) P0728301 Filler Panel in position 39.

RUL19 1) Provide one (1) NT0X1989, Single FMT-6 Kit, when a fiber interface (without redundancy) from the Host to the OPM is required. Also provide, EITHER two (2) NT3E19AA, Single-Mode Pigtail, if the OPM is connected to the Host via singlemode outside plant fiber; OR two (2) NT3E44AA, Multi-Mode Pigtail, if the OPM is connected to the Host via multimode outside plant fiber.

2) Provide one (1) NT0X1990, Dual FMT-6 Kit, when a fiber interface from the Host to the OPM is required AND redundancy and/or more than four (4) links are required. Also provide, EITHER four (4) NT3E19AA, Single-Mode Pigtail, if the OPM is connected to the Host via singlemode outside plant fiber; OR four (4) NT3E44AA, Multi-Mode Pigtail, if the OPM is connected to the Host via multimode outside plant fiber.

3) Provide one (1) NT0X10AA, Scan Card, in Slot 07 of the RMM for FMT-6 alarms.

4) When the FMT-6 option is provided for the OPM the Fault Locate/Order Wire CPs and Repeaters are not required in the FSP, provide (7) NT0X50AJ (Filler Face Plates) instead. See Rule 12.

5) When the FMT-6 Fiber Interface is provisioned in the OPM, a matching configuration is required for the Host Office end. Contact the Transmission Networks Division of Northern Telecom for ordering and provisioning the FMT-6 Fiber Interface in the Host Office.

OUTSIDE PLANT ACCESS CABINET.

PEC CODE: NTRX60AA

CPC CODE: B0239358

RATING: Standard

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: OPAC

ENGINEERING DESCRIPTION: The Outside Plant Access Cabinet (OPAC) is similar to the RLCM in features, capacity etc., however, the equipment is housed in an environmentally controlled cabinet, and is mounted in an outdoor environment. The OPAC supports up to 640 lines. It employs from 2-6 DS1 or 2-6 PCM-30 links to communicate with the host DMS.

The following equipment is provisioned standard in the OPAC cabinet: HIE, LCM, RMM, MSP, Termination Compartment, Battery Charging Unit, Rectifiers, and Environmental Control Equipment such as Fans and Heaters.

REFERENCE DOCUMENTATION: MSRX60AA 00 12
SLRX60AA 00 05

MARKETS: Applicable markets:

US
Canada
CALA

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NTRX60AA EMA2-13-100 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 07 15	ECM 562 01	Introduces the Outside Plant Access Cabinet (OPAC).
94 08 31	ECM 562 02	Add Pad Sealant Kit as provisionable item.
94 09 27	ECM 562 03	Introduce new Eagle-Picher Battery.
94 11 10	ECM 562 04	Change the Bix Protector Blocks used for customer equipment.
95 01 27	ECM 562 05	Introduce new LCM and add earthquake kits.
95 03 31	ECM 562 06	Introduce CSA-compliant OPAC Cabinet Models.
95 04 13	ECM 562 07	Replace NT2X70AE CP with NT2X70AF CP.
95 08 14	ECM 562 08	Include Int'l OPAC equipment.
96 04 11	ECM 562 09	Introduce Protector Block Cost savings per EC 024-94417.
		Introduce Down draft Cooling unit per EC 024-93889.
		Introduce OC-1 fiber equipment per EC 024-94656.
		Introduce Heater Units per EC 024-95030.
96 04 11	ECM 562 12	Clarify description for Cabinet models
96 07 03	ECM 562 13	Assign A0 part numbers to vendor equipment. Add additional OC-1 kit information.
96 07 24	ECM 562 14	Correct part number for CSA Emergency Gen. Mate Conn. from A0656114 to A0639808 in equipment list.
96 10 23	ECM 562 15	Manufacture Discontinue NT2X48AB and replace with NT2X48BB per EC 018-46775. Update rule 12 to show A0617586 and A0617587 as shiploose items per SR RR6A284.
97 02 17	ECM 562 16	Correct part number P0737443 to P0737433 per SR RR6A189. Remove packs from ship loose requirement in Rule 12 per SR RR6C694.
97 05 20	ECM 562 17	Introduce ISDN LD provisioning per EC 024-97597.
97 06 27	ECM 562 18	Correct provisioning rules for MSP filler panels per SR RR73986.
97 07 02	ECM 562 19	Correct CP rating where not MD'ed but

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 09 12	ECM 562 20	replaced in specific applications. Per SR RR76804 and RR77099. For the record, reflect that NTRX61CA, NTRX61CB, and NTRX61CC were MD'd per EC 024-98484. Also, NTRX66AC is being MD'd per EC 024-98484.

The Outside Plant Access Cabinet. is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Outside Plant Access Cabinet	NTRX60AA					RUL1
# Cabinet Model (Brown) - UL (220 volt AC, 3 Wire + ground w/ Heaters)	NTRX61CA					RUL2
Cabinet Model (Brown) - UL (220 volt AC, 3 Wire + ground w/out Heaters)	NTRX61CG					RUL2
# Cabinet Model (Ivory) - UL (220 volt AC, 3 Wire + ground w/ Heaters)	NTRX61CB					RUL2
Cabinet Model (Ivory) - UL (220 volt AC, 3 Wire + ground w/out Heaters)	NTRX61CH					RUL2
# Cabinet Model (Green) - UL (220 volt AC, 3 Wire + ground w/ Heaters)	NTRX61CC					RUL2
Cabinet Model (Green) - UL (220 volt AC, 3 Wire + ground w/out Heaters)	NTRX61CJ					RUL2
Heater Kit	NTRX6108					RUL2
Cabinet Model (Brown) - CSA (220 volt AC, 3 Wire + ground w/ Heaters)	NTRX61CD					RUL2
Cabinet Model (Ivory) - CSA (220 volt AC, 3 Wire + ground w/ Heaters)	NTRX61CE					RUL2
Cabinet Model (Green) - CSA (220 volt AC, 3 Wire + ground w/ Heaters)	NTRX61CF					RUL2
Touch-Up Paint (Brown)	R0115917					RUL2
Touch-Up Paint (Ivory)	R0115497					RUL2
Touch-Up Paint (Green)	R0115496					RUL2
Anchor Plate Kit 10in Skirt	NT7A52DA					RUL3
Anchor Plate Kit 30in Skirt	NT7A52GA					RUL3
Concrete Pad Sealant Kit	P0738444					RUL3
OPAC Installation Kit	NTRX6029					RUL4
Bix Tool Kit	NTRX6030					RUL4
Red/White Cross-Connect Wire	R0105245					RUL4
Emergency Gen Mate Conn -UL (220 volt AC, 3 Wire + ground)	A0618366					RUL4
Emergency Gen Mate Conn -CSA (220 volt AC, 2 Wire + ground)	A0639808					RUL4

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
NTRX60AA Outside Plant Access Cabinet BAY 0:						
Fuse Panel	P0746078		1	45		AP
Line Concentration Array Shf	NT8X0401		2	18,32		AP
# LCM Common CP	NT8X04AB	LCM		18		RUL6
LCM Common CP	NT8X04AC	LCM		18		RUL6
LCM Common CP (ISDN)	NT6X04AE	LCM		18		RUL6
LCM Processor CP Kit	NT6X04ZY			18		RUL6
LCM Upgrade Kit (ISDN)	NT6X04ZX	LCM		18		RUL6
LCM Processor CP	NT6X51AC		2	18,32		AP-01
Digroup Controller CP	NT6X52AA		2	18,32		AP-01
Power Converter 5V/15V CP	NT6X53AA		2	18,32		AP-01
Designation Strip	P0800469		2	18,32		AP-01
Line Drawer	NT6X05AA	LD		18		RUL6
ISDN Line Drawer	NT6X05DA	LD		18		RUL6
Line Cards	AR			18,32		RUL6
Host Interface Equip Assy	NT6X1108	HIE	1	04		AP
Designation Strip HIE	P0701836			04		RUL8
Ringing Generator	NT6X60CA			04	1,5	RUL8
Designation Label NT6X60CA	P0740744			04	1,5	RUL8
Filler Face Plate	NT0X50AG			04	09	RUL8
Filler Face Plate 0.875	NT0X50AA			04	12	RUL8
Filler Face Plate 0.875	NT0X50AA			04	13	RUL8
Master Processor Memory	NT6X47AC			04	14	RUL10
Designation Label NT6X47AC	P0711821			04	14	RUL10
XPM Processor	NT6X45AF			04	15	RUL10
Designation Label NT6X45AF	P0685029			04	15	RUL10
ESA Clock And Tone	NT6X75AA			04	16	RUL10
Designation Label NT6X75AA	P0642015			04	16	RUL10
Filler Face Plate 0.875	NT0X50AA			04	14-16	RUL10
Link Control CP	NT6X73AA			04	17,18	RUL8
DS-1 Interface	NT6X50AA			04	19-21	RUL11
DS-1 Interface	NT6X50AB			04	19-21	RUL11
Designation Label NT6X50AA	P0626878			04	21	RUL11
Designation Label NT6X50AB	P0690976			04	19-21	RUL11
Filler Face Plate 0.875	NT0X50AA			04	21	RUL11

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
# Power Converter +/-5V,+/-12V	NT2X70AE			04	22, 25	RUL8
Power Converter +/-5V,+/-12V	NT2X70AF			04	22, 25	RUL8
Desig Label for NT2X70AF	P0809960			04	22, 25	RUL8
Cooling Unit	NTRX62AB			00		AP
NTRX60AA OPAC Bay 1:						
T1 Repeater Shelf	A0617243			47		AP
T1 Repeater	A0617187			47	1, 12, 2, 13, 3, 14	RUL12
Fault Locate Card	A0617586			47	21	RUL12
Order Wire Card	A0617587			47	22	RUL12
Filler Panel 19x10	P0747175			33		RUL5
Battery Charging Unit Assy	NT8X0301	BCU	1	34		AP
Battery Charger Common CP	NT8X03AC		1	34		RUL9
Battery Control CP	NT8X02AB		2	34	1, 3	AP-02
Design Label NT8X02AB	P0726700		1	34	1, 3	AP-02
Rectifier Shelf	NT5C10BQ		1	25		AP
Rectifier :00	NT5C06CA	RECT	1	25	0	AP
Rectifier :01	NT5C06CA	RECT	1	25	1	AP
Rectifier :02	NT5C06CA	RECT		25	2	RUL14
Filler Panel 2-inch	P0749249		1	23		AP
Modular Supervisory Panel	NTRX40AA	MSP	1	19		AP
OPAC MSP Packfill	NTRX60BA			19		RUL7
Talk Battery Filter	NTRX44AA		1	19	1-2	AP-03
Terminal Board	P0737326		1	19	2R	AP-03
Talk Battery Filter	NTRX44AA		1	19	3-4	AP-03
Terminal Board	P0737326		1	19	4R	AP-03
Alarm Module	NTRX41AA		1	19	5-6	AP-03
Alarm Backpanel	NTRX4002		1	19	5R-6R	AP-03
Fuse Module	NTRX43AA		1	19	7	AP-03
Fuse Module	NTRX43AA		1	19	8	AP-03
Fuse Module	NTRX43AA		1	19	9	AP-03
Breaker Module 10A/20A	NTRX42EA		1	19	10	AP-03
Breaker Module 10A/20A	NTRX42EA		1	19	11	AP-03
Breaker Module 10A/10A	NTRX42AA		1	19	12	AP-03

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Breaker Module 10A/10A	NTRX42AA		1	19	13	AP-03
Breaker Module 10A/20A	NTRX42EA		1	19	14	AP-03
Single Blank Panel 1.20"	P0734476		1	19	15	AP-03
Terminal Board	P0737326		1	19	15R	AP-03
Fuse/Breaker Module	AR			19	16-19	RUL18
Fan Alarm Module OPAC	NTRX66AA		1	19	20	AP-03
Remote Maintenance Mod Assy	NT8X0415	RMM	1	05		AP
RMM Common CP	NT6X13AB			05		RUL13
Designation Strip RMM	P0653639		1	05		AP-04
Group Codec CP	NT2X59AA		1	05	1	AP-04
RMM Control Card	NT6X74AB		1	05	2	AP-04
Met. Test Unit Analog	NT2X10BA			05	3	RUL13
Met. Test Unit Digital	NT2X11BA			05	4	RUL13
Rmt Metallic Test Access	NT3X09BA			05	5	RUL13
Rmt Metallic Test Access	NT3X09AA			05	6	RUL13
Scan Card	NT0X10AA			05	7	RUL13
Scan Card	NT0X10AA			05	8	RUL13
Incoming/Outgoing Test Trk	NT2X90AD			05	9,10	RUL13
Daughter Board	NT2X77AA			05	9,10	RUL13
# 4 Chan Digitone Receiver	NT2X48AB			05	11,13,15	RUL10
4 Chan Digitone Receiver	NT2X48BB			05	11,13,15	RUL10
Filler Face Plate	NT0X50AC			05	11,12	RUL10
Service Circuit Packs	AR			05	13-16	RUL13
Filler Face Plate	NT0X50AC			05	13-16	RUL13
Multi O/P Pwr Converter	NT2X09AA		1	05	17	AP-04
Filler Face Plate	NT0X50AA		1	05	19	AP-04
Pwr Converter Comm Feat.	NT2X06AB		1	05	20	AP-04
Cooling Unit	NTRX62AB		1	01		AP

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
NTRX60AA OPAC Bay 2 (REAR):						
Customer Provided Equipment (26 spaces of 23in Rack)	AR					RUL18
Down Draft Cooling Unit	NTRX62BA					RUL19
1.33 Amp Fuse	A0205202					RUL19
Fuse Designation Disc.	P097P235					RUL19
NTRX60AA OPAC Bay 3 (REAR):						
# Eagle-Picher Batteries	A0351179					RUL17
Eagle-Picher Batteries	A0623729					RUL17
Four Battery String Kit	NTRX63AA					RUL17
Six Battery String Kit	NTRX63AB					RUL17
Batt Strg Upgrade Kit 4 to 6	NTRX63AC					RUL17
Four String Earthquake Kit	NTRX6310					RUL17
Six String Earthquake Kit	NTRX6311					RUL17
ST Ready OC-1 Kit	NTRX66AB					RUL20
# FC Ready OC-1 Kit	NTRX66AC					RUL20
Splice Box Kit	NTRX66BA					RUL20
Fiber patch Panel kit	NTRX66CA					RUL20
4 DS-1 Short Reach Ckt. Pk.	NT2A11EA					RUL20
4 DS-1 Long Reach Ckt. Pk.	NT2A11KA					RUL20
8 DS-1 Short Reach Ckt. Pk.	NT2A12EA					RUL20
8 DS-1 Long Reach Ckt. Pk.	NT2A12KA					RUL20
14 DS-1 Short Reach Ckt. Pk.	NT2A13EA					RUL20
14 DS-1 Long Reach Ckt. Pk.	NT2A13KA					RUL20

NTRX60AA End Compartment Access:

# VF Prot. Block Kit Bix (256)	NTRX65AC					RUL15
VF Prot. Block Kit Bix (256)	NTRX65AM					RUL15
# VF Prot. Block Kit Bix (640)	NTRX65AD					RUL15
VF Prot. Block Kit Bix (640)	NTRX65AN					RUL15
# VF Upgrade Kit Bix (256 to 640)	NTRX65AE					RUL15
VF Upgrade Kit Bix (256 to 640)	NTRX65AP					RUL15

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
# VF Prot. Block Kit Screw (256)	NTRX65BC					RUL15
VF Prot. Block Kit Screw (256)	NTRX65BM					RUL15
# VF Prot. Block Kit Screw (640)	NTRX65BD					RUL15
VF Prot. Block Kit Screw (640)	NTRX65BN					RUL15
# VF Upgrde Kit Screw (256 to 640)	NTRX65BE					RUL15
VF Upgrde Kit Screw (256 to 640)	NTRX65BP					RUL15
VF Protector Block Bix	NTRX65AH					RUL18
VF Protector Block Screw	NTRX65AG					RUL18
Combo Protector Block Bix	NTRX65BF					RUL18
Combo Protector Block Screw	NTRX65BB					RUL18
DS-1 Protector Block Bix	NTRX65CA					RUL18
DS-1 Protector Block Screw	NTRX65CB					RUL18
Cable - Customer 25DS1/PCM30	NTRX6033					RUL18
Cable - Customer 25VF	NTRX6034					RUL18
Cable - Customer 78VF	NTRX6035					RUL18
Prt Mod Sld St BLK W/O Heat	A0341959					RUL16
Prt Mod Sld St RED W/O Heat	A0341960					RUL16
Prt Mod Sld St BLK W/ Heat	A0353716					RUL16
Prt Mod Sld St RED W/ Heat	A0353717					RUL16

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
A0351179	MD	A0623729
NT2X70AE	MD	NT2X70AF
NT8X04AB	MD	NT8X04AC
NTRX61CA	MD	NTRX61CG
NTRX61CB	MD	NTRX61CH
NTRX61CC	MD	NTRX61CJ
NT2X48AB	MD	NT2X48BB
NTRX65AC	STD*	NTRX65AM
NTRX65AD	STD*	NTRX65AN
NTRX65AE	DEV*	NTRX65AP
NTRX65BC	STD*	NTRX65BM
NTRX65BD	STD*	NTRX65BN
NTRX65BE	DEV*	NTRX65BP
NTRX66AC	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) Cabinet models for North American markets are the 220 Volt AC (3 Wire + ground) cabinet which operates on a 220 volt system except for the heater units which operate on 110 volts. See body of ECM562 for additional information.
- 2) Rating marked "*" indicates that the PEC is not Manufacture Discontinued; however, replaced by another PEC. Check Availability prior to ordering.

RULES:

- AP 1) When PEC NTRX60AA is ordered, these items are provided.

- AP-01 1) When PEC NT8X04AC is provided these items are Always Provided.
- AP-02 1) When PEC NT8X03AC is provided these items are Always Provided.
- AP-03 1) When PEC NTRX60BA is provided these items are Always Provided.
- AP-04 1) When PEC NT6X13AB is provided these items are Always Provided.
- RUL1 1) Provide one (1) Outside Plant Access Cabinet, NTRX60AA.
- RUL2 1) Provide one (1) OPAC Cabinet Model in accordance with the desired color option for the OPAC. These cabinet assemblies come with an Air Induction Roof which uses outside air for cooling purposes. Also, provide one (1) Touch-Up Paint to be shipped-loose to the OPAC site. NOTE: If cabinet color option Green is selected, delivery time is increased by four weeks.

Provide the CSA Cabinet Models for all OPACs installed in Canada. Provide the UL Cabinet Models for all other OPACs.

Provide the Heater Kit for UL cabinets in the following states: AK., CO., ID., IL., IN., IA., ME., MA., MI., MN., MT., NE., NH., NY., ND., SD., VT., WI., and WY.

The Heater Kit is not needed in the remaining U.S. States or Caribbean Islands.

The heater kit is always provided as part of the the CSA Models.

It is strongly recommended that the heater kit be mounted by the shop when required for the states listed above. Although, the heater kit can be installed in the field.

- RUL3 1) There are two sizes of concrete pads available for mounting the OPAC Cabinet. Select per Telco preference. The 30-inch skirt provides enough room for a maintenance person to stand on the concrete pad instead of the ground. Provide one (1) NT7A52DA for each OPAC requiring a concrete pad with a 10-inch skirt around the bottom of the OPAC cabinet. Provide one (1) NT7A52GA for each OPAC requiring a concrete pad with a 30-inch skirt around the bottom of the OPAC cabinet. The NT7A52DA or NT7A52GA are to be SHIPPED

LOOSE to site for the customers use in pouring the concrete pad in advance of the OPAC delivery.

- 2) Provide one (1) Concrete Pad Sealant Kit for each OPAC. This item shall be shipped loose to site with the above Anchor Plate Kits.
- 3) Any mounting other than Concrete Pad is not supported.
- 4) For all OPAC installations engineered in the U.S., an RFS for advance shipment of the above items must be initiated by the Systems Engineer as soon as the mounting arrangement is identified. An advance ship note must be placed in the specification and referenced against the material or an Advance Ship Spec should be issued by the EAE.

RUL4 1) Equipment ordered per rule 4 is to be shipped loose to site.

- 2) Provide one (1) OPAC Installation Kit for every OPAC ordered.
- 3) Provide one (1) Bix Tool Kit if tools from NT are required for terminating Bix connections. The Telco can also provide their own tools if so desired. This kit is not required for OPACs equipped with screw type blocks.
- 4) Optionally, provide one (1) 1500-ft roll of Red/White Wire to be used for end compartment cross-connects. The Telco can also provide their own cross-connect wire if so desired.
- 5) Provide one (1) Emergency Generator Mating Connector, UL for US/CALA or CSA for Canadian markets, when connection of the OPAC to an emergency generator is required. The Telco can also provide their own mating connector if so desired.

RUL5 1) Provide one (1) Filler Panel 19x10 in Shelf 33.

RUL6 1) Refer to Host LCM Provisioning rules for line card provisioning.

- 2) Provide one (1) NT8X04AC LCM Common CP for Shelf 18.
- 3) Provide one (1) Line Drawer NT6X05AA to accommodate up to sixty four line cards in two line sub groups (LSG's) on the OPAC.

- 4) Provide one (1) NT8X04AC LCM CP for shelf 18. This packfill provides the controller cards for both Shelf 18 and 32. Existing OPACs can be upgraded to the NT8X04AC LCM by providing one(1) NT6X04ZY LCM Processor CP Kit. This kit upgrades the LCM Processor with LED Activity indicators by changing the NT6X51AB cards with the NT6X51AC cards.
 - 5) For ISDN applications (NT6X05DA), provide one (1) NT6X04ZX LCM processor CP Kit. This kit upgrades the LCM processor and labels to NT6X51DAs required for clear channel capability. Pack fill NT6X04AE. Use of the NT6X04AE requires the use of NT6X50ABs in both the host and remote equipment.
 - 6) Only 1 ILD can be defined in each LCA (Line Concentrating Array). ISDN Line Drawer can not be applied to positions 0 or 10. Preferred positions for locating the ISDN Line Drawer is 8 or 18. This means that if the ILD drawer number of the first ILD is within the range 2 - 8, the next ILD to be defined in this LCM will have its drawer number within the range 12 - 18. This limitation exists in order to permit an optimal heat dispersion in the LCM.
 - 7) Two (2) of the ten line drawers for each LCM may be NT6X05DA ISDN Line Drawers, one per shelf. Use of an NT6X05DA ISDN Line Drawer requires use of NT6X0 4AE and NT6X50ABs for clear channel capability.
- RUL7 1) Provide one (1) OPAC MSP Packfill for Shelf 19. The packfill provides enough filler panels to cover slots 16-19 if the optional Fuse/Breaker modules are not ordered.
- RUL8 1) Provide one (1) Designation Strip HIE for Shelf 04.
- 2) Provide the following cards for the HIE Shelf:
 - One (1) NT6X60CA CP in Slot 01 of HIE Shelf
 - One (1) NT6X60CA CP in Slot 05 of HIE Shelf
 - One (1) NT0X50AG CP in Slot 09 of HIE Shelf
 - One (1) NT0X50AA CP in Slot 12 of HIE Shelf
 - One (1) NT0X50AA CP in Slot 13 of HIE Shelf
 - One (1) NT6X73AA CP in Slot 17 of HIE Shelf
 - One (1) NT6X73AA CP in Slot 18 of HIE Shelf
 - One (1) NT2X70AF CP in Slot 22 of HIE Shelf
 - One (1) NT2X70AF CP in Slot 25 of HIE Shelf
 - 3) Provide one (1) Designation Label for Slots 01,05,22,25 of HIE Shelf. The other cards are shown on the Designation Strip HIE and do not require additional labels.

RUL9 1) Provide one (1) Battery Charger Common CP for Shelf 34.

RUL10 1) If the ESA option is specified, provide the following cards and their designation labels in the HIE Shelf:

One (1) NT6X47AC CP in Slot 14 of HIE Shelf
One (1) NT6X45AF CP in Slot 15 of HIE Shelf
One (1) NT6X75AA CP in Slot 16 of HIE Shelf

If the ESA option is not specified, provide one (1) NT0X50AA, Filler Face Plate, in Slots 14-16 of the HIE Shelf.

2) If the ESA option is specified, also provide a minimum of one (1) NT2X48BB (Domestic) 4 Channel Digitone Receiver, in Slot 11 of the RMM Shelf. The NT2X48BB is a 1-slot card. If the ESA option is not specified, instead provide one (1) NT0X50AC, Filler Face Plate, in Slots 11-12 of the RMM Shelf.

The actual number of NT2X48BB CPs to be provided shall be based on traffic. Any additional Digitone Receivers required above the minimum of one (1) shall be located in Slots 13-16 of the RMM Shelf.

RUL11 1) Provide two (1) NT6X50AA, DS-1 Interface, in position 19-20 of the HIE Shelf. The labels for these two cards are included on the HIE Designation Strip.

If the Telco prefers, provide instead two (2) NT6X50AB, DS-1 Interface, in position 19-20 of the HIE Shelf. Also, provide two (2) P0690976, Designation Label for NT6X50AB. Circuit pack vintage must match ckt.pack type in host office.

2) Provide one (1) NT6X50AA/AB, DS-1 Interface, in position 21 of the HIE Shelf when the DS-1 links 5 and 6 are required to the Host. This NT6X50 CP MUST be the same vintage as already ordered for position 19-20. Also, provide one (1) designation label for position 21. Circuit pack vintage must match ckt.pack type in host office.

Otherwise, provide (1) Filler Face Plate for each unequipped position 21 in the HIE Shelf.

3) For ISDN applications, NT6X50AAS must be replaced with NT6X50ABs in both host and remote equipment. Provide designation strips for each NT6X50AB provisioned.

- RUL12 1) Provide one (1) Repeater per DS-1 Link to the Host Office. Assign repeaters in order shown below:

HIE SHELF 6X50 CP POSITION	DS-1 PORT	REPEATER CP POS
19	0	1
19	2	2
20	1	12
20	3	13
21	4	3
21	5	14

- 2) Provide Fault Locate and/or Order Wire Cards if the Telco requires fault locate and/or order wire functions.
- 3) Positions 4-6 and 15-17 are wired for optional Customer Repeaters. Remaining slots 7-11 and 18-22 are powered, but not wired.

- RUL13 1) Provide one (1) NT6X13AB RMM Common CP for every OPAC see section 2. This packfill contains the controller cards for the RMM in Shelf 05.

- 2) Provide the following cards for the RMM Shelf (Domestic):

One (1) NT2X10BA CP in Slot 03 of RMM Shelf
 One (1) NT2X11BA CP in Slot 04 of RMM Shelf
 One (1) NT3X09BA CP in Slot 05 of RMM Shelf
 One (1) NT3X09AA CP in Slot 06 of RMM Shelf
 One (1) NT0X10AA CP in Slot 07 of RMM Shelf
 One (1) NT0X10AA CP in Slot 08 of RMM Shelf
 One (1) NT2X90AD CP in Slot 09 of RMM Shelf
 One (1) NT2X77AA CP in Slot 09 of RMM Shelf
 One (1) NT2X90AD CP in Slot 10 of RMM Shelf
 One (1) NT2X77AA CP in Slot 10 of RMM Shelf

- 3) If additional service circuits are required in card slot 13- 16 refer to section T_RMM_CARDS and provision as required.
- 4) Provide one (1) NT0X50AC for each unequipped position 11-16.

RUL14 1) Provide the 3rd Rectifier (Rectifier :02) in Bay 1, Shelf 25 when additional power is required for the optional customer equipment (See RUL18).

RUL15 1) When provisioning the End Compartment the provisioner must choose the circuit termination methodology. This selection is totally dependant on the Telco's preference.

There are two choices: Bix or Screw. These termination kits contain the gate, blocks, and mounting hardware. Line Drawers are no longer provided in these kits.

The blocks are enough to terminate the LCM, HIE and RMM equipment. These kits also contain the blocks for terminating Outside Plant Pairs. The Bix kits can terminate a maximum of (1100) outside plant pairs, and the Screw kits can terminate a maximum of (800) outside plant pairs.

See Rule 18 for provisionable blocks for customer equipment.

RUL16 1) Protector modules are provisioned per Customer requirements. Provide a maximum of (100) protector modules per block, where each signal wire pair requires a protector module. The 640-kits come with eight (8) blocks, and the 256-kits come with four (4) blocks. Since the OPAC can be provisioned with a total of ten (10) blocks (See RUL18), the maximum amount of protector modules that can be provided is (1000). Provide the appropriate amount from the available list. The type of protector module is based on Customer preference.

All Protector Modules are to be SHIPPED LOOSE to site.

RUL17 1) Provision Battery Strings for battery backup in an OPAC. There are two (2) battery options available for the OPAC: Eagle-Picher or Telco-Provided Batteries. Provide the Eagle-Picher Batteries for all Initial OPACs, unless the Telco prefers to provide their own batteries. Refer to the appropriate section in this Rule for provisioning information on the available options.

2) EAGLE-PICHER BATTERIES:

The battery strings must be provided in the following string pairs for a maximum of six (6) strings:

Pair 1 Strings 0 and 4

Pair 2 Strings 1 and 5
Pair 3 Strings 2 and 6

Since a minimum of four (4) battery strings must be provided, the Eagle-Picher Batteries are only available with a 4-String Option or a 6-String Option. The 4-String Option provides 8 Hours of battery backup only when no customer equipment is powered from the OPAC. If customer equipment is powered from the OPAC (See RUL18), then the 6-String Option must be provided if 8 Hours of battery backup is required.

Various kits are available that contain all the battery hardware, such as trays, cables, etc. However, the batteries are not contained in these kits and must be ordered separately. Select one of the options below and order the items listed (ONLY order the earthquake kits if earthquake compliance in Zones 3 & 4 is required):

4-Strings (Initials):

Provide one (1) NTRX63AA, Four Battery String Kit
Provide (32) A0623729, Eagle-Picher Battery 6V
Provide one (1) NTRX6310, Four String Earthquake Kit

6-Strings (Initials):

Provide one (1) NTRX63AB, Six Battery String Kit
Provide (48) A0623729, Eagle-Picher Battery 6V
Provide one (1) NTRX6311, Six String Earthquake Kit

2-String Upgrade (Extentions):

Provide one (1) NTRX63AC, Battery String Upgrade Kit 4 to 6
Provide (16) A0623729, Eagle-Picher Battery 6V

3) TELCO-PROVIDED BATTERIES:

ALL EQUIPMENT for the Telco-Provided Battery Option shall be supplied by the customer.

NOTE: Northern Telecom does not guarantee compatability of other batteries with OPAC.

- RUL18 1) The OPAC has space available to mount customer equipment in the rear of the cabinet. Bay 2 has 26 vertical mounting spaces of 23inch rack available.

All equipment mounted on Bay 2, as well as any optional protector blocks and fusing for the equipment, are to be SHIPPED LOOSE to site for installation by the customer or Nortel.

- 2) A maximum of twenty amps (20A) is available to power customer equipment from Slots 16-19 on the Modular Supervisory Panel (MSP). Provision P0734476 filler panels for any unused slots 16-19. The P0734476 filler panels will be mounted by shop. A maximum of three (3) Fuse Modules and four (4) Breaker Modules may be provisioned in any combination in these four slots. Each Breaker Module consists of two (2) breakers, and each Fuse Module accommodates eight (8) plug-in QFF fuses. Cabling kits are also available to cable the Fuse/Breaker Module to the customer equipment, where EACH Fuse/Breaker Module requires one (1) appropriate Cabling Kit. Based on customer requirements, provide the appropriate amount of the following available items and SHIP LOOSE to site:

PEC	DESCRIPTION	DESIG. DISC
NTRX60CA	Breaker Module Cabling Kit	--
NTRX42AA	Breaker Module 10A/10A	--
NTRX42BA	Breaker Module 15A/15A	--
NTRX42CA	Breaker Module 20A/20A	--
NTRX42DA	Breaker Module 10A/15A	--
NTRX42EA	Breaker Module 10A/20A	--
NTRX42FA	Breaker Module 15A/20A	--
NTRX60CB	Fuse Module Cabling Kit	--
NTRX43AA	Fuse Module	--
A0205202	Fuse 1.33A White (QFF1A)	P097P235
A0205203	Fuse 2.00A Orange (QFF1B)	P097P236
A0205204	Fuse 3.00A Blue (QFF1C)	P097P237
A0205205	Fuse 5.00A Green (QFF1D)	P097P238
A0205206	Fuse 0.18A Yellow (QFF1E)	P097P239
A0205207	Fuse 0.25A Violet (QFF1F)	P097P240
A0205208	Fuse 0.50A Red (QFF1G)	P097P241
A0205209	Fuse 0.75A Brown (QFF1H)	P097P242
A0205210	Fuse Dummy (QFF3A)	--

- 3) Provide the following additional equipment when a NTRX66AB or NTRX66AC OC-1 kit is provided per rule 20.

PEC	DESCRIPTION	DESIG. DISC	QTY.
NTRX43AA	Fuse Module	--	1
A0205202	Fuse 1.33A White (QFF1A)	P097P235	2
A0205210	Fuse Dummy	--	6
P0737433	Fuse Module Cover	--	5
P0804800	Fuse Module Blank label	--	1

NTRX6032	Power Jumper 1 to 4 Slots	--	2
NTRX4054	Power Jumper P1 to P2	--	1
P0749702	Label Sheet	--	1

The NTRX43AA mounts in MSP any available slot 16-19.

The A0205202 1.33 Amp Fuses mount in two (2) fuse positions of the NTRX43AA.

The A0205210 Dummy Fuses mount in the remaining empty fuse positions.

- 4) A maximum of two (2) Protector Blocks (Blocks 9 and 10) can be provided in the End Compartment to terminate customer equipment. These blocks MUST be the same choice as provided in RUL15, i.e. Bix or Screw. These blocks should be SHIPPED LOOSE to site.

VF, Combo, and DS-1 blocks are the available choices for customer equipment terminations in the OPAC:

VF (Voice Frequency)-NTRX65AH (Bix), and NTRX65AG (Screw) VF blocks provide 100 pair for analog terminations. Provide three (3) NTRX6035 Cables for EACH customer VF Block that is provided.

Combo (T1/Special Service)-NTRX65BF (Bix), and NTRX65BB.(Screw) Combo blocks can terminate 100 pr. total.(12 pair T1s (24 pair) and 76 pair analog). Provide two (2) NTRX6035 Cables, One (1) NTRX6034 Cable, and Two (2) NTRX6033 Cables for EACH customer VF Combo that is provided.

DS-1- NTRX65CA (Bix), and NTRX65CB (Screw). DS-1 blocks can terminate 36 T1s (72 pair) only. Provide six (6) NTRX6033 Cables for EACH customer DS-1 Block that is provided.

- RUL19 1) The Down Draft Cooling Unit contains the following equipment: NTRX6048 Power and Alarm Cable Assembly, P0805283 Tray Assembly, P0805284 Chassis Assembly, A0640828 DDCU Fan, and P0815362 MSP label. Equipment will be SHIPPED LOOSE and installed on site. Equipment will be located in bay 2 at rear of left gate above customer furnished equipment.
- 2) Provide two (2) 1.33 Amp fuses and two (2) designation discs to be mounted in MSP slot 08 in postions F05 and F06.

- RUL20 1) Two (2) choices of OC-1 kits are offered. The ST Ready Kit (NTRX66AB) has cords with ST connectors on the patch panel end and on the OC-1 end. The NTRX66AB is comprised of an OC-1 shelf assembly, ST adapters, RCE Mounting assembly, cables, & misc. hardware. This kit provides ST connections at the patch panel which can accommodate ST or FC connections. The OC-1 can only accommodate ST connections.

The FC Ready Kit (NTRX66AC) has cords with FC connectors on the patch panel end and ST connectors on the OC-1 end. The NTRX66AC is comprised of an OC-1 shelf assembly, FC adapters, RCE Mounting assembly, cables, & misc. hardware. This kit provides FC connections at the patch panel which can accommodate ST or FC connections. The OC-1 can only accommodate ST connections. NTRX66AC is now MD with no replacement.

- 2) When NTRX66AB or NTRX66AC (MD) kits are ordered, the customer can order one (1) or two (2) of the following circuit packs. The two (2) packs must be identical. The Short Reach packs are for use when the OPAC is less than six (6) miles from the host office. The Long Reach packs are for use when the OPAC is six (6) miles or greater from the host office.
- | | | |
|----------|-------------|---------------------------------|
| NT2A11EA | OC-1 module | 4 DS-1 Short Reach (ST. Conn.) |
| NT2A11KA | OC-1 module | 4 DS-1 Long Reach (ST. Conn.) |
| NT2A12EA | OC-1 module | 8 DS-1 Short Reach (ST. Conn.) |
| NT2A12KA | OC-1 module | 8 DS-1 Long Reach (ST. Conn.) |
| NT2A13EA | OC-1 module | 14 DS-1 Short Reach (ST. Conn.) |
| NT2A13KA | OC-1 module | 14 DS-1 Long Reach (ST. Conn.) |
- 3) When NTRX66AB or NTRX66AC kits are ordered, the MSP must have additional equipment to support the OC-1 option. See rule 18 section 3 for equipment provisioning information.
- 4) Four OC-1 Fiber configurations can be provided: Total OC-1 Solution, Splice Box Kit and Patch Panel Kit, Splice Box Kit only, and Patch Panel Kit Only.

A Total Fiber OC-1 solution consists of a NTRX66AB or NTRX66AC (MD), along with a Splice Box Kit and a Patch Panel Kit.

A Splice Box Kit configuration is equipped with 4 trays. Each tray with 24 fiber connections each. This provides splice management of outside fiber to inside fiber.

A Patch Panel Kit only Configuration is equipped to handle 24 fiber connections maximum. This configuration is used to cross-connect external fiber to internal fiber units.

A Patch Panel Kit and Splice Box Kit Configuration are also optionally provisionable for customer provided (other vendors) fiber shelves when OC-1 is not required.

INTL OPAC.

PEC CODE: INTRX60AA

CPC CODE: B0239358

RATING: Standard

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: OPAC

ENGINEERING DESCRIPTION: The International Outside Plant Access Cabinet (OPAC) is similar to the RLCM in features, capacity etc., however, the equipment is housed in an environmentally controlled cabinet, and is mounted in an outdoor environment. The OPAC supports up to 640 lines. It employs from 2-6 DS1 or 2-6 PCM-30 links to communicate with the host DMS.

The following equipment is provisioned standard in the OPAC cabinet: HIE, LCM, RMM, MSP, Termination Compartment, Battery Charging Unit, Rectifiers, and Environmental Control Equipment such as Fans and Heaters.

REFERENCE DOCUMENTATION: MSRX60AA 00 12
SLRX60AA 00 05

MARKETS: Applicable markets:
Asia/Pacific

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

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

INTRX60AA EMA2-13-200 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 12 04	ECM 562 09	Introduce Protector Block Cost savings per EC 024-94417. Introduce Down draft Cooling unit per EC 024-93889. Introduce OC-1 fiber equipment per EC 024-94656. Introduce Heater Units per EC 024-95030.
96 02 06	ECM 562 11	Introduce INTRX60AA back into ECM562.
96 04 11	ECM 562 12	Introduces 220 volt AC options for international markets per EC024-95603.
96 07 03	ECM 562 13	Assign A0 part numbers to vendor equipment.
97 05 20	ECM 562 17	Include 220 outlet kit for Malaysia per EC 024-97157.
97 06 27	ECM 562 18	Correct provisioning rules for MSP filler panels per SR RR73986.
97 07 02	ECM 562 19	Correct CP rating where not MD'ed but replaced in specific applications. Per SR RR76804 and RR77099.

The Intl OPAC. is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Outside Plant Access Cabinet	NTRX60AA					RUL1
Cabinet Model (Brown) - UL (220 volt AC, 3 Wire + ground w/out Heaters)	NTRX61CG					RUL2
Cabinet Model (Ivory) - UL (220 volt AC, 3 Wire + ground w/out Heaters)	NTRX61CH					RUL2
Cabinet Model (Green) - UL (220 volt AC, 3 Wire + ground w/out Heaters)	NTRX61CJ					RUL2
110 volt Heater Kit	NTRX6108					RUL2
Cabinet Model (Brown) - UL (220 volt AC, 2 Wire + ground w/out Heaters)	NTRX61CK					RUL2
Cabinet Model (Ivory) - UL (220 volt AC, 2 Wire + ground w/out Heaters)	NTRX61CL					RUL2
Cabinet Model (Green) - UL (220 volt AC, 2 Wire + ground w/out Heaters)	NTRX61CM					RUL2
220 volt Heater Kit	NTRX6124					RUL2
220 Volt OPAC Outlet Kit (2 Wire + ground-Philippines)	NTRX6126					RUL2
220 Volt OPAC Outlet Kit (2 Wire + ground-China)	NTRX6127					RUL2
220 Volt OPAC Outlet Kit (2 Wire + ground-India)	NTRX6128					RUL2
220 Volt OPAC Outlet Kit (2 Wire + ground-Malaysia)	NTRX6129					RUL2
Touch-Up Paint (Brown)	R0115917					RUL2
Touch-Up Paint (Ivory)	R0115497					RUL2
Touch-Up Paint (Green)	R0115496					RUL2
Anchor Plate Kit 10in Skirt	NT7A52DA					RUL3
Anchor Plate Kit 30in Skirt	NT7A52GA					RUL3
Concrete Pad Sealant Kit	P0738444					RUL3
OPAC Installation Kit	NTRX6029					RUL4
Bix Tool Kit	NTRX6030					RUL4
Red/White Cross-Connect Wire	R0105245					RUL4

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Emergency Gen Mate Conn -UL (220 volt AC, 3 Wire + ground)	A0618366					RUL4
Emergency Gen Mate Conn -UL (220 volt AC, 2 Wire + ground)	A0656114					RUL4

NTRX60AA Outside Plant Access Cabinet BAY 0:

Fuse Panel	P0746078		1	45		AP
Line Concentration Array Shf	NT8X0401		2	18,32		AP
LCM Common CP/International	NT6X04BC	LCM		18		RUL6
LCM Processor CP	NT6X51AC		2	18,32		AP-01
Digroup Controller CP	NT6X52AA		2	18,32		AP-01
Power Converter 5V/15V CP	NT6X53AA		2	18,32		AP-01
Designation Strip	P0800469		2	18,32		AP-01
Line Cards	AR			18,32		RUL6
Host Interface Equip Assy	NT6X1108	HIE	1	04		AP
Designation Strip HIE	P0701836			04		RUL8
HIE Packfill (Malaysia)	NT6X11EB			04		RUL8
Filler Face Plate 0.875	NT0X50AA			04	12	AP-06
Link Control CP	NT6X73BA			04	17,18	AP-06
PCM-30 Interface	NT6X27AB			04	19-20	AP-06
Ringling Generator (Intl)	NT6X60DA			04	1,5	RUL8
Designation Label NT6X60DA	P0698237			04	1,5	RUL8
Ringling Generator (Maylasia)	NT6X60AE			04	1,5	RUL8
Designation Label NT6X60AE	P0749008			04	1,5	RUL8
Filler Face Plate	NT0X50AG			04	09	RUL8
Filler Face Plate 0.875	NT0X50AA			04	12	RUL8
Filler Face Plate 0.875	NT0X50AA			04	13	RUL8
Master Processor Memory	NT6X47AC			04	14	RUL10
Designation Label NT6X47AC	P0711821			04	14	RUL10
XPM Processor	NT6X45AF			04	15	RUL10
Designation Label NT6X45AF	P0685029			04	15	RUL10
ESA Clock And Tone (China/Philippines)	NT6X75KA			04	16	RUL10
Designation Label NT6X75KA	P0698235			04	16	RUL10

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
ESA Clock And Tone (Malaysia)	NT6X75EA			04	16	RUL10
Designation Label NT6X75EA	P0695207			04	16	RUL10
Filler Face Plate 0.875	NT0X50AA			04	14-16	RUL10
Link Control CP (Intl)	NT6X73BA			04	17,18	RUL8
PCM-30 Interface	NT6X27BB			04	19-21	RUL11
Designation Label NT6X27BB	P0739157			04	19-21	RUL11
Filler Face Plate 0.875	NT0X50AA			04	21	RUL11
# Power Converter +/-5V, +/-12V	NT2X70AE			04	22,25	RUL8
Power Converter +/-5V, +/-12V	NT2X70AF			04	22,25	RUL8
Desig Label for NT2X70AF	P0809960			04	22,25	RUL8

Cooling Unit

NTRX62AB

00

AP

NTRX60AA OPAC Bay 1:

T1 Repeater Shelf

A0617243

47

AP

Filler Panel 19x10

P0747175

33

RUL5

Battery Charging Unit Assy

NT8X0301

BCU

1

34

AP

Battery Charger Common CP

NT8X03AC

1

34

RUL9

Battery Control CP

NT8X02AB

2

34

1,3

AP-02

Design Label NT8X02AB

P0726700

1

34

1,3

AP-02

Rectifier Shelf

NT5C10BQ

1

25

AP

Rectifier :00

NT5C06CA

RECT

1

25

0

AP

Rectifier :01

NT5C06CA

RECT

1

25

1

AP

Rectifier :02

NT5C06CA

RECT

1

25

2

RUL14

Filler Panel 2-inch

P0749249

1

23

AP

Modular Supervisory Panel

NTRX40AA

MSP

1

19

AP

OPAC MSP Packfill

NTRX60BA

1

19

RUL7

Talk Battery Filter

NTRX44AA

1

19

1-2

AP-03

Active Equipment
Intl OPAC.INTRX60AA
EMA2-13-200
Page 5

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Terminal Board	P0737326		1	19	2R	AP-03
Talk Battery Filter	NTRX44AA		1	19	3-4	AP-03
Terminal Board	P0737326		1	19	4R	AP-03
Alarm Module	NTRX41AA		1	19	5-6	AP-03
Alarm Backpanel	NTRX4002		1	19	5R-6R	AP-03
Fuse Module	NTRX43AA		1	19	7	AP-03
Fuse Module	NTRX43AA		1	19	8	AP-03
Fuse Module	NTRX43AA		1	19	9	AP-03
Fuse Module	NTRX43AA		1	19	16	RUL18
Breaker Module 10A/20A	NTRX42EA		1	19	10	AP-03
Breaker Module 10A/20A	NTRX42EA		1	19	11	AP-03
Breaker Module 10A/10A	NTRX42AA		1	19	12	AP-03
Breaker Module 10A/10A	NTRX42AA		1	19	13	AP-03
Breaker Module 10A/20A	NTRX42EA		1	19	14	AP-03
Single Blank Panel 1.20"	P0734476		1	19	15	AP-03
Terminal Board	P0737326		1	19	15R	AP-03
Fuse/Breaker Module	AR			19	16-19	RUL18
Fan Alarm Module OPAC	NTRX66AA		1	19	20	AP-03
Remote Maintenance Mod Assy	NT8X0415	RMM	1	05		AP
RMM Common CP	NT6X13BA			05		RUL13
(Intl)						
Designation Strip RMM	P0653639		1	05		AP-04
Group Codec CP	NT2X59AA		1	05	1	AP-04
RMM Control Card	NT6X74AB		1	05	2	AP-04
Multi O/P Pwr Converter	NT2X09AA		1	05	17	AP-04
Filler Face Plate	NT0X50AA		1	05	19	AP-04
Pwr Converter Comm Feat.	NT2X06AB		1	05	20	AP-04
RMM Common CP	NT6X13EA			05		RUL13
(Malaysia)						
Designation Strip (NT6X13EA)	P0685013		1	05		AP-05
A-Law TM CODEC E/W BT Tone	NT2X59CA		1	05	1	AP-05
RMM Control Card	NT6X74AB		1	05	2	AP-05
Multi O/P Pwr Converter	NT2X09AA		1	05	17	AP-05
Filler Face Plate	NT0X50AA		1	05	19	AP-05
Pwr Converter Comm Feat.	NT2X06AB		1	05	20	AP-05
Rmt Metallic Test Access	NT3X09BA			05	5	RUL13
Rmt Metallic Test Access	NT3X09AA			05	6	RUL13
Scan Card	NT0X10AA			05	7	RUL13
Scan Card	NT0X10AA			05	8	RUL13
Incoming/Outgoing Test Trk	NT2X90AD			05	9,10	RUL13

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Daughter Board (Intl)	NT2X77BA			05	9,10	RUL13
4 Chan Digitone Receiver	NT2X48CC			05	11	RUL10
Filler Face Plate	NT0X50AC			05	11,12	RUL10
Service Circuit Packs	AR			05	13-16	RUL13
Remote Metallic Tst Access	NT4X97AA			05	4	RUL13
Multi Line Test Analog	NT4X98BB			05	3	RUL13
A-LAW DTMF Receiver	NT2X48CC			05	13,15	RUL10
Filler Face Plate	NT0X50AC			05	13-16	RUL13
Cooling Unit	NTRX62AB		1	01		AP

NTRX60AA OPAC Bay 2 (REAR):

Customer Provided Equipment (26 spaces of 23in Rack)	AR					RUL18
Down Draft Cooling Unit	NTRX62BA					RUL19
1.33 Amp Fuse	A0205202					RUL19
Fuse Designation Disc.	P097P235					RUL19

NTRX60AA OPAC Bay 3 (REAR):

# Eagle-Picher Batteries	A0351179					RUL17
Eagle-Picher Batteries	A0623729					RUL17
Four Battery String Kit	NTRX63AA					RUL17
Six Battery String Kit	NTRX63AB					RUL17
Batt Strg Upgrade Kit 4 to 6	NTRX63AC					RUL17
Four String Earthquake Kit	NTRX6310					RUL17
Six String Earthquake Kit	NTRX6311					RUL17

NTRX60AA End Compartment Access:

Prot. Block Kit Bix (256) PCM-30 (Intl.)	NTRX65AJ					RUL15

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Prot. Block Kit Bix (640) PCM-30 (Intl.)	NTRX65AK					RUL15
# VF Upgrade Kit Bix (256 to 640)	NTRX65AE					RUL15
VF Upgrade Kit Bix (256 to 640)	NTRX65AQ					RUL15
Prot. Block Kit Screw (256) PCM-30 (Intl.)	NTRX65BJ					RUL15
Prot. Block Kit Screw (640) PCM-30 (Intl.)	NTRX65BK					RUL15
# VF Upgrde Kit Screw (256 to 640)	NTRX65BE					RUL15
VF Upgrde Kit Screw (256 to 640)	NTRX65BQ					RUL15
VF Protector Block Bix	NTRX65AH					RUL18
VF Protector Block Screw	NTRX65AG					RUL18
PCM-30 Combo Protector Blk Bix	NTRX65BL					RUL18
PCM-30 Combo Protector Blk Screw	NTRX65BH					RUL18
PCM-30 Protector Block Bix	NTRX65CD					RUL18
PCM-30 Protector Block Screw	NTRX65CE					RUL18
Cable - Customer 25DS1/PCM30	NTRX6033					RUL18
Cable - Customer 25VF	NTRX6034					RUL18
Cable - Customer 78VF	NTRX6035					RUL18
Prt Mod Sld St BLK W/O Heat	A0341959					RUL16
Prt Mod Sld St RED W/O Heat	A0341960					RUL16
Prt Mod Sld St BLK W/ Heat	A0353716					RUL16
Prt Mod Sld St RED W/ Heat	A0353717					RUL16

EQUIPMENT FLAGGED '##':

PEC	RATING	REPLACED BY PEC
A0351179	MD	A0623729
NT2X70AE	MD	NT2X70AF
NTRX65AE	DEV*	NTRX65AQ
NTRX65BE	DEV*	NTRX65BQ

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) Cabinet models are divided into two (2) styles. The 220 Volt AC (3 Wire + ground) cabinet operates on a 220 volt system except for the heater units which operate on 110 volts. These cabinets can be provisioned for Domestic or International markets.

The 220 Volt AC (2 Wire + ground) cabinet operates on a 220 volt system and the heater units also operate on 220 volts. These cabinets can be provisioned for International markets only.

- 2) Rating marked "*" indicates that the PEC is not Manufacture Discontinued; however, replaced by another PEC. Check Availability prior to ordering.

RULES:

- AP 1) When PEC INTRX60AA is ordered, these items are provided.

- AP-01 1) When PEC NT8X04AB is provided these items are Always Provided.
- AP-02 1) When PEC NT8X03AC is provided these items are Always Provided.
- AP-03 1) When PEC NTRX60BA is provided these items are Always Provided.
- AP-04 1) When PEC NT6X13BA is provided these items are Always Provided.
- AP-05 1) When PEC NT6X13EA is provided these items are Always Provided.
- AP-06 1) When PEC NT6X11EB is provided these items are Always Provided.
- RUL1 1) Provide one (1) Outside Plant Access Cabinet, NTRX60AA.
- RUL2 1) Provide one (1) OPAC Cabinet Model in accordance with the desired color option for the OPAC.
- 2) For International markets that require 220 Volt (3 Wire + ground) AC power for the OPAC, provide the NTRX61CG, CH, or CJ.
- 3) For International markets that require 220 Volt (2 Wire + ground) AC power for the OPAC, provide the NTRX61CK, CL, or CM.
- 4) These cabinet assemblies come with an Air Induction Roof which uses outside air for cooling purposes.
- 5) Also, provide one (1) Touch-Up Paint to be shipped-loose to the OPAC site. NOTE: If cabinet color option Green is selected, delivery time is increased by four weeks.
- 6) The NTRX6108 110 Volt AC Heater Kit is not needed in the Caribbean Islands and the Philippines. This heater is provisionable with the 220 Volt AC (3 Wire + ground) cabinets NTRX61CG, CH, or CJ.
- 7) The NTRX6124 220 Volt AC (2 Wire + ground) Heater Kit is not needed in the Caribbean Islands and the Philippines, but is provisionable for International markets (China and

India only). This heater is provisionable with the 220 Volt AC (2 Wire + ground) cabinets NTRX61CK, CL, or CM.

- 8) Provide the respective 220 Volt AC (2 Wire + ground) Outlet Kit (dependent upon market: Philippines, China, India, or Malaysia) for the NTRX61CK, CL, or CM OPAC Cabinet Model. This kits can only be provided for these markets and the 220 Volt AC (2 Wire + ground) model cabinets.
- 9) It is strongly recommended that the heater kit be mounted by the shop although, the heater kit can be installed in the field.
- 10) If the ambient temperature for the international site is at or below 0 degrees Fahrenheit, then provide heaters for the respective cabinets.

- RUL3
- 1) There are two sizes of concrete pads available for mounting the OPAC Cabinet. Select per Telco preference. The 30-inch skirt provides enough room for a maintenance person to stand on the concrete pad instead of the ground. Provide one (1) NT7A52DA for each OPAC requiring a concrete pad with a 10-inch skirt around the bottom of the OPAC cabinet. Provide one (1) NT7A52GA for each OPAC requiring a concrete pad with a 30-inch skirt around the bottom of the OPAC cabinet.

The NT7A52DA or NT7A52GA are to be SHIPPED LOOSE to site for the customers use in pouring the concrete pad in advance of the OPAC delivery.

- 2) Provide one (1) Concrete Pad Sealant Kit for each OPAC. This item shall be SHIPPED LOOSE to site with the above Anchor Plate Kits.
- 3) Any mounting other than Concrete Pad is not supported.

- RUL4
- 1) Equipment ordered per rule 4 is to be SHIPPED LOOSE to site.
 - 2) Provide one (1) OPAC Installation Kit for every OPAC ordered.
 - 3) Provide one (1) Bix Tool Kit if tools from NT are required for terminating Bix connections. The Telco can also provide their own tools if so desired. This kit is not required for OPAC's equipped with screw type blocks.

- 4) Provide one (1) 1500-ft roll of Red/White Wire to be used for end compartment cross-connects. The Telco can also provide their own cross-connect wire if so desired.
- 5) Provide one (1) Emergency Generator Mating Connector, UL for CALA when connection of the OPAC to an emergency generator is required. The Telco can also provide their own mating connector if so desired.

RUL5 1) Provide one (1) Filler Panel 19x10 in Shelf 33.

RUL6 1) Refer to Host LCM Provisioning rules for line card provisioning.

- 2) Provide one (1) NT6X04BC LCM Common CP (Intl) for Shelf 18. This packfill provides the controller cards for both Shelf 18 and 32.

RUL7 1) Provide one (1) OPAC MSP Packfill for Shelf 19. The packfill provides enough filler panels to cover slots 16-19 if the optional Fuse/Breaker modules are not ordered.

RUL8 1) Provide one (1) Designation Strip HIE for Shelf 04.

- 2) Provide the following cards for (All International Markets except Malaysia) HIE Shelf applications only:

One (1) NT6X60DA CP in Slot 01 of HIE Shelf
One (1) NT6X60DA CP in Slot 05 of HIE Shelf
One (1) NT0X50AG CP in Slot 09 of HIE Shelf
One (1) NT0X50AA CP in Slot 12 of HIE Shelf
One (1) NT0X50AA CP in Slot 13 of HIE Shelf
One (1) NT6X73BA CP in Slot 17 of HIE Shelf
One (1) NT6X73BA CP in Slot 18 of HIE Shelf
One (1) NT2X70AF CP in Slot 22 of HIE Shelf
One (1) NT2X70AF CP in Slot 25 of HIE Shelf

- 3) Provide the following cards for the (Malaysia Market Only) along with the NT6X11EB Packfill for HIE Shelf applications only:

One (1) NT6X60AE CP in Slot 01 of HIE Shelf
One (1) NT6X60AE CP in Slot 05 of HIE Shelf
One (1) NT0X50AG CP in Slot 09 of HIE Shelf
One (1) NT0X50AA CP in Slot 13 of HIE Shelf
One (1) NT2X70AF CP in Slot 22 of HIE Shelf
One (1) NT2X70AF CP in Slot 25 of HIE Shelf

- 4) Provide one (1) Designation Label for Slots 01,05,22,25 of HIE Shelf. The other cards are shown on the Designation Strip HIE and do not require additional labels.

RUL9 1) Provide one (1) Battery Charger Common CP for Shelf 34.

- RUL10 1) If the ESA option is specified, provide the following cards and their designation labels in the HIE Shelf:

One (1) NT6X47AC CP in Slot 14 of HIE Shelf
One (1) NT6X45AF CP in Slot 15 of HIE Shelf
One (1) NT6X75KA CP in Slot 16 of HIE Shelf for
(China/Philippines) applications.

One (1) NT6X75EA CP in Slot 16 of HIE Shelf for (Malaysia)
applications.

If the ESA option is not specified, provide one (1)
NT0X50AA, Filler Face Plate, in Slots 14-16 of the HIE
Shelf.

- 2) If the ESA option is specified, also provide a minimum of
one (1) NT2X48CC (Intl), 4 Channel Digitone Receiver, in
Slot 11 of the RMM Shelf. The NT2X48CC is a 2-slot card
which takes up Slots 11-12. If the ESA option is not spec-
ified, instead provide one (1) NT0X50AC, Filler Face Plate,
in Slots 11-12 of the RMM Shelf.

The actual number of NT2X48CC CPs to be provided shall be
based on traffic. Any additional Digitone Receivers re-
quired above the minimum of one (1) shall be located in
Slots 13-16 of the RMM Shelf.

- RUL11 1) For International applications provide two (2) NT6X27BB
PCM-30 Interface Ckt. Packs in slots 19 and 20 for a mini-
mum of 4 PCM-30 circuits. If more than four (4) PCM-30
links are required add one (1) additional NT6X27BB PCM-30
Interface Ckt. Pack in slot location 21 to have a maximum
6 PCM-30 links.

Provide (1) filler face plate for position 21 when une-
quipped in the HIE Shelf.

RUL12 Reserved for future use.

- RUL13 1) Provide one (1) NT6X13BA RMM Common CP for every OPAC International market except Malaysia. This packfill contains the controller cards for the RMM in Shelf 05.
- 2) Provide one (1) NT6X13EA RMM Common CP for every OPAC for the Malaysian Market.
- 3) Provide the following cards for the RMM Shelf (International):
- One (1) NT4X98BB CP in Slot 03 of RMM Shelf
 - One (1) NT4X97AA CP in Slot 04 of RMM Shelf
 - One (1) NT3X09BA CP in Slot 05 of RMM Shelf
 - One (1) NT3X09AA CP in Slot 06 of RMM Shelf
 - One (1) NT0X10AA CP in Slot 07 of RMM Shelf
 - One (1) NT0X10AA CP in Slot 08 of RMM Shelf
 - One (1) NT2X90AD CP in Slot 09 of RMM Shelf
 - One (1) NT2X90AD CP in Slot 10 of RMM Shelf
- 4) If additional service circuits are required in card slots 13- 16 refer to section T_RMM_CARDS and provision as required.
- 5) Provide one (1) NT0X50AC for each unequipped position 11-16.
- 6) Provide one (1) International Metallic Test Unit per RMM shelf equipped with the NT6X13BA. One International Metallic Test Unit consists of one (1) NT4X98BB CP, and one (1) NT4X97AA CP. A Metallic Test Unit must be installed with the NT4X98BB occupying an odd card slot (03) followed by the NT4X97AA occupying the next even card slot (04). The Metallic Test Unit pair is not operational in slots 13 through 16.
- 7) Provide a minimum of one (1) NT2X48CC Digitone Receiver CP to provide A-law DTMF receivers when the Emergency Stand-alone (ESA) feature is required for International applications.
- RUL14 1) Provide the 3rd Rectifier (Rectifier :02) in Bay 1, Shelf 25 when additional power is required for the optional customer equipment (See RUL18).
- RUL15 1) When provisioning the End Compartment the provisioner must choose the circuit termination methodology. This selection is totally dependant on the Telco's preference. There are two choices: Bix or Screw. Kits are available for PCM-30

only. The termination kits contain the gate, blocks, line drawers/fillers and mounting hardware.

The blocks are enough to terminate the LCM, HIE and RMM equipment. These kits also contain the blocks for terminating Outside Plant Pairs. The Bix kits can terminate a maximum of (1100) outside plant pairs, and the Screw kits can terminate a maximum of (800) outside plant pairs.

See Rule 18 for provisionable blocks for telco equipment.

- RUL16 1) Protector modules are provisioned per Customer requirements. Provide a maximum of (100) protector modules per block, where each signal wire pair requires a protector module. The 640-kits come with eight (8) blocks, and the 256-kits come with four (4) blocks. Since the OPAC can be provisioned with a total of ten (10) blocks (See RUL18), the maximum amount of protector modules that can be provided is (1000). Provide the appropriate amount from the available list. The type of protector module is based on Customer preference.

All Protector Modules are to be SHIPPED LOOSE to site.

- RUL17 1) Provision Battery Strings for battery backup in an OPAC. There are two (2) battery options available for the OPAC: Eagle-Picher or Telco-Provided Batteries. Provide the Eagle-Picher Batteries for all Initial OPACs, unless the Telco prefers to provide their own batteries. Refer to the appropriate section in this Rule for provisioning information on the available options.

2) EAGLE-PICHER BATTERIES:

The battery strings must be provided in the following string pairs for a maximum of six (6) strings:

Pair 1 Strings 0 and 4
Pair 2 Strings 1 and 5
Pair 3 Strings 2 and 6

Since a minimum of four (4) battery strings must be provided, the Eagle-Picher Batteries are only available with a 4-String Option or a 6-String Option. The 4-String Option provides 8 Hours of battery backup only when no customer equipment is powered from the OPAC. If customer equipment is powered from the OPAC (See RUL18), then the 6-String Option must be provided if 8 Hours of battery backup is required.

Various kits are available that contain all the battery hardware, such as trays, cables, etc. However, the batteries are not contained in these kits and must be ordered separately. Select one of the options below and order the items listed (ONLY order the earthquake kits if earthquake compliance in Zones 3 & 4 is required):

4-Strings (Initials):

Provide one (1) NTRX63AA, Four Battery String Kit
Provide (32) A0623729, Eagle-Picher Battery 6V
Provide one (1) NTRX6310, Four String Earthquake Kit

6-Strings (Initials):

Provide one (1) NTRX63AB, Six Battery String Kit
Provide (48) A0623729, Eagle-Picher Battery 6V
Provide one (1) NTRX6311, Six String Earthquake Kit

2-String Upgrade (Extentions):

Provide one (1) NTRX63AC, Battery String Upgrade Kit 4 to 6
Provide (16) A0623729, Eagle-Picher Battery 6V

3) TELCO-PROVIDED BATTERIES:

ALL EQUIPMENT for the Telco-Provided Battery Option shall be supplied by the customer.

NOTE: Northern Telecom does not guarantee compatability of other batteries with OPAC.

- RUL18 1) The OPAC has space available to mount customer equipment in the rear of the cabinet. Bay 2 has 26 vertical mounting spaces of 23inch rack available.

All equipment mounted on Bay 2, as well as any optional protector blocks and fusing for the equipment, are to be SHIPPED LOOSE to site for installation by the customer or Nortel.

- 2) A maximum of twenty amps (20A) is available to power customer equipment from Slots 16-19 on the Modular Supervisory Panel (MSP). Provision P0734476 filler panels for any unused slots 16-19. The P0734476 filler panels will be mounted by shop. A maximum of three (3) Fuse Modules and four (4) Breaker Modules may be provisioned in any combination in these four slots. Each Breaker Module consists of two (2) breakers, and each Fuse Module accomodates eight (8) plug-in QFF fuses. Cabling kits are also available to cable the Fuse/Breaker Module to the customer equipment,

where EACH Fuse/Breaker Module requires one (1) appropriate Cabling Kit. Based on customer requirements, provide the appropriate amount of the following available items and SHIPPED LOOSE to site:

PEC	DESCRIPTION	DESIG. DISC
NTRX60CA	Breaker Module Cabling Kit	--
NTRX42AA	Breaker Module 10A/10A	--
NTRX42BA	Breaker Module 15A/15A	--
NTRX42CA	Breaker Module 20A/20A	--
NTRX42DA	Breaker Module 10A/15A	--
NTRX42EA	Breaker Module 10A/20A	--
NTRX42FA	Breaker Module 15A/20A	--
NTRX60CB	Fuse Module Cabling Kit	--
NTRX43AA	Fuse Module	--
A0205202	Fuse 1.33A White (QFF1A)	P097P235
A0205203	Fuse 2.00A Orange (QFF1B)	P097P236
A0205204	Fuse 3.00A Blue (QFF1C)	P097P237
A0205205	Fuse 5.00A Green (QFF1D)	P097P238
A0205206	Fuse 0.18A Yellow (QFF1E)	P097P239
A0205207	Fuse 0.25A Violet (QFF1F)	P097P240
A0205208	Fuse 0.50A Red (QFF1G)	P097P241
A0205209	Fuse 0.75A Brown (QFF1H)	P097P242
A0205210	Fuse Dummy (QFF3A)	--

- 3) A maximum of two (2) Protector Blocks (Blocks 9 and 10) can be provided in the End Compartment to terminate customer equipment. These blocks MUST be the same choice as provided in RUL15, i.e. Bix or Screw. These blocks should be SHIPPED LOOSE to site.

VF, Combo, and PCM-30 blocks are the available choices for customer equipment terminations:

VF (Voice Frequency)-NTRX65AH (Bix), and NTRX65AG (Screw) VF blocks provide 100 pair for analog terminations. Provide three (3) NTRX6035 Cables for EACH customer VF Block that is provided.

Combo (PCM-30/Special Service)-NTRX65BL (Bix), and NTRX65BH.(Screw) Combo blocks can terminate 100 pr. total. 12 PCM-30s, 24 pair and 76 pairs analog). Provide two (2) NTRX6035 Cables, One (1) NTRX6034 Cable, and Two (2) NTRX6033 Cables for EACH customer VF Combo that is provided.

PCM-30- NTRX65CD (Bix), and NTRX65CE (Screw). PCM-30 blocks can terminate 36 PCM30s 72 pairs. Provide six (6) NTRX6033 Cables for EACH customer DS-1 Block that is provided.

- RUL19 1) The Down Draft Cooling Unit contains the following equipment: NTRX6048 Power and Alarm Cable Assembly, P0805283 Tray Assembly, P0805284 Chassis Assembly, A0640828 Down Draft Cooling Fan, and P0815362 MSP label. Equipment will be SHIPPED LOOSE and installed on site. Equipment will be located in bay 2 at rear of left gate above customer furnished equipment.
- 2) Provide two (2) 1.33 Amp fuses and two (2) designation discs to be mounted in MSP-08 in postions F05 and F06.

RLCM FRAME SUPERVISORY PANEL

NT6X25AA

RATING: Standard

REFERENCE AND DATE: Standard Documentation

ABBREVIATION NAME: FSP

ENGINEERING DESCRIPTION: This FSP has slots to accommodate up to seven (7) office repeaters. When this FSP is provisioned, a PDC frame or equivalent is required.

REFERENCE DOCUMENTATION: N/A

The RLCE Frame Supervisory Panel is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
RLCM FSP Assy	NT6X2501		1			AP
FSP Alarm Card	NT6X36AA		1		CD1	AP
Conv Drive & Protect Ckt	NT0X91AE		1		CD2	AP
Alarm & Conv Drive Card	NT0X91AA		1		CD3	AP
QFF1A Fuse 1 1/3 Amp	A0205202		8		01-08	AP
Fuse Design Disc (White)	P097P235		8		01-08	AP

NOTE:

- 1) For provisioning information on the office repeaters, see Section 43A-14-000 on RLCM/IRLCM, NT6X14AA.

RULE:

- AP 1) When PEC NT6X25AA is ordered, these items are provided.

RLCM FRAME SUPERVISORY PANEL

NT6X25BA

RATING: Standard

REFERENCE AND DATE: Standard Documentation

ABBREVIATION NAME: FSP

ENGINEERING DESCRIPTION: This FSP has slots to accommodate up to seven (7) office repeaters. Provide one (1) NT6X25BA FSP to provide power distribution to the RLCM frame only. When this FSP is provisioned, a PDC frame or equivalent is not required.

REFERENCE DOCUMENTATION: N/A

The RLCE Frame Supervisory Panel is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
RLCM FSP Assy	NT6X2520		1			AP
FSP Alarm Card	NT6X36AA		1		CD1	AP
Conv Drive & Protect Ckt	NT0X91AE		1		CD2	AP
Alarm & Conv Drive Card	NT0X91AA		1		CD3	AP
QFF1A Fuse 1 1/3 Amp	A0205202		8		01-08	AP
Fuse Design Disc (White)	P097P235		8		01-08	AP

NOTE:

- 1) For provisioning information on the office repeaters, see Section 43A-14-000 on RLCM/IRLCM, NT6X14AA.

RULE:

- AP 1) When PEC NT6X25BA is ordered, these items are provided.

HOST INTERFACE EQUIPMENT COMMON CP

NT6X11EB

RATING: Standard

ABBREVIATION NAME: HIE

ENGINEERING DESCRIPTION: The Host Interface Equipment (HIE) is housed on an HIE shelf. The HIE module provides PCM-30 interface between the host and the remote. The ESA option and ringing generators are supported by the HIE module. This HIE circuit pack fill is for Mercury UK application.

REFERENCE DOCUMENTATION: MSMX 00 00
SLMX 00 00

MARKETS: Applicable markets:

Europe
Asia/Pacific
CALA
Carrier

NT6X11EB EMA2-14-HIE-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 02 19	ECM 381 04	Changes due to Trouble Ticket 108810

The Host Interface Equipment Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Face Plate	NT0X50AA		1	38	12	AP
Link Control Card CP	NT6X73BA		1	38	17	AP
Link Control Card CP	NT6X73BA		1	38	18	AP
PCM-30 Interface CP	NT6X27AB		1	38	19	AP
PCM-30 Interface CP	NT6X27AB		1	38	20	AP
Designation Strip	P0701837					AP

FLAGS:

NOTES:

RULES:

AP 1) When PEC NT6X11EB is ordered, these items are provided.

HIE COMMON CP FILL (CHINA)

NT6X11KA

RATING: Standard

ABBREVIATION NAME: HIE

ENGINEERING DESCRIPTION: The Host Interface Equipment (HIE) is housed on an HIE shelf. The HIE module provides PCM-30 interface between the host and the remote. The ESA option and ringing generators are supported by the HIE module. This HIE circuit pack fill is for China applications.

REFERENCE DOCUMENTATION: N/A

The HIE Common CP Fill (China) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Face Plate	NT0X50AA		1	38	12	AP
Intl Link Control Card CP	NT6X73BA		1	38	17	AP
Intl Link Control Card CP	NT6X73BA		1	38	18	AP
PCM30 Interface CP	NT6X27AB		1	38	19	AP
PCM30 Interface CP	NT6X27AB		1	38	20	AP
Designation Strip	P0698238		1			AP

RULE:

AP 1) When PEC NT6X11KA is ordered, these items are provided.

|
HOST INTERFACE EQUIPMENT COMMON CP
INTERNATIONAL REMOTE LINE CONCENTRATING MODULE

PEC CODE: NT6X11BC

CPC CODE: B0236813

RATING: Standard

REPLACES: NT6X11BB

REPLACED BY: Not Applicable

ABBREVIATION NAME: HIE

ENGINEERING DESCRIPTION: The Host Interface Equipment (HIE) module houses the circuitry required to communicate with the host during normal operation and to support the OPM during the Emergency Stand Alone mode. Communication with the host via a minimum of 2 or a maximum of 6 DS-1 links. Two DS-1 PCBs are always provided. The number of links required is traffic dependent. Optionally, Northern Telecom office repeaters may be provisioned and mounted in the Frame Supervisory Panel (FSP).

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Canada
US
Asia/Pacific
CALA
Europe

ISSUE AUTHOR: NTI: Charles Maynard Dept. 3471 (PPK)

MAIN CONTACT: NTI: Charles Maynard Dept. 3471 (PPK)

NT6X11BC EMA2-14-HIE-5 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
----- 93 07 06	----- ECM 286 06	Previous history not available ECD 011-16844 Introduce the NT6X11BC HIE Common CP for the International market.

The Host Interface Equipment Common CP International Remote Line Concentrating Module is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Face Plate	NT0X50AA		1	38	12	AP
Link Control Card	NT6X73BA		2	38	17,18	AP
PCM-30 Interface Card	NT6X27BB		2	38	19,20	AP
Designation Label	P0701837		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 NT6X11BC is ordered, these items are provided.

REMOTE MAINTENANCE MODULE COMMON CP

PEC CODE: NT6X13AB

CPC CODE: B0220778

RATING: Standard.

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: RMM

ENGINEERING DESCRIPTION: The Remote Maintenance Module supports maintenance and service circuits for remote subscriber lines. (OPM, RSC, RLCM, RCME, CMISB)

REFERENCE DOCUMENTATION: SL6X13AB 00 02

MARKETS: Applicable markets:

US
Canada

ISSUE AUTHOR: NTI: Barry Bond Dept. 3471 (PPK)

MAIN CONTACT: NTI: Barry Bond Dept. 3471 (PPK)

NT6X13AB EMA2-14-RMM-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
----- 93 01 21 94 08 04	----- ECM 655 01 ECM 683 07	Previous history not available To add information on RMM in CMIS Add CMIS Model B information.

The Remote Maintenance Module Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Group Codec	NT2X59AA		1	XX	1	AP
RMM Control CP	NT6X74AB		1	XX	2	AP
Multi Output Pwr Converter	NT2X09AA		1	XX	17	AP
Filler Face Plate	NT0X50AA		1	XX	19	AP
Pwr Conv Common Feature	NT2X06AB		1	XX	20	AP
Desig. Strip (NT6X13AB)	P0653639		1			AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NOT APPLICABLE		

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 RLCM FRAME

One RMM Common CP can be assigned on the frame to shelf mounting position 56 (i.e. XX = 56).

For more information on the frame refer to the section on NT6X14AA, Remote Line Concentrating Module/International Remote Line Concentrating Module (Section EMA2-14-000).

2) ON RCE FRAME

One RMM Common CP can be assigned on the frame to shelf mounting positions 51 and 65 (i.e. XX is first 51 and then 65 if required).

For more information on the frame refer to the section on NT6X10AC, Remote Controller Equipment Frame (Section EMA2-15-000).

3) ON OPM FRAME

Shelf position "XX" for OPM is 05.

For more information, refer to Section EMA2-13-000 on the OPM frame.

4) ON RCME FRAME

Shelf position "XX" for RCME is 21.

For more information, refer to Section EMA2-05-000 on the RCME frame.

5) ON CMIS Model A FRAME

Shelf position "XX" for CMIS is 5, 19, 33, or 47

For more information, refer to Section EMA13-01-001 on the CMIS frame.

6) ON CMIS Model B CABINET

Shelf position "XX" for CMIS Model B is 5, 19, 33, or 47.

For more information, refer to Section EMA13-01-003 on the CMIS Model B cabinet.

RULES:

AP 1) When PEC NT6X13AB is ordered, these items are provided.
equipment.

REMOTE MAINTENANCE MODULE COMMON CP

NT6X13BA

RATING: Standard

ABBREVIATION NAME: RMM

ENGINEERING DESCRIPTION: The Remote Maintenance Module supports maintenance and service circuits for remote subscriber lines for international use (Turkey).

REFERENCE DOCUMENTATION: N/A

The RMM Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Group Codec	NT2X59BA		1	56	1	AP
RMM Control CP	NT6X74AB		1	56	2	AP
Multi Output Pwr Converter	NT2X09AA		1	56	17	AP
Filler Face Plate	NT0X50AA		1	56	19	AP
Pwr Conv Common Feature	NT2X06AB		1	56	20	AP
Designation Strip	P0678463		1			AP

RULE:

AP 1) When PEC NT6X13AB is ordered, these items are provided.

REMOTE MAINTENANCE MODULE COMMON CP

NT6X13DA

RATING: Standard

ABBREVIATION NAME: RMM

ENGINEERING DESCRIPTION: The Remote Maintenance Module supports maintenance and service circuits for remote subscriber lines.

REFERENCE DOCUMENTATION: N/A

The RMM Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Group Codec	NT2X59DA		1	56	1	AP
RMM Control CP	NT6X74AB		1	56	2	AP
Multi Output Pwr Converter	NT2X09AA		1	56	17	AP
Filler Face Plate	NT0X50AA		1	56	19	AP
Pwr Conv Common Feature	NT2X06AB		1	56	20	AP
Designation Strip	P0681938		1			AP

RULE:

AP 1) When PEC NT6X13DA is ordered, these items are provided.

REMOTE LINE CONCENTRATING MODULE
INTERNATIONAL REMOTE LINE CONCENTRATING MODULE

PEC CODE: NT6X14AA

CPC CODE: B0217530

RATING: Standard

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: RLCM/IRLCM

ENGINEERING DESCRIPTION: The RLCM/IRLCM is a single frame remote concentrating module that can serve up to 640 lines. The RLCM communicates to the host via up to six DS-1 links. The IRLCM communicates with the host via up to six PCM-30 links.

REFERENCE DOCUMENTATION: MS6X14AA 00 38

MARKETS: Applicable markets:

Canada
US
Asia/Pacific
CALA
Europe

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

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

NT6X14AA EMA2-14-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-----	-----	Previous history not available
93 07 06	ECM 286 06	ECD 011-16844 Introduce the NT6X60CA Ringing Generator, the NT6X11BC HIE Common CP, and the NT6X27BB PCM30 Interface Pack.
93 07 09	ECM 286 07	ECD 011-16178 Introduce the requirement of always providing at least one NT0X10AA Scan Card to support the reporting of a tripped CB8 or loss of Talk Battery A at the RLCM.
93 11 29	ECM 286 08	The detail EMS for NT6X14AA is being updated to match the current stock-list of the NT6X14AA which will show the NT6X1108 instead of the NT6X1101 and also the NT6X1306 instead of the NT6X1301 shelf assemblies.
94 01 17	ECM 286 09	ET 44873 Add NT6X50AB Provisioning ET 44903 Remove references to NT6X1101 and NT6X1301. Not MD but replaced by NT6X1108 and NT6X1306.
94 10 28	ECM 286 10	EC 011-20036 introduces NT6X60AE. Add requirement that all NT6X50 be the same part number in RLCM as in host. Add NT0X50AA in shelf 56, slot 19, when no RMM Common CP.
94 12 09	ECM 286 12	Add NT6X04AD and NT6X04BC to rules.
95 03 29	ECM 286 13	ECD 024-93972 NT2X70AE is MD and replaced with NT2X70AF. NT2X70AZ is MD and replaced with NT2X70AY.
95 08 08	ECM 286 14	MD NT6X11AB.
96 04 19	ECM 286 17	Correct part number of Australian ringing generator label to P0749008 per EC 011-20036 & SR RR60938.

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
96 10 21	ECM 286 18	Replace NT2X48AB with NT2X48BB per EC 018-46775.
97 05 05	ECM 286 19	Per EC 024-97291, EC 011-22123, and EC 028-15577 introduce ISDN Line Drawer provisioning.
97 09 12	ECM 286 20	Update Rule 12 to solve SR RR77795.

The Remote Line Concentrating Module International Remote Line Concentrating Module is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Frame Supervisory Panel	NT6X25AA	FSP		70		RUL2
Frame Supervisory Panel	NT6X25BA	FSP		70		RUL2
RLCM Interconnect Cables	NT6X1429			70		RUL19
RLCM Interconnect Cables	NT6X1430			70		RUL19
ABS Batt Supply (NT6X25BA)	NT6X14WA			70		RUL25
Cable	NT6X2537			70		RUL25
Fault Loc & Order Wire Acc	QPP519A			70	1	RUL3
Office Repeaters	QRY18			70	2-7	RUL4
Filler Face Plate	NT0X50AJ			70	1-7	RUL5
Rmt Maint Mod Shf Assy	NT6X1306		1	56		AP
RMM Common CP (N. America)	NT6X13AB	RMM		56		RUL6
RMM Common CP (Turkey)	NT6X13BA	RMM		56		RUL6
RMM Common CP (CEP)	NT6X13DA	RMM		56		RUL6
RMM Common CP (SL100 UK)	NT6X13EA	RMM		56		RUL6
Filler Face Plate	NT0X50AC			56	1, 2	RUL6
Filler Face Plate	NT0X50AG			56	17	RUL6
Filler Face Plate	NT0X50AA			56	19	RUL6
Filler Face Plate	NT0X50AE			56	20	RUL6
Provisionable Circuit Packs	AR			56	3-16	RUL7
# 4 Channel Digitone Receiver	NT2X48AB			56	3-15	RUL23
4 Channel Digitone Receiver	NT2X48BB			56	3-15	RUL23
A-Law DTMF Receiver	NT2X48CC			56	3-15	RUL23
Filler Face Plate	NT0X50AC			56	3-16	RUL7
# -48V SP Batt Supply Cable	NT6X1435			56		RUL26
# -48V SP Batt Supply Cable	NT6X1438			56		RUL26
Baffle Assembly	NT6X1402		1	51		AP
# HIE Common CP (N. America)	NT6X11AA	HIE		38		RUL8
# HIE Common CP (N. America)	NT6X11AB	HIE		38		RUL8
# HIE Common CP (Turkey, CEP)	NT6X11BA	HIE		38		RUL8
# HIE Common CP (Turkey, CEP)	NT6X11BB	HIE		38		RUL8
HIE Common CP (Internat'l)	NT6X11BC	HIE		38		RUL8
# HIE Common CP (UK)	NT6X11EA	HIE		38		RUL8
HIE Common CP (UK)	NT6X11EB	HIE		38		RUL8
HIE Common CP (China)	NT6X11KA	HIE		38		RUL8
Host I/F Equip Shelf Assy	NT6X1108		1	38		AP
ESA PC Kit	NT6X14WB			38		RUL13
# Ringing Generator	NT6X60AA			38	1, 5	RUL9

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Ringing Generator	NT6X60CA			38	1,5	RUL9
Ringing Generator (SL-100 UK)	NT6X60AB			38	1,5	RUL9
Ringing Generator (China)	NT6X60DA			38	1,5	RUL9
Ringing Generator (Australia)	NT6X60AE			38	1,5	RUL9
Filler Face Plate	NT0X50AH			38	1,5	RUL10
Filler Face Plate	NT0X50AG			38	9	RUL12
# Remote Alarm Panel	NT6X77AA			38	9	RUL12
# Master Processor Memory CP	NT6X47AB			38	14	RUL14
Master Processor Memory CP	NT6X47AC			38	14	RUL14
LGC/DTC Processor CP	NT6X45AF			38	15	RUL14
ESA Clock and Tone CP (N.A.)	NT6X75AA			38	16	RUL14
ESA Clock and Tone CP (Intl)	NT6X75DA			38	16	RUL14
ESA Cloc & Tone CP (UK,Aust)	NT6X75EA			38	16	RUL14
ESA Clock & Tone CP (China)	NT6X75KA			38	16	RUL14
Link Control Card CP	NT6X73AA			38	17-18	RUL11
DS-1 Interface CP	NT6X50AA			38	19-21	RUL16
DS-1 Interface CP	NT6X50AB			38	19-21	RUL16
Filler Face Plate	NT0X50AA			38	12,13-16, 21	RUL15
# PCM-30 Interface CP	NT6X27AB			38	21	RUL24
PCM-30 Interface CP (Int'l)	NT6X27BB			38	21	RUL24
# Power Converter Kit	NT2X70AZ					RUL27
Power Converter Kit	NT2X70AY					RUL27
# Pwr Converter + & -5V, 12V	NT2X70AA			38	22,25	RUL27
# Pwr Converter + & -5V, 12V	NT2X70AD			38	22,25	RUL27
# Pwr Converter + & -5V, 12V	NT2X70AE			38	22,25	RUL27
Pwr Converter + & -5V, 12V	NT2X70AF			38	22,25	RUL27
# LCM Common CP	NT6X04AA	LCM0		04		RUL22
# LCM Common CP	NT6X04AB	LCM0		04		RUL22
# LCM Common CP	NT6X04AC	LCM0		04		RUL22
LCM Common CP	NT6X04AD	LCM0		04		RUL22
LCM Common CP	NT6X04AE	LCM0		04		RUL22
LCM Upgrade Kit	NT6X04ZZ	LCM0		04		RUL22
LCM Upgrade Kit	NT6X04ZY	LCM0		04		RUL22
LCM Upgrade Kit	NT6X04ZX	LCM0		04		RUL22
# LCM Common CP	NT6X04BA	LCM0		04		RUL22
# LCM Common CP	NT6X04BB	LCM0		04		RUL22
LCM Common CP	NT6X04BC	LCM0		04		RUL22
Line Conc. Array Shf Assy	NT6X0401	LCA1	1	21		AP
Line Drawer	NT6X05AA	LD		21	1-5	RUL17
Line Drawer	NT6X05BA	LD		21	1-5	RUL17
ISDN Line Drawer	NT6X05DA	LD		21		RUL17
Line Conc. Array Shf Assy	NT6X0401	LCA0	1	04		AP
Line Drawer	NT6X05AA	LD		04	1-5	RUL17
Line Drawer	NT6X05BA	LD		04	1-5	RUL17

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
ISDN Line Drawer Line Cards	NT6X05DA AR	LD		04		RUL17 RUL17
Designation Labels, LSG No.	P0631765					RUL18
Desig. Label for NT2X48CC	P0678469			56	3-16	RUL20
# Desig. Label for NT6X47AB	P0666374			38	14	RUL20
Desig. Label for NT6X47AC	P0711821			38	14	RUL20
Desig. Label for NT6X60AA	P0642014			38	1, 5	RUL20
Desig. Label for NT6X60AB	P0685015			38	1, 5	RUL20
Desig. Label for NT6X60CA	P0740744			38	1, 5	RUL20
Desig. Label for NT6X60DA	P0698237			38	1, 5	RUL20
Desig. Label for NT6X60AE	P0749008			38	1, 5	RUL20
Desig. Label for NT6X45AF	P0685029			38	15	RUL20
Desig. Label for NT6X75AA	P0642015			38	16	RUL20
Desig. Label for NT6X75DA	P0690064			38	16	RUL20
Desig. Label for NT6X75EA	P0695207			38	16	RUL20
Desig. Label for NT6X75KA	P0698235			38	16	RUL20
Desig. Label for NT6X50AA	P0626878			38	21	RUL20
Desig. Label for NT6X50AB	P0690976			38	21	RUL20
Desig. Label for NT6X27AB	P0678466			38	21	RUL20
Desig. Label for NT6X27BB	P0739157			38	21	RUL20
Desig. Strip for HIE Shelf	P0701836			38		RUL21
Desig. Label for NT2X70AF	P0809960			38	22, 25	RUL27

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT6X47AB	A&M	NT6X47AC
NT6X1435	MD	NT6X1438
NT6X1438		Stocklisted
NT6X11AA	MD	NT6X11AB
NT6X11AB	MD	NT6X50AA/AB, and
NT2X70AA	MD	NT2X70AD
NT2X70AD	MD	NT2X70AE
NT6X04AA	A&M	NT6X04AB
NT6X04AB	A&M	NT6X04AC
NT6X04AC	A&M	NT6X04AD
NT6X04BA	A&M	NT6X04BB
NT6X04BB	A&M	NT6X04BC

PEC	RATING	REPLACED BY PEC
NT6X11BA	MD	NT6X11BB
NT6X11BB	MD	NT6X11BC
NT6X27AB	A&M	NT6X27BB
NT6X60AA	MD	NT6X60CA
NT6X11EA	MD	NT6X11EB
NT6X77AA	MD	No Replacement
NT2X70AE	MD	NT2X70AF
NT2X70AZ	MD	NT2X70AY
NT2X48AB	MD	NT2X48BB

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 the NT6X14AA RLCM Frame for Domestic and International RLCM applications.
- 2) Refer to EMA15-01-000 to provide framework, trim panels, grills, ect.
- 3) Contents of NT6X11AB are now provisionable in the RLCM. Do not use this PEC to provision an RLCM.
- 4) For use in Morocco, the NT0X07GN Product Change Kit is required for 240V AC. The "Moroccan" appliance outlet is not included and must be purchased on site in Morocco.

RULES:

AP 1) When PEC NT6X14AA is ordered, these items are provided.

RUL1 1) Reserved for future use.

RUL2 1) Provide one (1) NT6X25BA FSP to provide power distribution to the RLCM frame only. When the RLCM site requires additional frames such as the RME frame, provide one (1) NT6X25AA FSP instead of the NT6X25BA. When the NT6X25AA is provisioned, a PDC frame or equivalent is required.

RUL3 1) Provide one (1) QPP519 when office repeaters are required in the RLCM and customer requires fault locate feature. Select QPP519 as follows:

QPP519A - provides jacks for 2 wire telephone or 4 wire headset and permits extension of order-wire for subscriber line operation.

QPP519B - The QPP519B provides a simple through connection between the order wire pair and the CO switching equipment with jack access for a 2 wire telephone.

2) Also provision one (1) QFB127* or QFB128* fault locate filter for each QPP519.

QFB127* - Dual-amplified Type

QFB128* - Single-passive Type

Order the appropriate filter type and frequency per Telco requirements.

* = A 832Hz
B 928Hz
C 1048Hz
D 1206Hz
E 1340Hz
F 1508Hz
G 1722Hz
H 2008Hz
J 2193Hz
K 2413Hz
L 2680Hz
M 3017Hz

RUL4 1) Equip RLCM with one of the following office repeaters if office repeaters are required in the RLCM: QRY18A, B1, C, D1, F, G1. Each DS-1 line or T1 line requires one office repeater.

QRY18A - powers the line repeaters
(provides DC power to T1 line)

QRY18B1 - provides DC power and does error monitoring
 QRY18C - no power
 QRY18D1 - no power and has error monitor
 QRY18F - provides -130V for the T1 line
 QRY18G1 - provides -130V for the T1 line and has error monitor

OFFICE REPEATER	LINE POWERING	FAULT-SIGNAL LOOPBACK
QRY18A	YES	NO
QRY18B1	YES	YES
QRY18C	NO	NO
QRY18D1	NO	YES
QRY18F	YES	NO
QRY18G1	YES	YES

- 2) Association of office repeaters to DS-1 lines are in accordance with the following information:

DS1 Port	CP Position on HIE Shelf	CP in FSP
0	19	2
2		3
4	21	4
5		5
3	20	6
1		7

- RUL5 1) Provide one (1) NT0X50AJ Filler Face Plate for each unequipped slot on the FSP.
- RUL6 1) Provide one (1) NT6X13AB RMM Common CP (Domestic) when Emergency Stand Alone (ESA) is required and/or service circuits or trunks are to be equipped on the RLCM.
- 2) Provide one (1) NT6X13BA RMM Common CP (Turkey) when ESA is required and/or service circuits or trunks are to be equipped on the IRLCM.
- 3) Provide one (1) NT6X13DA RMM Common CP (CEP) when ESA is required and/or service circuits or trunks are to be equipped on the IRLCM.
- 4) Provide one (1) NT6X13EA RMM Common CP (SL100 UK) when ESA is required and/or service circuits or trunks are to be equipped on the IRLCM (SL-100 UK).

- 5) When a RMM Common CP is not provided, provide two (2) NT0X50AC Filler Face Plates on position 1 and 2, one (1) NT0X50AG Filler Face Plate in position 17, one (1) NT0X50AA Filler Face Plate in position 19 and one (1) NT0X50AE Filler Face Plate in position 20.
- RUL7 1) There are fourteen (14) provisionable slots on the RMM. Refer to Table A section EMA14-01-000 for RMM provisionable circuit packs.
- 2) Provide Filler Face Plate, NT0X50AC in slots 3-16 not equipped with a circuit pack.
- 3) Slots 13-16 are currently wired together to allow the operation of DRAM circuitry in these slots when the DRA software becomes available for remotes. The NT2X10AB/AC, NT2X11AA/AC/AD Line Test Unit (LTU) pair the NT2X10BA, NT2X11BA Multi-line Test Unit (MTU) pair, and the NT4X98BA/BB, NT4X97AA Metallic Test Unit (MTU) pair are not operational in these slots because of the DRA wiring and therefore should not be provisioned in slots 13-16. All other applicable RMM CPs are allowed in slots 13-16, however, these slots should be reserved whenever possible to allow for the future DRA application.
- 4) The NT2X10BA, NT2X11BA pair will not operate if it is installed onto slot 9 & 10.
- 5) One NT0X10AA Scan Card is always in the RMM of the first RLCM in a Line-up to provide remote monitoring of the AISLE ALARM. Dedicate two of the 14 scan points on this card for this purpose. If the RLCM is the only frame in the Line-up, then its RMM shall always be provisioned with an NT0X10AA Scan Card.
- RUL8 1) The formerly provided NT6X11AB Host Interface Equipment Common CP
- has been changed to MD status and replaced by individually provisioned
- circuit packs. For RLCMs engineered for the North American market, do not provide Host Interface Equipment Common CP but provide instead the equipment specified in RUL11, RUL16, and RUL21.
- 2) Provide one (1) NT6X11EB Host Interface Equipment Common CP to equip HIE at position 38 on IRLCM for SL-100 UK applications.

- 3) Provide one (1) NT6X11KA Host Interface Equipment Common CP to equip HIE at position 38 on IRLCM for China applications.
 - 4) Provide one (1) NT6X11BC Host Interface Equipment Common CP to equip HIE at position 38 on IRLCM for remaining International applications.
- RUL9
- 1) Provide two (2) NT6X60CA Ringing Generators when analog ringing is required in RLCMs and IRLCMs engineered for all markets EXCEPT as specified below.
 - 2) Provide two (2) NT6X60AB Ringing Generators per NT6X11EA/EB when analog ringing is required in the office (SL-100 UK).
 - 3) For China, provide two NT6X60DA Ringing Generators per NT6X11KA when analog ringing is required.
 - 4) For Australia, provide two NT6X60AE Ringing Generators per frame when analog ringing is required.
- RUL10
- 1) Provide two (2) NT0X50AH when Ringing Generators are not equipped in the office.
- RUL11
- 1) Provide two (2) NT6X73AA Link Control CPs for each RLCM which is NOT equipped with a Host Interface Equipment Common CP per RUL8.
 - 2) Two (2) appropriate Link Control CPs are included as stocklist items with each Host Interface Equipment Common CP.
- RUL12
- 1) Provision one (1) NT0X50AG in slot 9 of position 38. The NT0X50AG will fill three slots (9-11) on an HIE shelf, instead of the normal two slots, due to the HIE shelf being narrower. Do not assign any other CP in slot 11 of the HIE shelf when the NTOX50AG is located in positions 9 and 10.
- RUL13
- 1) For Canadian applications only, when an existing RLCM is being modified in the field to add the ESA feature, provide one (1) Product Change Kit NT6X14WB. indicated.
- RUL14
- 1) Provide one (1) NT6X47AC Master Processor Memory CP and one (1) NT6X45AF LGC/DTC Processor CP when the Emergency Stand-alone (ESA) feature is required.
 - 2) The formerly provided NT6X47AB Master Processor Memory CP has been changed to A&M status and replaced by the NT6X47AC.

- 3) Provide one (1) ESA Clock and Tone CP when the ESA feature is required. The part number of the ESA Clock and Tone CP to be provided is based on the part number of the HIE Common CP provided per RUL8. When no HIE Common CP is provided, because the NT6X11AB HIE Common CP has been replaced by individually provisioned circuit packs, then provide the NT6X75AA; otherwise refer to the following table to determine the part number of the ESA Clock and Tone CP required:

ESA CP REQUIRED	HIE COMMON CP NT6X11--							
	AA	AB	BA	BB	BC	EA	EB	KA
NT6X75AA	X	X						
NT6X75DA			X	X	X			
NT6X75EA						X	X	
NT6X75KA								X

- 4) A minimum of one (1) Digitone Receiver CP is also required to support the ESA feature. See RUL23.

RUL15 1) Provide (1) NT0X50AA Filler Face Plate in positions shown when not equipped with a circuit pack.

RUL16 1) Provide two (2) NT6X50AA or NT6X50AB DS-1 Interface Circuit Packs when communication with the host office is via DS-1 links. Two DS-1 Interface CPs will terminate up to four DS-1 links.

- 2) Provide one (1) additional NT6X50AA or NT6X50AB DS-1 Interface CP when additional DS-1 links are required to satisfy traffic requirements.

- 3) Either NT6X50AA or NT6X50AB DS-1 Interface CPs may be used at the customer's discretion, however NT6X50ABs are required for ISDN line drawer. All the DS-1 Interface CPs in an RLCM must be the same part number and the DS-1 Interface CPs in an RLCM must be the same part number, either NT6X50AA or NT6X50AB, as the DS-1 Interface CPs which terminate the links to that RLCM in the host LGC/LTC/RCC module.

- 4) The LCM Common CP in both shelves must be NT6X04AB or higher for RLCM, or NT6X04BB or higher for IRLCM, in order

to provide the LCM processor capacity required when the NT6X50AB is used.

- 5) For ISDN applications, NT6X50AAs must be replaced with NT6X50ABs in both remote and host equipment. Provide designation strips for each NT6X50AB provisioned.

- RUL17 1) Provide one (1) Line Drawer NT6X05AA to accommodate up to sixty-four (64) line cards in two line sub groups (LSG's) on the RLCM. (See Section EMA2-07-LD-1).

This LCM is identical to the host LCM and utilizes the same line card types. Refer to the host LCM provisioning rules for line card provisioning.

- 2) Provide one (1) Line Drawer NT6X05BA to accommodate up to sixty-four (64) line cards in two line sub groups (LSG's) on the IRLCM.

This ILCM is identical to the host ILCM and utilizes the same line card types. Refer to the host ILCM provisioning rules for line card provisioning.

- 3) Only 1 ILD can be defined in each LCA (Line Concentrating Array). ISDN Line Drawer can not be applied to positions 0 or 10. Preferred positions for locating the ISDN Line Drawer is 8 or 18. This means that if the ILD drawer number of the first ILD is within the range 2 - 8, the next ILD to be defined in this LCM will have its drawer number within the range 12 - 18. This limitation exists in order to permit an optimal heat dispersion in the LCM.

- 4) Two (2) of the ten line drawers for each LCM may be NT6X05DA ISDN Line Drawers, one per shelf. Use of an NT6X05DA ISDN Line Drawer requires use of NT6X0 4AE and NT6X50ABs for clear channel capability.

- RUL18 1) Provide one (1) P0631765 per RLCM/IRLCM. Each item contains LSG designation labels for twenty (20) Line Sub Groups (00-19) housed in ten (10) line drawers.

- RUL19 1) Provide one (1) NT6X1429 RLCM Interconnect Cable when NT6X14AA RLCM/IRLCM is equipped with NT6X25AA Frame Supervisory Panel. Provide one (1) NT6X1430 RLCM Interconnect Cable when NT6X14AA RLCM/IRLCM is equipped with NT6X25BA Frame Supervisory Panel.

- RUL20 1) Provide one (1) Designation Label for each of the indicated circuit packs supplied.

- RUL21 1) Provide one (1) P0701836 Designation Strip for each RLCM which is NOT equipped with a Host Interface Equipment Common CP per RUL8.
- 2) One (1) appropriate designation strip is included as a stocklist item with each Host Interface Equipment Common CP.
- RUL22 1) Provide one (1) NT6X04AD LCM Common CP per RLCM frame that is not equipped with ISDN Line Drawers.
- 2) Provide one (1) NT6X04BC International LCM Common CP per IRLCM frame that is not equipped with ISDN Line Drawers.
- 3) The formerly provided NT6X04AC and NT6X04BB LCM Common CP have been changed to A&M status and replaced by the NT6X04AD and the NT6X04BC, respectively. The NT6X04AD and NT6X04BC include NT6X51AC LCM Processor CPs which provide indicator lights for In Service and Out of Service conditions.
- 4) Provide one NT6X04ZZ LCM Upgrade Kit to convert one NT6X04AA to an NT6X04AB, if required.
- 5) Provide one NT6X04ZY LCM Upgrade Kit to convert one NT6X04AC to an NT6X04AD, or to convert one NT6X04BB to an NT6X04BC, if required.
- 6) For ISDN applications (NT6X05DA), provide (1) NT6X04ZX LCM Processor CP Kit. This kit upgrades the LCM processor and labels to NT6X51DAs required for clear channel capability. Pack fill becomes NT6X04AE. Use of the NT6X04AE requires the use of NT6X50ABs in both the host and remote equipment.
- RUL23 1) Provide a minimum of one (1) NT2X48BB Digitone Receiver CP to provide DTMF receivers when the Emergency Standalone (ESA) feature is required. One additional NT2X48BB may be provided depending upon traffic and grade of service requirements.
- 2) Provide a minimum of one (1) NT2X48CC Digitone Receiver CP to provide A-law DTMF receivers when the Emergency Standalone (ESA) feature is required for International applications. One additional NT2X48CC may be provided depending upon traffic and grade of service requirements.
- 3) The NT2X48BB occupy 1 card slot and the NT2X48CC occupy 2 card slots.

- RUL24 1) Provide one (1) additional NT6X27BB PCM-30 Interface CP when more than four (4) PCM-30 links are required to satisfy traffic requirements for IRLCM.
- 2) Two (2) NT6X27BB PCM-30 Interface CP are included as stocklist items with each IRLCM Host Interface Equipment Common CP provided per RUL8. Those two NT6X27BB CPs provide the first four (4) PCM-30 links.
- 3) For addition and maintenance in frames equipped with NT6X27ABs, provide NT6X27AB PCM 30 Interface CPs. When the enhancements of the NT6X27BB are required in a frame equipped with NT6X27ABs, each of the NT6X27ABs in the frame must be replaced with a NT6X27BB.
- 4) For new frames , when the packfill has NT6X27ABs provide NT6X27ABs. When the packfill has NT6X27BBs provide NT6X27BBs.
- 5) Do not provision NT6X27BBs in a frame equipped with NT6X27ABs.
- RUL25 1) Provide one NT6X14WA and one NT6X2537 when the NT6X25BA FSP is provisioned to provide Alarm Battery Supply.
- RUL26 1) The formerly provided NT6X1435 -48V SP Battery Supply Cable was provisioned when the International Metallic Access Pair, NT4X97AA and NT4X98BA or NT4X98BB, were equipped in the RMM shelf. The NT6X1435 has been changed to A&M status and replaced by NT6X1438.
- 2) The formerly provided NT6X1438 -48V SP Battery Supply Cable was provisioned when the Metallic Access Pair, NT4X97AA and NT4X98AA, were equipped in the RMM shelf. The NT6X1438 is now always provided on the stocklist of the NT6X14AA.
- RUL27 1) Provide two (2) NT2X70AF Power Converters and two (2) P0809960 designation labels per frame.
- 2) The formerly provided NT6X11AA/BA/BB/EA HIE Common CP each included two (2) NT2X70 Power Converters as stocklist items.
- 3) Provide two (2) NT2X70AY Power Converter Upgrade Kits per HIE shelf equipped with NT2X70AA, NT2X70AB, NT2X70AC, NT2X70AD, NT2X70AE or NT2X70BA, if required to field upgrade the existing HIE shelf to include NT2X70AF CPs. Each NT2X70AY Power Converter Upgrade Kit contains one (1)

NT2X70AF Power Converter CP and one (1) P0809960 Designation Label for NT2X70AF.

REMOTE SWITCHING CENTER - SONET
MODEL B CRSC (LCM-READY)

PEC CODE: NTMX89FA

CPC CODE: B0238638

RATING: STD

REPLACES: NTZZ47QD, NTZZ47TC

REPLACED BY: Not Applicable

ABBREVIATION NAME: CRSC

ENGINEERING DESCRIPTION: The NTMX89FA cabinet provides a CRSC equipped for an internal LCM. The LCM packfill and line cards, RMM packfill and circuit packs and external interface packs are provisionable based on office requirements. The doors, cable troughs, anchors and other mechanical equipment must be provided separately per documentation referenced herein.

REFERENCE DOCUMENTATION: ISMX89 00 14
MSMX89 00 13

MARKETS: Applicable markets:

US
Canada
CALA
Asia/Pacific
Europe

ISSUE AUTHOR: Deniece Land Dept. 3471 (PPK)

MAIN CONTACT: Deniece Land Dept. 3471 (PPK)

NTMX89FA EMA2-15-RCC2-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
96 06 07	ECM 691 16	Create section from NTZZ47QD/TC. Create NTZZ12XM RCC2 packfill. Create NTZZ12ZM Cooling Unit Kit. Change NT6X04BC to NT6X04ND.
96 10 24	ECM 691 17	Per EC 024-97137, reflect the NTZZ12VC (NT6X92EA) GTR and NTAX74AA CPM Processor introductions. Create the new NTZZ12XP (NTAX74AA) RCC2 International Packfill. Also, make release level changes to NTZZ12XB and NTZZ12XM to change NTMX72AB back to NTMX72AA per BNR/GPRD Management decision due to technical issues with the NTMX72AB.
97 03 07	ECM 691 19	Per EC 024-97290 include the NTMX76AB as a provisionable pack.
97 04 18	ECM 691 20	Per EC 024-97291 and EC 028-15577 introduce ISDN provisioning.
97 05 02	ECM 691 21	Per EC 024-97754 introduce the NTAX74AA.
97 10 10	ECM 691 22	Per SR76556 the NTMX8947 is always provided in the Model B NTMX89FA/FB. Per SR72866 Clarify the Provisioning rules for NTZZ12ZM Cooling Unit.

The Remote Switching Center - SONET Model B CRSC (LCM-ready) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Vertical Ground Bar Assy	NT0X9595		1			AP
Base Cabinet Kit	NTMX8903		1			AP
Remote Maint. Mod. Shelf	NT6X1306		1	19		AP-01
Modular Supervisory Panel	NTRX40AA	MSP	1	61		AP-01
Base Enhanced Cabinet Assy	NTRX25AA		1			AP-01
Ringing Generator Shf Assy	NTRX25AG		1	65		AP
Enhanced Line Module Shelf	NT6X0442		1	33		AP
RCC2 CPM Shelf	NTMX8501		1	06		AP
LCM Packfill	NT6X04MD			33		RUL1
ILCM Packfill	NT6X04ND			33		RUL1
QFFI Fuse Assembly	NT6X04FA			33, 47		RUL1
Line Drawers	NT6X05AA			33		RUL1
ISDN Line Drawer	NT6X05DA	LD		33		RUL1
LCM Module Fillers	NT6X04AX			33		RUL1
Line Drawer ID Labels	P0631765					RUL1
LCM Notice Label	P0694813					RUL1
Line card caution nameplat	P0708739					RUL1
External Power Kit (Vert.)	NTMX8904					RUL2
Internal Power Kit (Horiz.)	NTMX89KM					RUL2
Ringing Gen.(China/Austral)	NT6X30EA			65	1, 2	RUL3
Ringing Generator (U.K.)	NT6X30GA			65	1, 2	RUL3
Ringing Generator	NT6X30HA			65	1, 2	RUL3
Ringing Generator Filler	NTRX25AK			65	1, 2	RUL3
Remote Maint.Mod.(Domestic)	NT6X13AB			19		RUL4
Remote Maint.Mod.(Intern'l)	NT6X13EA			19		RUL4
Incoming/Outgoing Test Trk	NT2X90AD			19		RUL5
Scan Circuit Pack	NT0X10AA			19		RUL5
SD Circuit Pack	NT2X57AA			19		RUL5
Incoming Test Trunk	NT3X04AA			19		RUL5
for AECO Local Test						
8x8 Metallic Test Access	NT3X09BA			19		RUL5
Multiline Test (Analog)	NT2X10BA			19		RUL5
Multiline Test (Control)	NT2X11BA			19		RUL5
Multiline Test Unit Cntrl.	NT4X98BB			19		RUL5
Multiline Test (Analog)	NT4X97AA			19		RUL5
Balance Network	NT2X77AA			19		RUL5
Filler Faceplate	NT0X50AC			19:1-16		RUL5
Filler Faceplate	NT0X50AG			19:17		RUL5
Filler Faceplate	NT0X50AA			19:19		RUL5

Active Equipment
Remote Switching Center - SONET
Model B CRSC (LCM-ready)

NTMX89FA
EMA2-15-RCC2-1
Page 3

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Faceplate	NT0X50BE			19:20		RUL5
RMM Repowering Kit	NTMX89LA					RUL13
C28 English label kit	NTRX3541					RUL6
C28 German label kit	NTRX3542					RUL6
#RCC2 Packfill (International)	NTZZ12XM			06		RUL11
RCC2 Packfill (w/o EISP)	NTZZ12XB			06		RUL11
RCC2 Packfill	NTZZ12XF			06		RUL11
RCC2 Enhanced Packfill (International)	NTZZ12XP			06		RUL11
Enhanced ISP	NTBX01BA			06	4, 24	RUL11
Design label (NTBX01BA)	P0713794			06	4, 24	RUL11
Filler faceplate	NT0X50AA			06	4, 24	RUL11
EISP Strapping kit	NTMX8947			06		RUL11
# Enhanced Messaging CP	NT6X69AC			06	8, 20	RUL11
Design label (NT6X69AC)	P0710476			06	8, 20	RUL11
Enhanced Messaging CP (ADSI)	NT6X69AD			06	8, 20	RUL11
Design label (NT6X69AD)	P0800014			06	8, 20	RUL11
Messaging CP (International)	NT6X69LB			06	8, 20	RUL11
Desig. Label (NT6X69LB)	P0713213			06	8, 20	RUL11
Extended Distance Messaging	NTMX76AA			06	8, 20	RUL11
Design label (NTMX76AA)	P0744109			06	8, 20	RUL11
Extended Distance Messaging	NTMX76AB			06	8, 20	RUL11
Design label (NTMX76AB)	P0857783			06	8, 20	RUL11
Class Modem Resource BB	NTZZ12UA			06	5, 23	RUL8
Peripheral Loader BB	NTZZ02UB			06	5, 23	RUL8
Filler Plate	NT0X50AA			06	5, 23	RUL8
# UTR (NT6X92BB)	NTZZ12VA			06	6, 22	RUL9
# UTR (NT6X92BC)	NTZZ12VB			06	6, 22	RUL9
GTR (NT6X92EA)	NTZZ12VC			06	6, 22	RUL9
# Universal Tone Rec'vr (UTR)	NT6X92CA			06	6, 22	RUL9
Desig. Label (NT6X92CA)	P0677831			06	6, 22	RUL9
# UTR (NT6X92BB)	NTZZ12VA			06	7, 21	RUL9
# UTR (NT6X92BC)	NTZZ12VB			06	7, 21	RUL9
GTR (NT6X92EA)	NTZZ12VC			06	7, 21	RUL9
# Universal Tone Rec'vr (UTR)	NT6X92CA			06	7, 21	RUL9
Desig. Label (NT6X92CA)	P0677831			06	7, 21	RUL9
Peripheral Loader BB	NTZZ02UB			06	7, 21	RUL9
Filler Plate	NT0X50AA			06	7, 21	RUL9
Quad Carrier	NTMX87AA			06	9, 19	RUL7
Dual DS1 Packlet	NTMX81AA			06	9:0-3	RUL7
					19:0-3	
Dual PCM30 Packlet	NTMX82AA			06	9:0-3	RUL7

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Face Plate	NTMX83AA			06	19:0-3 9:1-3	RUL7
Enhanced D-Channel Handler	NTBX02BA			06	19:1-3 12,14,16	RUL10
Desig. Label (NTBX02BA)	P0737724			06	12,14,16	RUL10
Quad Frame Carrier	NTMX87AA			06	12	RUL10
Dual DS1 Packlet	NTMX81AA			06	12:0-3	RUL10
Dual PCM30 Packlet	NTMX82AA			06	12:0-3	RUL10
Filler Face Plate	NTMX83AA			06	12:0-3	RUL10
Quad Frame Carrier	NTMX87AA			06	14	RUL10
Dual DS1 Packlet	NTMX81AA			06	14:0-2	RUL10
Dual PCM30 Packlet	NTMX82AA			06	14:0-2	RUL10
Filler Face Plate	NTMX83AA			06	14:0-3	RUL10
Quad Frame Carrier	NTMX87AA			06	16	RUL10
Dual DS1 Packlet	NTMX81AA			06	16:0-3	RUL10
Dual PCM30 Packlet	NTMX82AA			06	16:0-3	RUL10
Filler Face Plate	NTMX83AA			06	16:0-3	RUL10
Filler Face Plate	NT0X50AA			06	12,14,16	RUL10
CRSC Door label (Blue)	P0715089					RUL12
CRSC Door label (Green)	P0746294					RUL12
CRSC RCC2/RMM (TwistPr) Kit	NTMX89KA					RUL14
CRSC RCC2/RMM (Coax) Kit	NTMX89KB					RUL14
CRSC/LCM MSP Kit	NTMX89KJ			61		RUL15
CRSC/LCM VF I/O Kit	NTMX89KH					RUL15
RSC-S Cooling Unit Kit	NTZZ12ZM	CU	1	00		RUL16
Cosmetic Endguards/EMI	Note 1					
Cabinet labels	Note 2					
Power and grounding	Note 3					
Cabinet mechanicals	Note 4					

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT6X69AC NT6X92BB/BC/CA NTZZ12VA/VB NTZZ12XM	A&M STD* STD* MD	NT6X69AD NT6X92EA NTZZ12VC NTZZ12XB

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 NTRX73 Engineering Manual Section for provisioning cosmetic endguards and EMI sidepanels.
- 2) Refer to MS0X60AA for cabinet labels.
- 3) Refer to NTZX16CA Engineering Manual Section for System Power and Grounding information.
- 4) Refer to NTRX25AA Engineering Manual Section for doors, anchors, cable troughs, frame fail lights and cabinet mechanical information.
- 5) Refer to NTRX70 for Installation hardware kit applicable to RSC-S
- 6) Items marked AP-01 are included in NTMX8903 and are shown for completeness.
- 7) STD* in flaglist means that the pec is still standard pending change. Check availability of replacement pec before ordering.

RULES:

- AP 1) When PEC NTMX89FA is ordered, these items are provided.
- RUL1 1) Provide one NT6X04MD LCM Packfill for domestic applications or provide one NT6X04ND ILCM Packfill for international applications.
- 2) Provide two NT6X04FA QFFI Fuse Assemblies and ten NT6X05AA Line Drawers to equip the LCM module in the CRSC. Provide one P0631765 Line Drawer label set, one P0694813 LCM notice label and two P0708739 line card caution nameplates when the LCM is equipped.
- 3) Provide one NT6X04AX LCM Filler kit and two NT6X04FA QFFI Fuse Assemblies when the internal LCM is not to be equipped. The NT6X04FA assemblies are needed to terminate internal cabling.
- 4) For ISDN applications provide one (1) NT6X05DA ISDN Line Drawer per LCM shelf, maximum two (2) per module. Each NT6X05DA accommodates up to 28 ISDN Line Cards in two logical drawers called Line Sub Groups (LSG) which can contain 14 cards each.
- The ISDN Line Drawer is for the North American market only.
- 5) For ISDN applications the NT6X51AA or NT6X51AB must be upgraded to NT6X51AC by the NT6X04ZY upgrade kit.
- 6) A maximum of seven (7) ISDN Line Drawers (NT6X05DA) per remote site can be applied to a single RSC Sonet.
- A maximum of fourteen (14) ISDN Line Drawers (NT6X05DA) per remote site can be applied to a dual RSC Sonet.
- 7) Only 1 ILD can be defined in each LCA (Line Concentrating Array). ISDN Line Drawer can not be applied to positions 0 or 10. Preferred positions for locating the ISDN Line Drawer is 8 or 18. This means that if the ILD drawer number of the first ILD is within the range 2 - 8, the next ILD to be defined in this LCM will have its drawer number within the range 12 - 18. This limitation exists in order to permit an optimal heat dispersion in the LCM.
- RUL2 1) Provide one (1) NTMX8904 External Power Kit for all cabinets that are to be externally powered. This will normally be used except for applications that are extending an existing Model A lineup.

- 2) Provide one (1) NTMX89KM Internal Power kit for all cabinets that utilize internal (horizontal) powering. This would normally include extension of a Model A lineup using the Model B cabinet.
- RUL3 1) Provide two (2) NT6X30HA Low Profile Ringing Generators for all domestic applications that will support POTS lines. Provide two (2) NTRX25AK fillers when the NT6X30--s are NOT provided.
- 2) Provide two (2) NT6X30EA Low Profile Ringing Generators for all China or Australian applications that will support POTS lines. Provide two (2) NTRX25AK fillers when the NT6X30--s are NOT provided.
- 3) Provide two (2) NT6X30GA Low Profile Ringing Generators for all United Kingdom applications that will support POTS lines. Provide two (2) NTRX25AK fillers when the NT6X30--s are NOT provided.
- RUL4 1) Provide one (1) NT6X13AB RMM packfill when the Remote Maintenance Module is to be equipped for domestic applications or one NT6X13EA RMM packfill for non-North American applications. If the RMM is not to be utilized, provide filler faceplates per RUL5.
- RUL5 1) Provide RMM circuit packs based on office requirements. Slot assignment restrictions are described in the TABLE below. Individual circuit pack provisioning information is included below.
- 2) Provide one (1) NT2X90AD Test Trunk on an "As Required" basis. A NT2X90AD must always be combined with an MTU to provide a talk monitor feature. The TR and TT leads on the NT2X90AD shall be connected to the same Metallic Test Access as the MTU leads T and R. Provide one (1) NT2X77AA Balance Network for each NT2X90AD.
- 3) Provide one (1) NT0X10AA Scan Circuit Pack for every fourteen (14) scan points required in a remote office. When connected to out-of-office leads, the NT0X10AA must be mounted in an EVEN numbered slot.
- 4) Provide one (1) NT2X57AA Miscellaneous SD Type 1 circuit pack for every fourteen (14) signal distribution points required for the remote office.
- 5) Provide one (1) NT3X04AA Incoming Test Trunk for each AECO Local Test Board interface.

- 6) Provide one (1) NT3X09BA 8X8 Metallic Test Access circuit pack 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.
- 7) Provide one (1) NT2X10BA and one (1) NT2X11BA for each Multiline Test Unit (MTU) required in domestic applications or provide one (1) NT4X98BB and one (1) NT4X97AA for each Multiline Test Unit (MTU) required in international applications. These packs must be installed in adjacent slots with the NT2X10BA/NT4X98BB occupying the odd numbered slot and the NT2X11BA/NT4X97AA in the next higher slot. A minimum of one MTU per office is required. The MTU requires -48V SP (Special Power). The MTU is required when using Electronic Business Sets. The MTU will not function correctly in slots 9 and 10 or slots 13-16.
- 8) Provide one (1) NT0X50AC for each unequipped slot 1-16 on the RMM shelf.
- 9) When the RMM shelf is NOT equipped, provide one (1) NT0X50AG for slot 17, one (1) NT0X50AA for slot 19, one (1) NT0X50BE for slot 20 and sixteen NT0X50ACs for slots 1-16.
- 10) The total -48V power consumption of the provisionable RMM circuit packs must not exceed 110 Watts. The power ratings of these packs are as follows:

Circuit Pack	Maximum Power Consumption
-----	-----
NT2X59 & NT6X74	25.0 Watts
NT0X10AA	2.0 Watts
NT2X57AA	4.5 Watts
NT2X90AD	1.5 Watts
NT3X04AA	28.0 Watts
NT3X09BA	11.5 Watts
NT2X10BA/NT4X98BB	20.0 Watts
NT2X11BA/NT4X97AA	9.0 Watts

- 11) The following TABLE shows the allowable mounting positions for each provisionable RMM circuit pack:

	SLOTS	03	04	05	06	07	08	09	10	11	12	13	14	15	16
CIRCUIT PACK															
NT2X10BA		Y	N	Y	N	Y	N	N	N	Y	N	N	N	N	N
NT2X11BA		N	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N

NT4X98BB	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N	N
NT4X97AA	N	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N
NT0X10AA	N	Y	C	Y	C	Y	C	N	C	Y	C	Y	C	Y
NT2X57AA	N	Y	C	Y	C	Y	C	N	C	Y	C	Y	C	Y
NT2X90AD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NT3X04AA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NT3X09BA	N	Y	N	Y	N	Y	N	N	N	Y	N	Y	N	Y

NOTE: N denotes a slot that CANNOT be used for that pack.

Y denotes a slot that CAN be used for that pack.

C denotes a slot that can be used for that pack ONLY if it will not be used for out-of-office leads.

- RUL6 1) Provide one NTRX3541 per cabinet for applications requiring labels in English.
- 2) Provide one NTRX3542 per cabinet for applications requiring labels in German.
- RUL7 1) Provision DS-1/PCM-30 packlets for C-side interface based on host traffic requirements. Two interfaces are provided per packlet. Provide two NTMX87AA Quad Carriers in slots 9 and 19 for all applications. At least two DS1 or PCM30 packlets are needed for host interface for all applications. These two packlets mount in slots 9:0 and 19:0.
- 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.
- RUL8 1) Provide one (1) NTZZ12UA in slots 5 & 23 when the CLASS (CMS) Calling Number Delivery feature is provisioned.
- 2) Provide one (1) NTZZ02UB in slots 5 & 23 when support for the Flash Loader feature is required and support for Calling Number Delivery is not required. Refer to RUL9 if calling number delivery is required.
- 3) If slots 5 and 23 are not equipped, provide two (2) NT0X50AA fillers.

- 4) The NTAX74AA does not support the NT7X05AA Peripheral Loader (NTZZ02UB) prior to XPM 081 software release for the North American market. If the NT7X05AA is present, replace with NT0X50AA filler panel and label. As of XPM081, the NT7X05AA will provide Loadfile support for the NTAX74AA in DMS100 RSCS applications. Imaging capability 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 08G.

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 NTB01BA.

- RUL9 1) One UTR/GTR Pair in Slot 6 & 22 is always required. Provide one (1) NTZZ12VB for domestic applications or two (2) NT6X92CAs for international applications.

NOTE - The NTZZ12VC contains (2) NT6X92EA GTR cards and is supported globally. Check availability before ordering. When available, the NT6X92EA replaces the NT6X92BC and NT6X92CA. DO NOT mix the NT6X92EA with any other UTR on 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 a second UTR pair for slots 7 and 21.

Note: A traffic analysis via REALQUICK or PRTCALC is required for exact provisioning.

- 3) Provide one (1) NTZZ02UB in slots 7 & 21 when support for the Flash Loader feature is required, support for Calling Number Delivery is required and a second pair of UTRs is not needed. NTZZ02UB can be provided in either slots 5 and 23 or slots 7 and 21 (whichever pair of slots is available). Provide only one NTZZ02UB per RCC2.
- 4) If slots 7 and 21 are not equipped, provide two (2) NT0X50AA fillers.

- RUL10 1) When provisioning EDCHs, DS-30As and DS-1/PCM30s 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 EDCH circuit packs are Always Provided as part of the shelf.
- 3) When neither a EDCH 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.
- 5) DS30A ports are to be assigned beginning with port 53 and then descending.

- RUL11 1) Provide one (1) NTZZ12XB RCC2 packfill which contains NTMX77AA

- 2) The NTAX74AA may be provisioned using the NTZZ12XF RCC2 packfill: ssor pack. (Note that the contents are exactly the same as NTZZ12XP)

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

u 5 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 capability 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 08G.

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 NTB01BA.

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 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.

The NTAX74AA does not support the NT7X05AA Peripheral Loader (NTZZ02UB) prior to XPM 081 software release for the North American market. If the NT7X05AA is present, replace with NT0X50AA filler panel and label.

- 3) Provide one (1) NTZZ12XP RCC2 Enhanced Packfill per GL03 CRSC applications. This packfill provides the NTAX74AA Processor, which is to be used for the GL03 products and later releases of GL software for GL-100 applications.

The NTAX74AA does not support the NT7X05AA Peripheral Loader (NTZZ02UB) in XPM07G. If the NT7X05AA is present, replace with NT0X50AA filler panel and label.

- 4) Provide one NTZZ12XB/XF/XP common CP fill per CRSC. 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/XP packfills contain 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 ap-

plications. The following additional equipment must be supplied:

1. EITHER two (2) NTBX01BA EISP packs and
two (2) P0713794 labels for ISDN support

OR two (2) NT0X50AA fillers for non-ISDN

(The NTMX8947 EISP Strapping kit is standard with
the Model B design - provisionable on Model A)

2. EITHER two (2) NT6X69AD packs and two (2)
P0800014 labels for standard distance
capability in domestic applications. The
NT6X69AD requires XPM03/NA001 and higher. The
NT6X69AD replaces the NT6X69AC in all new
applications. The NT6X69AC should only be
ordered for BCS36 and lower applications.
The NT6X69AD is required for the ADSI/SCWID
feature available in BCS36+.

OR two (2) NT6X69LB packs and two (2)

P0713213 labels for standard distance
capability in International applications.
This pack supports the remote at a maximum
distance of 100 miles from the host.

OR two (2) NTMX76AA packs and two (2) P0744109

labels for extended distance capability. The
NTMX76AA does not support the ADSI/SCWID feature.

OR two (2) NTMX76AB packs and two (2) P0857783

labels for extended distance capability and the
ADSI/SCWID feature.

- 3) The HDLC Messaging used in the NTMX76-- pack allows up to
6.5 ms delay (one way) between the line subscriber and the
host controller. EDC requires BCS-36 for International ap-
plications.

- RUL12 1) Provide one P0715089 Door label per CRSC when grey equip-
ment is supplied or one P0746294 Door label per CRSC when
brown equipment is supplied. Only grey equipment is cur-
rently supported for International application.

- RUL13 1) Provide one NTMX89LA kit when the RMM must be powered from the "B" feed. The RMM in a CRSC is normally powered from the "A" feed, while the RMM in a CEXT is powered from the "B" feed. If an office has two CRSC cabinets with RMMs and no CEXT, and the customer wants the RMMs on different power feeds, provide one NTMX89LA to convert one RMM to power from the "B" feed.

- RUL14 1) Provide one (1) NTMX89KA CRSC RCC2/RMM Twisted Pair Kit for twisted pair applications OR provide one (1) NTMX89KB CRSC RCC2/RMM Coax Kit for International coax applications.

The NTMX89KA contains:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS
Bulkhead 05 CPM Conn Plate	NTMX8909		1	05	
Bulkhead 19 CPM Conn Plate	NTMX8967		1	19	

The NTMX89KB contains:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS
PCM30 Coax PCB Assembly	NTMX8989		1	05	
PCM30 Ext Blkhd 19 Plate	NTMX8980		1	19	

- RUL15 1) Always provide one (1) NTMX89KJ CRSC/LCM MSP Kit and one (1) NTMX89KH CRSC/LCM VF I/O Kit per NTMX89FA cabinet.

The NTMX89KJ contains:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS
Alarm Module	NTRX41AA		1	61	5
Breaker Module (10A)	NTRX42AA		5	61	10-14
Breaker Module (20A)	NTRX42CA		2	61	15,16
Fuse Module	NTRX43AA		1	61	7
Talk-Battery Filter	NTRX44AA		2	61	1,3
Blank Rear Panel 2.40"	P0734475		2	61	8,17
Blank Rear Panel 1.20"	P0734476		4	61	4R,8R, 17R,20R

The NTMX89KH contains:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS
Blkhd 33 Connector Plate	NTMX8969		1	33	
Blkhd 47 Connector Plate	NTMX8982		1	47	

- RUL16 1) Always provide one (1) NTZZ12ZM Cooling Unit Kit per cabinet. The NTZZ12ZM Building Block contains the Cooling and other Misc. items that are always provisioned with the

RSC-S Model B Cabinet, NTMX89FA/FB/FC. The NTZZ12ZM contains:

EQUIPMENT	PEC	ABBR	QTY	SHF POS
Cooling Unit Kit, 10"	NTRX92AA	CU	1	00
Cooling Unit, 10"	NTRX91AA*	CU	1	00
FPC (-48V CU Power/Alarm)	NTRX54BA		1	61
FPC Label	P0741680		1	61

* Included with NTRX92AA.

REMOTE SWITCHING CENTER - SONET
MODEL B CRSC (LCME-READY)

PEC CODE: NTMX89FB

CPC CODE: B0238639

RATING: STD

REPLACES: NTZZ47RQ, NTZZ47UC

REPLACED BY: Not Applicable

ABBREVIATION NAME: CRSC

ENGINEERING DESCRIPTION: The NTMX89FB cabinet provides the base equipment for one CRSC equipped for an internal LCME. The LCME packfill and line cards, RMM packfill and circuit packs and external interface packs are provisionable based on office requirements. The doors, cable troughs, anchors and cabinet mechanicals must be provided separately based on documentation referenced herein.

REFERENCE DOCUMENTATION: ISMX89 00 14
MSMX89 00 13

MARKETS: Applicable markets:

US
Canada
CALA
Asia/Pacific
Europe

ISSUE AUTHOR: Deniece Land Dept. 3471 (PPK)

MAIN CONTACT: Deniece Land Dept. 3471 (PPK)

NTMX89FB EMA2-15-RCC2-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
96 06 07	ECM 691 16	Create section from NTZZ47RQ/UC. Create NTZZ12XM RCC2 packfill. Create NTZZ12ZM Cooling Unit Kit. Correct rule for NTB31PB kit.
96 10 24	ECM 691 17	Per EC 024-97137, reflect the NTZZ12VC (NT6X92EA) GTR and NTAX74AA CPM Processor introductions. Create the new NTZZ12XP (NTAX74AA) RCC2 International Packfill. Also, make release level changes to NTZZ12XB and NTZZ12XM to change NTMX72AB back to NTMX72AA per BNR/GPRD Management decision due to technical issues with the NTMX72AB.
97 03 07	ECM 691 19	Per EC 024-97290 include the NTMX76AB as a provisionable pack. Include P0631765 Line Drawer label Set into the equipment list.
97 05 02	ECM 691 21	Per EC 024-97754 include the NTAX74AA as a provisionable pack. Close SR RR6A740 with clarification added to Rule 1.
97 10 10	ECM 691 22	Per SR76556 the NTMX8947 is always provided in the Model B NTMX89FA/FB show no longer provisionable. Per EC 024-97867 show the NTB31BB MD'ed and replaced by NTB31BC. Per EC 024-98443 add the NTMX89ZB CRSC Field Grounding PC Kit for Field Applications ONLY on NTMX89FB/FC. Per SR72866 Clarify the Provisioning rules for NTZZ12ZM Cooling Unit.

The Remote Switching Center - SONET Model B CRSC (LCME-ready) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Vertical Ground Bar Assy	NT0X9595		1			AP
Base Cabinet Kit	NTMX8903		1			AP
Remote Maint. Mod. Shelf	NT6X1306		1	19		AP-01
Modular Supervisory Panel	NTRX40AA	MSP	1	61		AP-01
Base Enhanced Cabinet Assy	NTRX25AA		1			AP-01
Ringing Generator Shf Assy	NTRX25AG		1	65		AP
ISDN LCA Shelf	NTBX3118		2	33, 47		AP
RCC2 CPM Shelf	NTMX8501		1	06		AP
CRSC Field Grounding Kit	NTMX89ZB		1			RUL17
# ISDN 2B1Q Line Conc. Mod.	NTZZ17HA	LCME		33, 47		RUL1
ISDN 2B1Q Line Conc. Mod.	NTZZ17HB	LCME		33, 47		RUL1
# LCME Packfill Upgrade Kit	NTBX31PA					RUL1
LCME Packfill Upgrade Kit	NTBX31PB					RUL1
Line Drawer label set	P0631765					RUL1
LCM Notice Label	P0694813					RUL1
Line card caution nameplate	P0708739					RUL1
Subscriber Line Cards	AR					RUL1
LCME Fillers Plates	NTBX31AB			33, 47		RUL1
Line Drawer fillers	NT6X05AX			33, 47	1, 5, 9, 13	RUL1
External Power Kit (Vert.)	NTMX8904					RUL2
Internal Power Kit (Horiz.)	NTMX89KM					RUL2
Ringing Gen.(China/Austral)	NT6X30EA			65	1, 2	RUL3
Ringing Generator (U.K.)	NT6X30GA			65	1, 2	RUL3
Ringing Generator	NT6X30HA			65	1, 2	RUL3
Ringing Generator Filler	NTRX25AK			65	1, 2	RUL3
Remote Maint.Mod.(Domestic)	NT6X13AB			19		RUL4
Remote Maint.Mod.(Intern'l)	NT6X13EA			19		RUL4
Incoming/Outgoing Test Trk	NT2X90AD			19		RUL5
Scan Circuit Pack	NT0X10AA			19		RUL5
SD Circuit Pack	NT2X57AA			19		RUL5
Incoming Test Trunk for AECO Local Test	NT3X04AA			19		RUL5
8x8 Metallic Test Access	NT3X09BA			19		RUL5
Multiline Test (Analog)	NT2X10BA			19		RUL5
Multiline Test (Control)	NT2X11BA			19		RUL5
Multiline Test (Analog)	NT4X98BB			19		RUL5
Multiline Test (Control)	NT4X97AA			19		RUL5
Balance Network	NT2X77AA			19		RUL5

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Faceplate	NT0X50AC			19:1-16		RUL5
Filler Faceplate	NT0X50AG			19:17		RUL5
Filler Faceplate	NT0X50AA			19:19		RUL5
Filler Faceplate	NT0X50BE			19:20		RUL5
RMM Repowering Kit	NTMX89LA					RUL13
C28 English Label Kit	NTRX3541					RUL6
C28 German Label Kit	NTRX3542					RUL6
# RCC2 Packfill (Intl.)	NTZZ12XM			06		RUL11
RCC2 Packfill (w/o EISP)	NTZZ12XB			06		RUL11
RCC2 Enhanced Packfill (International)	NTZZ12XP			06		RUL11
RCC2 Enhanced Packfill	NTZZ12XF			06		RUL11
Enhanced ISP	NTBX01BA			06	4, 24	RUL11
Design label (NTBX01BA)	P0713794			06	4, 24	RUL11
Filler faceplate	NT0X50AA			06	4, 24	RUL11
EISP Strapping kit	NTMX8947			06		RUL11
# Enhanced Messaging CP	NT6X69AC			06	8, 20	RUL11
Design label (NT6X69AC)	P0710476			06	8, 20	RUL11
Enhanced Messaging CP (ADSI)	NT6X69AD			06	8, 20	RUL11
Design label (NT6X69AD)	P0800014			06	8, 20	RUL11
Messaging CP (International)	NT6X69LB			06	8, 20	RUL11
Desig. Label (NT6X69LB)	P0713213			06	8, 20	RUL11
Extended Distance Messaging	NTMX76AA			06	8, 20	RUL11
Design label (NTMX76AA)	P0744109			06	8, 20	RUL11
Extended Distance Messaging	NTMX76AB			06	8, 20	RUL11
Design label (NTMX76AB)	P0857783			06	8, 20	RUL11
Class Modem Resource BB	NTZZ12UA			06	5, 23	RUL8
Peripheral Loader BB	NTZZ02UB			06	5, 23	RUL8
Filler Plate	NT0X50AA			06	5, 23	RUL8
# UTR (NT6X92BB)	NTZZ12VA			06	6, 22	RUL9
# UTR (NT6X92BC)	NTZZ12VB			06	6, 22	RUL9
GTR (NT6X92EA)	NTZZ12VC			06	6, 22	RUL9
# Universal Tone Rec'vr (UTR)	NT6X92CA			06	6, 22	RUL9
Desig. Label (NT6X92CA)	P0677831			06	6, 22	RUL9
# UTR (NT6X92BB)	NTZZ12VA			06	7, 21	RUL9
# UTR (NT6X92BC)	NTZZ12VB			06	7, 21	RUL9
GTR (NT6X92EA)	NTZZ12VC			06	7, 21	RUL9
# Universal Tone Rec'vr (UTR)	NT6X92CA			06	7, 21	RUL9
Desig. Label (NT6X92CA)	P0677831			06	7, 21	RUL9
Peripheral Loader BB	NTZZ02UB			06	7, 21	RUL9
Filler Plate	NT0X50AA			06	7, 21	RUL9
Quad Carrier	NTMX87AA			06	9, 19	RUL7
Dual DS1 Packlet	NTMX81AA			06	9:0-3	RUL7

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Dual PCM30 Packlet	NTMX82AA			06	19:0-3 9:0-3	RUL7
Filler Face Plate	NTMX83AA			06	19:0-3 9:1-3	RUL7
Enhanced D-Channel Handler	NTBX02BA			06	19:1-3 12,14, 16	RUL10
Quad Frame Carrier	NTMX87AA			06	12	RUL10
Dual DS1 Packlet	NTMX81AA			06	12:0-3	RUL10
Dual PCM30 Packlet	NTMX82AA			06	12:0-3	RUL10
Filler Face Plate	NTMX83AA			06	12:0-3	RUL10
Quad Frame Carrier	NTMX87AA			06	14	RUL10
Dual DS1 Packlet	NTMX81AA			06	14:0-2	RUL10
Dual PCM30 Packlet	NTMX82AA			06	14:0-2	RUL10
Filler Face Plate	NTMX83AA			06	14:0-3	RUL10
Quad Frame Carrier	NTMX87AA			06	16	RUL10
Dual DS1 Packlet	NTMX81AA			06	16:0-3	RUL10
Dual PCM30 Packlet	NTMX82AA			06	16:0-3	RUL10
Filler Face Plate	NTMX83AA			06	16:0-3	RUL10
Filler Face Plate	NT0X50AA			06	12,14, 16	RUL10
CRSC Door label (Blue)	P0715089					RUL12
CRSC Door label (Green)	P0746294					RUL12
CRSC RCC2/RMM (TwistPr) Kit	NTMX89KA					RUL14
CRSC RCC2/RMM (Coax) Kit	NTMX89KB					RUL14
CRSC/ISDN MSP Kit	NTMX89KK					RUL15
CRSC/ISDN VF I/O Kit	NTMX89KG					RUL15
RSC-S Cooling Unit Kit	NTZZ12ZM	CU	1	00		RUL16
Cosmetic Endguards/EMI	Note 1					
Cabinet labels	Note 2					
Power and grounding	Note 3					
Cabinet mechanicals	Note 4					

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NTZZ17HA	A&M	NTZZ17HB
NTBX31BB	MD	NTBX31BC
NTBX31PA	A&M	NTBX31PB
NT6X69AC	A&M	NT6X69AD
NT6X92BB/BC/CA	STD*	NT6X92EA
NTZZ12VA/VB	STD*	NTZZ12VC
NTZZ12XM	MD	NTZZ12XB

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 NTRX73 Engineering Manual Section for provisioning cosmetic endguards and EMI sidepanels.
- 2) Refer to MS0X60AA for cabinet labels.
- 3) Refer to NTZX16CA Engineering Manual Section for System Power and Grounding information.
- 4) Refer to NTRX25AA Engineering Manual Section for doors, anchors, cable troughs, frame fail lights and cabinet mechanical information.
- 5) Refer to NTRX70 for Installation hardware kit for use with RSC-S applications.
- 6) Items marked AP-01 are included in NTMX8903 and are shown for completeness.
- 7) STD* in flaglist means that the pec is still standard pending change. Check availability of replacement pec before ordering.

RULES:

- AP 1) When PEC NTMX89FB is ordered, these items are provided.
- RUL1 1) Provide one (1) NTZZ17HB LCME Building Block for each LCME (2B1Q) module required. Provide one P0631765 Line Drawer label set, one P0694813 LCM notice label and two P0708739 line card caution labels when the LCME is equipped.
- 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 NTB31AB Filler Plate set and eight NT6X05AX line drawer fillers when the LCME module is not to be equipped.
- 4) 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.
- 5) 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 NTB32BA for more information.
- 6) 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.

- 7) 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.

- 8) 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.

- 9) Provision IBERT for data path/ISDN loop testing. Provision only one per LCME.
- 10) Provision a maximum of 32 single slot cards in even line subgroups and 28 in odd line subgroups.

- 11) Provide one (1) NTB31PA Kit to upgrade one existing NTB31BA packfill to NTB31BC. All existing NTB31BA packfills can be upgraded with the NTB31PA kit. 12) Provide one (1) NTB31PB Kit to upgrade one existing NTB31BB packfill to NTB31BC. All existing NTB31BB packfills can be upgraded with the NTB31PB kit.

Change out existing NTB34BC CPs to NTB34CB CPs if the customer specifically requests so. The NTB34CB resolves component obsolescence and robustness issues.

- RUL2 1) Provide one (1) NTMX8904 External Power Kit for all cabinets that are to be externally powered. This will normally be used except for applications that are extending an existing Model A lineup.
- 2) Provide one (1) NTMX89KM Internal Power kit for all cabinets that utilize internal (horizontal) powering. This would normally include extension of a Model A lineup using the Model B cabinet.
- RUL3 1) Provide two (2) NT6X30HA Low Profile Ringing Generators for all domestic applications that will support POTS lines. Provide two (2) NTRX25AK fillers when the NT6X30--s are NOT provided.
- 2) Provide two (2) NT6X30EA Low Profile Ringing Generators for Chinese and Australian applications that will support POTS lines. Provide two (2) NTRX25AK fillers when the NT6X30--s are NOT provided.
- 3) Provide two (2) NT6X30GA Low Profile Ringing Generators for all United Kingdom applications that will support POTS lines. Provide two (2) NTRX25AK fillers when the NT6X30--s are NOT provided.
- RUL4 1) Provide one (1) NT6X13AB RMM packfill when the Remote Maintenance Module is to be equipped for domestic applications or one (1) NT6X13EA RMM packfill to equip for non-North American applications. If the RMM is not to be utilized, provide filler faceplates per RUL5.
- RUL5 1) Provide RMM circuit packs based on office requirements. Slot assignment restrictions are described in the TABLE below. Individual circuit pack provisioning information is included below.
- 2) Provide one (1) NT2X90AD Test Trunk on an "As Required" basis. A NT2X90AD must always be combined with an MTU to pro-

vide a talk monitor feature. The TR and TT leads on the NT2X90AD shall be connected to the same Metallic Test Access as the MTU leads T and R. Provide one (1) NT2X77AA Balance Network for each NT2X90AD.

- 3) Provide one (1) NT0X10AA Scan Circuit Pack for every fourteen (14) scan points required in a remote office. When connected to out-of-office leads, the NT0X10AA must be mounted in an EVEN numbered slot.
- 4) Provide one (1) NT2X57AA Miscellaneous SD Type 1 circuit pack for every fourteen (14) signal distribution points required for the remote office.
- 5) Provide one (1) NT3X04AA Incoming Test Trunk for each AECO Local Test Board interface.
- 6) Provide one (1) NT3X09BA 8X8 Metallic Test Access circuit pack 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.
- 7) Provide one (1) NT2X10BA and one (1) NT2X11BA for each Multiline Test Unit (MTU) required in domestic applications or provide one (1) NT4X98BB and one (1) NT4X97AA for each Multiline Test Unit (MTU) required in international applications. These packs must be installed in adjacent slots with the NT2X10BA/NT4X98BB occupying the odd numbered slot and the NT2X11BA/NT4X97AA in the next higher slot. A minimum of one MTU per office is required. The MTU requires -48V SP (Special Power). The MTU is required when using Electronic Business Sets. The MTU will not function correctly in slots 9 and 10 or slots 13-16.
- 8) Provide one (1) NT0X50AC for each unequipped slot 1-16 on the RMM shelf.
- 9) When the RMM shelf is NOT equipped, provide one (1) NT0X50AG for slot 17, one (1) NT0X50AA for slot 19, one (1) NT0X50BE for slot 20 and sixteen NT0X50ACs for slots 1-16.
- 10) The total -48V power consumption of the provisionable RMM circuit packs must not exceed 110 Watts. The power ratings of these packs are as follows:

Circuit Pack	Maximum Power Consumption
-----	-----
NT2X59 & NT6X74	25.0 Watts
NT0X10AA	2.0 Watts

NT2X57AA	4.5 Watts
NT2X90AD	1.5 Watts
NT3X04AA	28.0 Watts
NT3X09BA	11.5 Watts
NT2X10BA/NT4X98BB	20.0 Watts
NT2X11BA/NT4X97AA	9.0 Watts

- 11) The following TABLE shows the allowable mounting positions for each provisionable RMM circuit pack:

CIRCUIT PACK	SLOTS	03	04	05	06	07	08	09	10	11	12	13	14	15	16
NT2X10BA		Y	N	Y	N	Y	N	N	N	Y	N	N	N	N	N
NT2X11BA		N	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N
NT4X98BB		Y	N	Y	N	Y	N	N	N	Y	N	N	N	N	N
NT4X97AA		N	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N
NT0X10AA		N	Y	C	Y	C	Y	C	N	C	Y	C	Y	C	Y
NT2X57AA		N	Y	C	Y	C	Y	C	N	C	Y	C	Y	C	Y
NT2X90AD		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NT3X04AA		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NT3X09BA		N	Y	N	Y	N	Y	N	N	N	Y	N	Y	N	Y

NOTE: N denotes a slot that CANNOT be used for that pack.
 Y denotes a slot that CAN be used for that pack.
 C denotes a slot that can be used for that pack ONLY
 if it will not be used for out-of-office leads.

- RUL6 1) Provide one NTRX3541 per cabinet for applications requiring labels in English.
- 2) Provide one NTRX3542 per cabinet for applications requiring labels in German.
- RUL7 1) Provision DS-1/PCM-30 packlets for C-side interface based on host traffic requirements. Two interfaces are provided per packlet. Provide two NTMX87AA Quad Carriers in slots 9 and 19 for all applications. At least two DS1 or PCM30 packlets mounted in slots 9:0 and 19:0 are required for host interface.

- 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.
- RUL8
- 1) Provide one (1) NTZZ12UA in slots 5 & 23 when the CLASS (CMS) Calling Number Delivery feature is provisioned.
 - 2) Provide one (1) NTZZ02UB in slots 5 & 23 when support for the Flash Loader feature is required and support for Calling Number Delivery is not required. Refer to RUL9 if calling number delivery is required.
 - 3) If slots 5 and 23 are not equipped, provide two (2) NT0X50AA fillers.
 - 4) The NTAX74AA does not support the NT7X05AA Peripheral Loader (NTZZ02UB) prior to XPM 081 software release for the North American market. If the NT7X05AA is present, replace with NT0X50AA filler panel and label.
- RUL9
- 1) One UTR/GTR Pair in Slot 6 & 22 is always required. Provide one (1) NTZZ12VB for domestic applications or two (2) NT6X92CAs for international applications.
- NOTE - The NTZZ12VC contains (2) NT6X92EA GTR cards and is supported globally. Check availability before ordering. When available, the NT6X92EA replaces the NT6X92BC and NT6X92CA. DO NOT mix the NT6X92EA with any other UTR on 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 a second UTR pair for slots 7 and 21.
- Note: A traffic analysis via REALQUICK or PRTCALC is required for exact provisioning.
- 3) Provide one (1) NTZZ02UB in slots 7 & 21 when support for the Flash Loader feature is required, support for Calling Number Delivery is required and a second pair of UTRs is not needed. NTZZ02UB can be provided in either slots 5 and 23 or slots 7 and 21 (whichever pair of slots is available). Provide only one NTZZ02UB per RCC2.

- 4) If slots 7 and 21 are not equipped, provide two (2) NT0X50AA fillers.

- RUL10 1) When provisioning EDCHs, DS-30As and DS-1/PCM30s 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 EDCH circuit packs are Always Provided as part of the shelf.
- 3) When neither a EDCH 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.
- 5) DS30A ports are to be assigned beginning with port 53 and then descending.

- RUL11 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, Asia Pacific markets prior to XPM 081 software release, and European markets prior to XPM 08E software release.

- 2) Provide one (1) NTZZ12XF RCC2 packfill which contains NTAX74AA Processor pack. The NTZZ12XF Contains: re release or later, Asia Pacific markets with XPM 081 software release or later, and European markets with XPM 08E software release or later.

Provide the NTAX74AA for all initials and extensions that meet the market and software requirements listed below. The NTZZ03AC provides (2) NTAX74AA CP's and (2) P0800860 Labels.

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.

NTAX74AA will be required with XPM081.

As of XPM081, the NT7X05AA will provide loadfile support for the NTAX74AA in the DMS100 RSCS Applications.

Existing sites with the NTMX77AA will work with XPM 08 software releases and later.

The NTAX74AA does not support the NT7X05AA Peripheral Loader (NTZZ02UB) prior to XPM 081 software release for the North American market. If the NT7X05AA is present, replace with NT0X50AA filler panel and label.

- 3) Provide one (1) NTZZ12XP RCC2 Enhanced Packfill per GL03 CRSC applications. This packfill provides the NTAX74AA Processor, which is to be used for the GL03 products and later releases of GL software, for GL-100 applications.

The NTAX74AA does not support the NT7X05AA Peripheral Loader (NTZZ02UB) in XPM07G. If the NT7X05AA is present, replace with NT0X50AA filler panel and label.

- 4) Provide one NTZZ12XB/XF/XP common CP fill per CRSC. 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/XP packfills contain 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. The following additional equipment must be supplied:

1. EITHER two (2) NTBX01BA EISP packs and
two (2) P0713794 labels for ISDN support

OR two (2) NT0X50AA fillers for non-ISDN

(The NTMX8947 EISP Strapping kit is standard with the Model B design - provisionable on Model A)

2. EITHER two (2) NT6X69AD packs and two (2) P0800014 labels for standard distance capability in domestic applications. The NT6X69AD requires XPM03/NA001 and higher. The NT6X69AD replaces the NT6X69AC in all new applications. The NT6X69AC should only be ordered for BCS36 and lower applications. The NT6X69AD is required for the ADSI/SCWID feature available in BCS36+.

OR two (2) NT6X69LB packs and two (2)

P0713213 labels for standard distance capability in International applications. This pack supports the remote at a maximum distance of 100 miles from the host.

- OR two (2) NTMX76AA packs and two (2) P0744109 labels for extended distance capability. The NTMX76AA does not support the ADSI/SCWID feature.
- OR two (2) NTMX76AB packs and two (2) P0857783 labels for extended distance capability and the ADSI/SCWID feature.

- 5) The HDLC Messaging used in the NTMX76-- pack allows up to 6.5 ms delay (one way) between the line subscriber and the host controller. EDC requires BCS-36 for International applications.

- RUL12 1) Provide one P0715089 Door label per CRSC when grey equipment is supplied or one P0746294 Door label per CRSC when brown equipment is supplied. Only grey equipment is currently supported for International application.

- RUL13 1) Provide one NTMX89LA kit when the RMM must be powered from the "B" feed. The RMM in a CRSC is normally powered from the "A" feed, while the RMM in a CEXT is powered from the "B" feed. If an office has two CRSC cabinets with RMMs and no CEXT, and the customer wants the RMMs on different power feeds, provide one NTMX89LA to convert one RMM to power from the "B" feed.

- RUL14 1) Provide one (1) NTMX89KA CRSC RCC2/RMM Twisted Pair Kit for twisted pair applications OR provide one (1) NTMX89KB CRSC RCC2/RMM Coax Kit for International coax applications.

The NTMX89KA contains:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS
Bulkhead 05 CPM Conn Plate	NTMX8909		1	05	
Bulkhead 19 CPM Conn Plate	NTMX8967		1	19	

The NTMX89KB contains:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS
PCM30 Coax PCB Assembly	NTMX8989		1	05	
PCM30 Ext Blkhd 19 Plate	NTMX8980		1	19	

- RUL15 1) Always provide one (1) NTMX89KK CRSC/ISDN MSP Kit and one (1) NTMX89KG CRSC/ISDN VF I/O Kit per NTMX89FB cabinet.

The NTMX89KK contains:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS
Alarm Module	NTRX41AA		1	61	5
Breaker Module (10A)	NTRX42AA		5	61	10-14
Breaker Module (20A)	NTRX42CA		2	61	15,16
Fuse Module	NTRX43AA		1	61	7
Talk-Battery Filter	NTRX44AA		2	61	1,3
Blank Rear Panel 2.40"	P0734475		2	61	8,17
Blank Rear Panel 1.20"	P0734476		4	61	4R,8R, 17R,20R

The NTMX89KG contains:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS
Blkhd 33 Connector Plate	NTMX8978		1	33	
Blkhd 47 Connector Plate	NTMX8983		1	47	

- RUL16 1) Always provide one (1) NTZZ12ZM Cooling Unit Kit per cabinet. The NTZZ12ZM Building Block contains the Cooling and other Misc. items that are always provisioned with the RSC-S Model B Cabinet, NTMX89FA/FB/FC. The NTZZ12ZM contains:

SHF	EQUIPMENT	PEC	ABBR	QTY	POS
	Cooling Unit Kit, 10"	NTRX92AA CU	1	00	Cool-
	ing Unit, 10"	NTRX91AA* CU	1	00	
01	FPC (-48V CU Power/Alarm)	NTRX54BA	1	61	
	FPC Label	P0741680	1	61	

* Included with NTRX92AA.

- RUL17 1) PROVIDE ONE (1) NTMX89ZB, CRSC FIELD Grounding Produce Change Kit, Per Cabinet, to resolve P-Phone line card (NT6X21) noise. This Kit alters the existing grounding scheme of field-installed cabinets to eliminate noise detected when using NT6X21 p-phones line cards in the LCME's of the NTMX89FB/FC cabinets. The NTMX89ZB is provisioned for field applications ONLY. Refer to PCMX89ZB for details of change.

REMOTE SWITCHING CENTER - SONET
MODEL B CEXT

PEC CODE: NTMX89FC

CPC CODE: B0238640

RATING: STD

REPLACES: NTZZ47SB, NTZZ47SN

REPLACED BY: Not Applicable

ABBREVIATION NAME: CEXT

ENGINEERING DESCRIPTION: The NTMX89FC cabinet provides the base equipment for one Cabinetized Extension. This cabinet extends the interface capabilities of the Cabinetized RSC by providing mounting positions for additional DCHs and DS-1 packlets. It provides the base cabinet which can be equipped with one LCME packfill and one RMM, based on office requirements. The LCME packfill and line cards and the RMM packfill and circuit packs must be provisioned separately. External interface packs must be provisioned based on office configuration. The doors, anchors, frame fail lights and cabinet mechanicals must be ordered separately based on documentation referenced herein.

REFERENCE DOCUMENTATION: ISMX89 00 08

MARKETS: Applicable markets:

US
Canada
CALA
Asia/Pacific
Europe

ISSUE AUTHOR: Scott Maggiolo Dept. 3471 (PPK)

MAIN CONTACT: Scott Maggiolo Dept. 3471 (PPK)

NTMX89FC EMA2-15-RCC2-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
96 06 07	ECM 691 16	Create section from NTZZ47SB/SN. Create NTZZ12ZM Cooling Unit Kit. Correct rule for NTB31PB kit. Per EC 02497867 MD NTB31BB replaced NTB31BC.
97 10 10	ECM 691 22	Per EC 024-97867 NTB31BB is MD'ed and replaced by NTB31BC. Per EC 024-98443 add the NTMX89ZB CRSC Field Grounding PC Kit for Field Applications ONLY on NTMX89FB/FC. Per SR72866 Clarify the Provisioning rules for NTZZ12ZM Cooling Unit.

The Remote Switching Center - SONET Model B CEXT is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Vertical Ground Bar Assy	NT0X9595		1			AP
Base Cabinet Kit	NTMX8903		1			AP
Remote Maint. Mod. Shelf	NT6X1306		1	19		AP-01
Modular Supervisory Panel	NTRX40AA	MSP	1	61		AP-01
Base Enhanced Cabinet Assy	NTRX25AA		1			AP-01
Ringing Generator Shf Assy	NTRX25AG		1	65		AP
ISDN LCA Shelf	NTBX3118		2	33, 47		AP
CPM EXT Shelf	NTMX8601		1	06		AP
CRSC Field Grounding Kit	NTMX89ZB		1			RUL13
Ringing Generator	NT6X30HA			65	1, 2	RUL3
Ringing Gen.(China/Austral)	NT6X30EA			65	1, 2	RUL3
Ringing Generator (U.K.)	NT6X30GA			65	1, 2	RUL3
Ringing Generator Filler	NTRX25AK			65	1, 2	RUL3
# ISDN 2B1Q Line Conc. Mod.	NTZZ17HA	LCME				RUL1
ISDN 2B1Q Line Conc. Mod.	NTZZ17HB	LCME				RUL1
# LCME Packfill Upgrade Kit	NTBX31PA					RUL1
LCME Packfill Upgrade Kit	NTBX31PB					RUL1
LCM Notice Label	P0694813					RUL1
Line card caution nameplate	P0708739					RUL1
Subscriber lines	AR					RUL1
LCME Filler Plates	NTBX31AB					RUL1
LD Filler Plates	NT6X05AX			33, 47	1, 5, 9, 13	RUL1
External Power Kit (Vert.)	NTMX8904					RUL2
Internal Power Kit (Horiz.)	NTMX89KM					RUL2
Remote Maint.Mod.(Domestic)	NT6X13AB			19		RUL4
Remote Maint.Mod.(Intern'i)	NT6X13EA			19		RUL4
Incoming/Outgoing Test Trk	NT2X90AD			19		RUL5
Scan Circuit Pack	NT0X10AA			19		RUL5
SD Circuit Pack	NT2X57AA			19		RUL5
Incoming Test Trunk	NT3X04AA			19		RUL5
for AECO Local Test						
8x8 Metallic Test Access	NT3X09BA			19		RUL5
Multiline Test (Analog)	NT2X10BA			19		RUL5
Multiline Test (Control)	NT2X11BA			19		RUL5
Multiline Test Unit Cntrl.	NT4X98BB			19		RUL5
Multiline Test (Analog)	NT4X97AA			19		RUL5

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Balance Network	NT2X77AA			19		RUL5
Filler Faceplate	NT0X50AC			19:1-16		RUL5
Filler Faceplate	NT0X50AG			19:17		RUL5
Filler Faceplate	NT0X50AA			19:19		RUL5
Filler Faceplate	NT0X50BE			19:20		RUL5
C28 English label kit	NTRX3541					RUL6
C28 German label kit	NTRX3542					RUL6
Filler Faceplate	NT0X50AA			06	1	RUL7
DS60 Extender CP	NTMX79AA			06	2, 13	RUL7
DS60 Extender CP	NTMX79AA			06	14, 25	RUL7
EXT Filler Kit (Right)	NTZZ12KA			06	14	RUL7
EXT Filler Kit (Left)	NTZZ12WA			06	02	RUL7
# D-Channel Handler CP (DCH)	NTBX02AA			06	3-12	RUL8
Enhanced D-Channel Handler	NTBX02BA			06	3-12	RUL8
Quad Frame Carrier	NTMX87AA			06	4	RUL8
Dual DS1 Packlet	NTMX81AA			06	4:0-3	RUL8
Dual PCM30 Packlet	NTMX82AA			06	4:0-3	RUL8
Filler Face Plate	NTMX83AA			06	4:0-3	RUL8
Quad Frame Carrier	NTMX87AA			06	6	RUL8
Dual DS1 Packlet	NTMX81AA			06	6:0-3	RUL8
Dual PCM-30 Packlet	NTMX82AA			06	6:0-3	RUL8
Filler Face Plate	NTMX83AA			06	6:0-3	RUL8
Quad Frame Carrier	NTMX87AA			06	8	RUL8
Dual DS1 Packlet	NTMX81AA			06	8:0-3	RUL8
Dual PCM-30 Packlet	NTMX82AA			06	8:0-3	RUL8
Filler Face Plate	NTMX83AA			06	8:0-3	RUL8
Filler Plate	NT0X50AA			06	3-12	RUL8
# D-Channel Handler CP (DCH)	NTBX02AA			06	15-24	RUL8
Enhanced D-Channel Handler	NTBX02BA			06	15-24	RUL8
Quad Frame Carrier	NTMX87AA			06	19	RUL8
Dual DS1 Packlet	NTMX81AA			06	19:0-3	RUL8
Dual PCM30 Packlet	NTMX82AA			06	19:0-3	RUL8
Filler Face Plate	NTMX83AA			06	19:0-3	RUL8
Quad Frame Carrier	NTMX87AA			06	21	RUL8
Dual DS1 Packlet	NTMX81AA			06	21:0-3	RUL8
Dual PCM30 Packlet	NTMX82AA			06	21:0-3	RUL8
Filler Face Plate	NTMX83AA			06	21:0-3	RUL8
Quad Frame Carrier	NTMX87AA			06	23	RUL8
Dual DS1 Packlet	NTMX81AA			06	23:0-3	RUL8
Dual PCM30 Packlet	NTMX82AA			06	23:0-3	RUL8
Filler Face Plate	NTMX83AA			06	23:0-3	RUL8
Filler Plate	NT0X50AA			06	15-24	RUL8

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
# Desig. Label (NTBX02AA)	P0697919					RUL8
Desig. Label (NTBX02BA)	P0737724					RUL8
CEXT Door label (Blue)	P0715088					RUL9
CEXT Door label (Green)	P0746295					RUL9
CEXT Ext/RMM (TwistPr) I/O	NTMX89KC					RUL10
CEXT Ext/RMM (Coax) I/O Kit	NTMX89KD					RUL10
CEXT ISDN VF I/O Kit	NTMX89KE					RUL11
CEXT MSP Kit	NTMX89KL			61		RUL11
RSC-S Cooling Unit Kit	NTZZ12ZM	CU	1	00		RUL12
Cosmetic Endguards/EMI	Note 1					
Cabinet labels	Note 2					
Power and grounding	Note 3					
Cabinet mechanicals	Note 4					

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NTZZ17HA	A&M	NTZZ17HB
NTBX31BB	MD	NTBX31BC
NTBX31PA	A&M	NTBX31PB
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 manufac-
tured and cannot be ordered.

NOTES:

- 1) Refer to NTRX73 Engineering Manual Section for provisioning cosmetic endguards and EMI sidepanels.
- 2) Refer to MS0X60AA for cabinet labels.
- 3) Refer to NTZX16CA Engineering Manual Section for System Power and Grounding information.
- 4) Refer to NTRX25AA Engineering Manual Section for doors, anchors, cable troughs, frame fail lights and cabinet mechanical information.
- 5) Items marked AP-01 are included in NTMX8903 and are shown for completeness.
- 6) RCP in flaglist means that the Rating (status) of the pec is pending change.

RULES:

- AP 1) When PEC NTMX89FC is ordered, these items are provided.
- RUL1 1) Provide one (1) NTZZ17HB LCME Building Block for each LCME (2B1Q) module required (Maximum of one per CEXT). Provide one P0631765 Line Drawer label set, one P0694813 LCM notice label and two P0708739 line card caution labels when the LCME is equipped.
- 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 NTB31AB Filler Plate set and eight NT6X05AX Line Drawer fillers when the LCME module is not to be equipped.
- 4) Eight (8) NTB32BA Enhanced Line Drawers are included with NTZZ17HB. Each will 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.
- 5) 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.
- 6) 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 NTB32BA for more information.
- 7) 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.

- 8) 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.

- 9) 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.

- 10) Provision IBERT for data path/ISDN loop testing. Provision only one per LCME.
- 11) Provision a maximum of 32 single slot cards in even line subgroups and 28 in odd line subgroups.
- 12) Provide one (1) NTB31PA kit to upgrade one existing NTB31BA packfill to NTB31BC. All existing NTB31BA packfills can be upgraded with the NTB31PA kit. Provide one (1) NTB31PB kit to upgrade one existing NTB31BB packfill to NTB31BC. All existing NTB31BB packfills can be upgraded with the NTB31PB kit.

- RUL2 1) Provide one (1) NTMX8904 External Power Kit for all cabinets that are to be externally powered. This will normally be used except for applications that are extending an existing Model A lineup.
- 2) Provide one (1) NTMX89KM Internal Power kit for all cabinets that utilize internal (horizontal) powering. This would normally include extension of a Model A lineup using the Model B cabinet.

- RUL3 1) Provide two (2) NT6X30HA Low Profile Ringing Generators for all domestic applications that will support POTS lines. Provide two (2) NTRX25AK fillers when the NT6X30--s are NOT provided.

- 2) Provide two (2) NT6X30EA Low Profile Ringing Generators for Chinese and Australian applications that will support POTS lines. Provide two (2) NTRX25AK fillers when the NT6X30--s are NOT provided.
 - 3) Provide two (2) NT6X30GA Low Profile Ringing Generators for all United Kingdom applications that will support POTS lines. Provide two (2) NTRX25AK fillers when the NT6X30--s are NOT provided.
- RUL4
- 1) Provide one (1) NT6X13AB RMM packfill when the Remote Maintenance Module is to be equipped for domestic applications. If the RMM is not to be utilized, provide filler faceplates per RUL5.
 - 2) Provide one (1) NT6X13EA RMM packfill when the Remote Maintenance Module is to be equipped for non-North American applications. If the RMM is not to be utilized, provide filler faceplates per RUL5.
- RUL5
- 1) Provide RMM circuit packs based on office requirements. Slot assignment restrictions are described in the TABLE below. Individual circuit pack provisioning information is included below.
 - 2) Provide one (1) NT2X90AD Test Trunk on an "As Required" basis. A NT2X90AD must always be combined with an MTU to provide a talk monitor feature. The TR and TT leads on the NT2X90AD shall be connected to the same Metallic Test Access as the MTU leads T and R. Provide one (1) NT2X77AA Balance Network for each NT2X90AD.
 - 3) Provide one (1) NT0X10AA Scan Circuit Pack for every fourteen (14) scan points required in a remote office. When connected to out-of-office leads, the NT0X10AA must be mounted in an EVEN numbered slot.
 - 4) Provide one (1) NT2X57AA Miscellaneous SD Type 1 circuit pack for every fourteen (14) signal distribution points required for the remote office.
 - 5) Provide one (1) NT3X04AA Incoming Test Trunk for each AECO Local Test Board interface.
 - 6) Provide one (1) NT3X09BA 8X8 Metallic Test Access circuit pack 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.

- 7) Provide one (1) NT2X10BA and one (1) NT2X11BA for each Multiline Test Unit (MTU) required in domestic applications or provide one (1) NT4X98BB and one (1) NT4X97AA for each Multiline Test Unit (MTU) required in international applications. These packs must be installed in adjacent slots with the NT2X10BA/NT4X98BB occupying the odd numbered slot and the NT2X11BA/NT4X97AA in the next higher slot. A minimum of one MTU per office is required. The MTU requires -48V SP (Special Power). The MTU is required when using Electronic Business Sets. The MTU will not function correctly in slots 9 and 10 or slots 13-16.
- 8) Provide one (1) NT0X50AC for each unequipped slot 1-16 on the RMM shelf.
- 9) When the RMM shelf is NOT equipped, provide one (1) NT0X50AG for slot 17, one (1) NT0X50AA for slot 19, one (1) NT0X50BE for slot 20 and sixteen NT0X50ACs for slots 1-16.
- 10) The total -48V power consumption of the provisionable RMM circuit packs must not exceed 110 Watts. The power ratings of these packs are as follows:

Circuit Pack	Maximum Power Consumption
-----	-----
NT2X59 & NT6X74	25.0 Watts
NT0X10AA	2.0 Watts
NT2X57AA	4.5 Watts
NT2X90AD	1.5 Watts
NT3X04AA	28.0 Watts
NT3X09BA	11.5 Watts
NT2X10BA/NT4X98BB	20.0 Watts
NT2X11BA/NT4X97AA	9.0 Watts

- 11) The following TABLE shows the allowable mounting positions for each provisionable RMM circuit pack:

	SLOTS	03	04	05	06	07	08	09	10	11	12	13	14	15	16
CIRCUIT PACK															
NT2X10BA		Y	N	Y	N	Y	N	N	N	Y	N	N	N	N	N
NT2X11BA		N	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N
NT4X98BB		Y	N	Y	N	Y	N	N	N	Y	N	N	N	N	N
NT4X97AA		N	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N
NT0X10AA		N	Y	C	Y	C	Y	C	N	C	Y	C	Y	C	Y

NT2X57AA	N	Y	C	Y	C	Y	C	N	C	Y	C	Y	C	Y
NT2X90AD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NT3X04AA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NT3X09BA	N	Y	N	Y	N	Y	N	N	N	Y	N	Y	N	Y

NOTE: N denotes a slot that CANNOT be used for that pack.

Y denotes a slot that CAN be used for that pack.

C denotes a slot that can be used for that pack ONLY if it will not be used for out-of-office leads.

- RUL6 1) Provide one NTRX3541 per cabinet for applications requiring labels in English.
- 2) Provide one NTRX3542 per cabinet for applications requiring labels in German.
- RUL7 1) Provide two NTMX79AA and one NT0X50AA (slot 1) to equip the Extension shelf to support one CRSC. These circuit packs are 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 used at all, provide one NTZZ12KA and one NTZZ12WA (for slots 1-13).
- RUL8 1) When provisioning DCH/EDCHs, DS-30As and DS-1/PCM30s 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 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/EDCH circuit packs are Always Provided as part of the shelf.

- 3) Each slot not equipped with either a DCH/EDCH 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 beginning with port 53 and then descending.
- 6) Provide one (1) Desig. Label for each EDCH provided.
- RUL9 1) Provide one P0715088 Door Label per CEXT for grey applications or one P0746295 Door Label per CEXT for brown applications. Only grey equipment is currently supported for International applications.
- RUL10 1) Provide one (1) NTMX89KC CEXT Ext/RMM Twisted Pair Kit for twisted pair applications OR provide one (1) NTMX89KD CEXT Ext/RMM Coax Kit for International coax applications.

The NTMX89KC contains:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS
CEXT Connector Plate Assy	NTMX8817		1	05	
Bulkhead 19 Conn Plate	NTMX8968		1	19	

The NTMX89KD contains:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS
PCM30 Coax PCB Assembly	NTMX8889		1	05	
Bulkhead 19 Conn Plate	NTMX8981		1	19	

- RUL11 1) Always provide one (1) NTMX89KL CEXT MSP Kit and one (1) NTMX89KE CEXT ISDN VF I/O Kit per NTMX89FC cabinet.

The NTMX89KL contains:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS
Alarm Module	NTRX41AA		1	61	5
Breaker Module (10A)	NTRX42AA		5	61	10-14
Breaker Module (20A)	NTRX42CA		2	61	15,16
Fuse Module	NTRX43AA		1	61	7
Talk-Battery Filter	NTRX44AA		2	61	1,3
Blank Rear Panel 2.40"	P0734475		2	61	8,17
Blank Rear Panel 1.20"	P0734476		4	61	4R,8R, 17R,20R

The NTMX89KE contains:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS
Blkhd 33 Connector Plate	NTMX8979		1	33	
Blkhd 47 Connector Plate	NTMX8983		1	47	

- RUL12 1) Always provide one (1) NTRX92AA Cooling Unit Kit per cabinet. The NTZZ12ZM Building Block contains the Cooling and other Misc. items that are always provisioned with the RSC-S Model B Cabinet, NTMX89FA/FB/FC. The NTZZ12ZM contains:

EQUIPMENT	PEC	ABBR	QTY	SHF POS
Cooling Unit Kit, 10"	NTRX92AA	CU	1	00
Cooling Unit, 10"	NTRX91AA*	CU	1	00
FPC (-48V CU Power/Alarm)	NTRX54BA		1	61
FPC Label	P0741680		1	61

* Included with NTRX92AA.

RUL13 Provide one (1) NTMX89ZB, CRSC FIELD Grounding Produce Change Kit, Per Cabinet, to resolve P-Phone line card (NT6X21) noise. This Kit alters the existing grounding scheme of field-installed cabinets to eliminate noise detected when using NT6X21 p-phones line cards in the LCME's of the NTMX89FB/FC cabinets. The NTMX89ZB is provisioned for field applications ONLY. Refer to PCMX89ZB for details of change.

REMOTE MAINTENANCE MODULE EQUIPMENT FRAME

PEC CODE: NT6X10DA

CPC CODE: B0245997

RATING: STD

REPLACES: N/A

REPLACED BY: N/A

ABBREVIATION NAME: RMME

ENGINEERING DESCRIPTION: The Remote Maintenance Module Equipment frame is introduced as a field product only, and is created by applying the NT6X10ZA Product Change Kit to an existing NT6X10AC RCE frame or NT6X10AD RCEI frame. Application of the NT6X10ZA PC Kit changes the frame PEC/designation of the RSC/RSCI frame from NT6X10AC/RCE, or NT6X10AD/RCEI, to NT6X10DA/RMME, and allows the provisioning of additional RMMEs.

REFERENCE DOCUMENTATION: MS6X10DA 00 02

MARKETS: Applicable markets:

US
Canada
CALA

ISSUE AUTHOR: Ron Hogan Dept. 3471 (PPK)

MAIN CONTACT: Ron Hogan Dept. 3471 (PPK)

NT6X10DA EMA2-15-003 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
96 08 09	ECM 618 27	Initial creation of EMS NT6X10DA per EC 024-96391.
97 03 07	ECM 618 28	Correction to Equipment List per EPSA. Solve SR RR6A556 by removing part 10 of Rule 2. Show NT6X10AH as un-MD per EC 018-50958.
97 08 28	ECM 618 31	Update equipment list to show the NT3X90AC Cooling Unit in shelf position 04 per SR RR78770.
97 10 10	ECM 618 32	Update equipment list to show the NT6X1301 as an acceptable RMM shelf assembly for the RMME. Add RMME and PDC Frame Labels, and Note 1. Also, remove the NT6X1026 PC Kit and Rule 8 per EC 024-98619.
97 10 16	ECM 618 33	Update NT6X10DA per EC 018-51489 to MD NT2X10AB and NT2X11AA.

The REMOTE MAINTENANCE MODULE EQUIPMENT FRAME is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Remote Mtce Mod Common CP	NT6X13AB	RMM		18, 32, 51, 65		RUL1
Designation Strip (NT6X13AB)	P0653639		1	18, 32, 51, 65		AP-01
TM Group Codec CP	NT2X59AA		1	18, 32, 51, 65	01	AP-01
RMM Control Card CP	NT6X74AB		1	18, 32, 51, 65	02	AP-01
Multi O/P Pwr Converter	NT2X09AA		1	18, 32, 51, 65	17	AP-01
Filler Face Plate .875	NT0X50AA		1	18, 32, 51, 65	19	AP-01
Power Converter Comm Feat.	NT2X06AB		1	18, 32, 51, 65	20	AP-01
Remote Mtce Mod Shelf Assy	NT6X1306		1	51		AP
-48V SP Batt Supply Cable	NT6X1438		1	51		AP
26AWG Ca Assy(RMM Pwr Mon)	NT6X1029		1	51		AP
Remote Control Eqpt Kit	NT6X10AH			65		RUL1
PC Kit RMM RCE 65	PC6X10AH			65		RUL1
Jumper Wire NT-26CR BL/GR pr	R0109478			65		RUL1
Jumper Wire NT-26CR GR/OR pr	R0109503			65		RUL1
Maintenance Trunk Card	AR			18, 32, 51, 65	3-16	RUL2
Filler Face Plate 1.12	NT0X50AC			18, 32, 51, 65	3-16	RUL3
Logic Cable Return Assy	NT0X0009					RUL4
Remote Cntrl Eqpt Fr Panel	NT0X28AS	FSP		45		RUL5
Full Shelf Filler Panel	NT0X84AA			18, 32		RUL6
Filler Panel	P0575239			65		RUL6
Remote Mtce Mod Shelf Assy	NT6X1301			18, 32		RUL6
RMM Shelf Assembly	NT6X1306			18, 32		RUL6
Power Cable Assembly (50 in)	NT0X95CC			18		RUL7
Power Cable Assembly (35 in)	NT0X95BV			32		RUL7
Cooling Inverter Fan Unit	NT3X90AC			04		RUL9
Frame Designation Label (RMME)	P0875095					NOTE1
PDC Designation Label (RMME)	P0875096					NOTE1

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT2X10AB NT2X11AA	MD MD	NT2X10BA NT2X11BA

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) Frame Designation Label (P0875095) and PDC Designation Label (P0875096) shall be provided as required for Field Converted RMME frames per MS0X60AA.

RULES:

- AP 1) When PEC NT6X10DA is ordered, these items are provided.
- AP-01 When PEC NT6X13AB is provided these items are always included. They are shown here for completeness.
- RUL1 1) Provide one (1) NT6X13AB RMM Common CP for each RMM shelf required. The first RMM is in position 51, the second is in position 65, the third is in position 18, and the fourth is in position 32.
- 2) Provide one (1) NT6X10AH RCE Kit when the RMM in position 65 is required.
- 3) NT6X10AH Ship Loose Rule: When the NT6X10AH is shipped loose to the job site always provide the following:
- * One PC Kit PC6X10AH to provide a loose wiring diagram.
Note: An Engineering Manual Insert for PC6X10AH 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 R0109503 NT-26CR Jumper wire.

- RUL2
- 1) Circuit packs required for locations 03-16 will be provided with job engineering information.
 - 2) Slots 13-16 are currently wired together to allow the operation of DRAM circuitry in these slots when the DRA software becomes available for remotes. The NT2X10AA/AB, NT2X11AA/AD Line Test Unit (LTU) pair and the NT2X10BA, NT2X11BA Multi-Test Unit (MTU) pair will not operate in these slots because of the DRA wiring, therefore, should not be provisioned in these slots. The NT2X10AB and NT2X11AA CPs are MD.
 - 3) The total -48V power consumption of the provisionable circuit packs in the RMM must not exceed 110 Watts. Power ratings of the circuit packs are as follows:

CIRCUIT PACK CODES	MAXIMUM POWER CONSUMPTION
NT2X59 & 6X74	25.0 WATTS
NT0X10AA	2.0 WATTS
+ NT2X10AA	9.0 WATTS
+ NT2X10AB	9.0 WATTS
% NT2X10BA	20.0 WATTS
+ NT2X11AA	8.5 WATTS
# NT2X11AD	8.5 WATTS
% NT2X11BA	9.0 WATTS
NT2X57AA	4.5 WATTS
* NT2X90AC	1.5 WATTS
NT2X90AD	1.5 WATTS
NT3X04AA	28.0 WATTS
* NT3X09AA	4.0 WATTS
* NT3X09BA	11.5 WATTS
* NT4X98AA	19.2 WATTS
NT4X98BB	20.0 WATTS
NT4X97AA	7.5 WATTS

+ Manufacturer Discontinued.

Standard for U.S. Applications. Rate Change Pending. On New Jobs use the MTU pair NT2X10BA and NT2X11BA. Manufacturer Discontinued for Canadian Applications.

% Standard only for US and Canadian Applications.

* NT3X09BA CP replaces NT3X09AA CP.

* NT2X90AD CP replaces NT2X90AC CP for all applications.

* NT4X98BB CP replaces NT4X98AA CP.

- 4) Always provide one (1) Scan Point Circuit Pack (NT0X10AA) in slot 10 of each RMM shelf. This scan point must be the first point i.e.. SC100; which accounts for 1 of the 14 available Scan Points on the card. The remain 13 Scan Points may be assigned to other functions as required. Provide one NT0X10AA for every 14 scan points required in a remote office. When connected to out of office leads, these CP must be located in even card slot positions.

Note: Pin 2A of the RMM Backplane 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.

- 5) One Line Test Unit (LTU) consists of one (1) NT2X10AA/AB CP and one (1) NT2X11AA/AD CP. One Multi-Line Test Unit (MTU) consists of one (1) NT2X10BA CP and one (1) NT2X11BA CP. Note: Rate change Pending on the LTU Pair therefore, provision MTU pair for all applications. The MTU pair must be installed with the NT2X10BA occupying an odd card slot followed by the NT2X11BA occupying an even card slot. The LTU or the MTU pair is not operational in slots 13 to 16 because of the DRA wiring. The NT2X10BA and NT2X11BA pair will not operate if it is installed onto slot 9 & 10. The NT2X10AB and NT2X11AA CPs are MD.

- 6) Provide one (1) Signal Distributor (SD) Circuit Pack (NT2X57AA) for every 14 SD points required in a remote office. When connected to out of office leads, these CP must be located in even card slot positions.

- 7) Provide one (1) Incoming/Outgoing Test Trunk Circuit Pack (NT2X90AD) with an accompanying Balance Network (NT2X77AA) on an "as required" basis. A NT2X90AD must be combined with a LTU or MTU pair on a per circuit basis to provide talk monitor feature. When connected to circuits terminating outside of the Switching Center, these CPs must be located in even card slot positions.

NT2X90AC is MD and replaced by NT2X90AD for all applications.

- 8) Provide one (1) incoming test trunk (NT3X04AA) for each Automatic Electric CO. local test board interface on an "as required" basis.
- 9) Provide one (1) Remote Metallic Access Circuit Pack (NT3X09AA) for two (2) LCMs at the remote site. One NT3X09AA CP has the capacity to interface up to eight NT2X90AD test multiples. Replaced By NT3X09BA.

Provide one (1) 8X8 MTA Circuit Pack (NT3X09BA) for four (4) LCM's at the remote site. One NT3X09BA CP has the capacity to interface up to eight (8) NT2X90AC/AD test multiples. NT3X09BA CP replaces NT3X09AA CP.

- 10) Unassigned.

- 11) One Metallic Test Unit (MTU) consists of one NT4X97 and one NT4X98 circuit pack. The MTU must be inserted into adjacent locations with the NT4X97 occupying an even number slot and the NT4X98 occupying the odd slot immediately preceeding the NT4X97.

RUL3 1) Provide one (1) NT0X50AC Filler Face Plate 1.12 in each CP position not equipped with a CP provisioned in card slots 03-16 of shelf positions 18, 32, 51 and 65 (RMM) per RUL2.

RUL4 1) Provide one (1) NT0X0009 Logic Return Cable Assembly per frame when extending existing offices not equipped with enhanced grounding per IS0X00. When this frame is equipped for EMI with 8 inch rear extension do not provide this cable assembly.

- 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 item 1GZ in the switchboard cabling section of the Grounding Requirements (1.3) of Section 35000000.)

RUL5 1) Provide one (1) NT0X28AS FSP in cases where a NT6X10AD has been converted to a NT6X10DA RMME frame (via the NT6X10ZA PC Kit) as called out in the NT6X10AD Engineering Manual Section. This FSP replaces the NT0X28EC ISDN FSP.

- RUL6 1) Provide one (1) NT0X84AA Full Shelf Filler Panel per shelf position not containing an RMM shelf in position 18 or 32.
- 2) Provide one (1) P0575239 Filler Panel if an RMM does not exist in position 65. Existing RCE/RCEI frames will generally already have this part in the field.
- 3) Provide one (1) NT6X1301/NT6X1306 RMM Shelf Assembly per RMM required in positions 18 or 32.
- RUL7 1) Provide two (2) NT0X95CC Power Cable Assemblies (50 in) for RMM in shelf position 18.
- 2) Provide two (2) NT0X95BV Power Cable Assemblies (35 in) for RMM in shelf position 32.
- RUL8 1) Unassigned.
- RUL9 1) When converting an NT6X10AC RCE frame or an NT6X10AD RCEI frame to an NT6X10DA RMME frame, the NT3X90AC Cooling Unit shall remain in shelf position 04. The NT3X90AC Cooling Unit was always provisioned for those two frames (NT6X10AC/AD), and should not have to be provisioned again. The Cooling Unit is shown here for completeness.

ISDN CPCI COMMON CP

PEC CODE: NT6X02NA

CPC CODE:

RATING: Standard

REPLACES: N/A

REPLACED BY: N/A

ABBREVIATION NAME: CPCI

ENGINEERING DESCRIPTION: The NT6X02NA is the common circuit pack fill
for ISDN peripheral controller application.

| REFERENCE DOCUMENTATION: SL6X02NA 00 05

MARKETS: Applicable markets:

Canada
US

| ISSUE AUTHOR: Barbara Berkley Dept. 3471 (PPK)

| MAIN CONTACT: Barbara Berkley Dept. 3471 (PPK)

NT6X02NA EMA2-18-CPC-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
----- 93 02 25	----- ECM 673 01	Previous history not available Corrected insert to match the stock- list of the NT6X02NA.
93 12 06	ECM 616 17	Change quantity of NT0X50AA to match SL6X02NA issue 03
97 03 11	ECM 714 02	Change quantity of NT0X50AA to match SL6X02NA issue 05

The ISDN CPCI Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Face Plate 0.875	NT0X50AA		6	X+14, X	19, 23, 24	AP
Channel Supervision Mgs CP	NT6X42AA		2	X+14, X	20	AP
Speech Bus Formatter	NT6X41AA		2	X+14, X	21	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 CPCI Common CP can be assigned to shelf mounting positions 65 and 51 and the other to shelf mounting positions 32 and 18 (for one CPCI X=51 and the other X=18).
- 2) For more information on the frame refer to the section on NT6X01AB.

RULES:

- AP 1) When PEC NT6X02NA is ordered, these items are provided.

COMMON PERIPHERAL CONTROLLER EQUIPMENT FRAME

PEC CODE: NT6X01AD

CPC CODE: B0233897

RATING: STD

REPLACES: N/A

REPLACED BY: None

ABBREVIATION NAME: CPCE

ENGINEERING DESCRIPTION: The Common Peripheral Controller Equipment Frame with Universal Framework is a standard DMS frame which houses two dual-shelf peripheral controller modules. Each module is housed in two adjacent shelves which are always provided on the frame.

Each pair of shelves contains twenty five circuit pack mounting locations which, when equipped with the appropriate circuit packs, constitute peripheral controller modules for a variety of applications.

Any of the currently supported peripheral controller modules, either ISDN or non-ISDN, may be equipped in the CPCE frame.

REFERENCE DOCUMENTATION: MS6X01AD 00 28

MARKETS: Applicable markets:

US
Canada
CALA

ISSUE AUTHOR: Barbara Berkley Dept. 3471 (PPK)

MAIN CONTACT: Barbara Berkley Dept. 3471 (PPK)

NT6X01AD EMA2-18-100 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 11 17	ECM 714 08	Initial issue. Include advanced provisioning info. for NT6X41AC.

The 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		RUL41
Universal Fiber XPM Kit	NT6X02UF			51,65 18,32	22R 22R	RUL30
Fiber Cable Conversion Kit	NT6X0251			51,65 18,32	22R 22R	RUL30
Common Peripheral Controller	NT6X02NA	LGCI LTCI TMS/ETMS DTCI		X		RUL2
LGC Common CP	NT6X02LC	LGC		X		RUL2
LTC Common CP	NT6X02MC	LTC		X		RUL2
# SMUI Common CP	NT6X02ES	ESMU (ISDN)		X		RUL2
EDTC DMS250 Common CP	NT6X02FJ	DMS250 EDTC		X		RUL2
# SMA Common CP	NT6X02TJ	SMA		X		RUL2
SMS Common CP	NT6X02DU	SMS		X		RUL2
SMU Common CP	NT6X02EU	SMU		X		RUL2
SMS-R Common CP	NT6X02PL	SMS-R		X		RUL2
ESMU Packfill	NT6X02CX	SMUI(ESMU)		X		RUL2
DTC Common CP	NT6X02CZ	DTC		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			51, 65		RUL3
ISDN Control'r Array Shf Assy	NT6X0223	CPAI1 1		X+14		AP
ISDN Control'r Array Shf Assy	NT6X0223	CPAI0 1		X		AP
Filler Face Plate 0.875	NT0X50AA			X+14, X		RUL4
# XPM Formatter/Clock CP	NT6X41AC			X+14, X	21	RUL40
# D-Channel Handler CP	NTBX02AA			X+14, X	1-5	RUL5
Enhanced D-Chn. Handler CP	NTBX02BA			X+14, X	1-5	RUL5

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
DS-1 Interface CP for SCMs	NT6X85AB NT6X85BA NT6X85AC			X+14, X	1-5	RUL6
DS-1 Interface CP	NT6X50AA			X+14, X	1-5	RUL7
DS-1 Extend Frame Format CP	NT6X50AB			X+14, X	1-5	RUL7
DS-1 Echo Cancelling	NT6X50EC			X+14, X	1-5	RUL7
DS30A LCM Interface CP	NT6X48AA			X+14, X	6, 7	RUL8
XPM Processor CP	NT6X45BA			X+14, X	8, 12	RUL9
Unified Process CP	NTMX77AA			X+14, X	12	RUL10
XPM PLUS Terminator PB	NTMX71AA			X+14, X	19R	RUL10
MCP Enhanced Processor	NTAX74AA			X+14, X	12	RUL11
# LGC/DTC Processor	NT6X45AC			X+14, X	12	RUL12
# LGC/DTC Processor	NT6X45AF			X+14, X	12	RUL12
LGC/DTC Processor	NT6X45BA			X+14, X	12	RUL12
# Master Proc Memory	NT6X47AB			X+14, X	10	
Master Proc Memory	NT6X47AC			X+14, X	10	RUL13
# Signal Proc Memory Plus CP	NT6X46BA			X+14, X	11	
Signal Proc Memory	NT6X46BB			X+14, X	11	RUL14
Continuity Tone Detector CP	NT6X70AA			X+14, X	13	RUL15
CLASS Modem resource CP	NT6X78AA			X+14, X	13	RUL16
CLASS Modem resource CP	NT6X78AB			X+14, X	13	RUL16

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
AB/DDI Message Card	NT6X86AA			X+14, X	13	RUL17
AB/DDI Message Card	NT6X86AB			X+14, X	13	RUL17
Time Switch CP	NT6X44AA			X+14, X	14	RUL18
Time Switch CP	NT6X44CA			X+14, X	14	RUL18
Time Switch CP	NT6X44AB			X+14, X	14	RUL18
Enhanced Time Switch CP	NTAX78AA			X+14, X	14	RUL18
Enhanced Time Switch CP	NTAX78AB			X+14, X	14	RUL18
NTAX78AB Upgrade Kit	NT6X02CY			X+14, X	14	RUL18
# Universal Tone Receiver	NT6X92BB			X+14, X	15	RUL19
# Universal Tone Receiver	NT6X92BC			X+14, X	15	RUL19
Global Tone Receiver	NT6X92EA			X+14, X	15	RUL19
# Special Tone Receiver CP	NT6X62AA			X+14, X	16	RUL20
Special Tone Receiver CP	NT6X62AB			X+14, X	16	RUL20
# ISDN Pre-Processor CP	NTBX01AA			X+14, X	16	RUL21
# Enh. ISDN Pre-Proc. CP	NTBX01AB			X+14, X	16	RUL21
# Enh. ISDN Pre-Proc. CP	NTBX01AC			X+14, X	16	RUL21
Enh. ISDN Pre-Proc. CP	NTBX01BA			X+14, X	16	RUL21
Peripheral/Remote Loader CP	NT7X05AA			X+14, X	17	RUL22
# CPP Msg Protocol & Tone CP	NT6X69AB			X+14, X	18	RUL23
CPP Msg Protocol & Tone CP	NT6X69AC			X+14, X	18	RUL23

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
CPP Msg Protocol & Tone CP	NT6X69AD			X+14, X	18	RUL23
CPP Msg Protocol & Tone CP	NT6X69MA			X+14, X	18	RUL23
NT6X69AD Product Change Kit	NT6X02WB			X+14, X	18	RUL23
Extended Distance Msg Interface	NTMX76AA			X+14, X	18	RUL24
Extended Distance Msg Interface	NTMX76AB			X+14, X	18	RUL24
# Pad Ring Card	NT6X80AA			X+14, X	19	RUL25
# SMU Pad Ring Card	NT6X80BA			X+14, X	19	RUL25
SMU Pad Ring Card	NT6X80BB			X+14, X	19	RUL25
NT6X86AB/NT6X80BB Product Change Kit	NT6X02WG					RUL25
DS0A Interface CP	NT6X55AB			X+14, X	1-5	RUL26
# DS30 Network Interface CP	NT6X40AC			X+14, X	22	RUL27
DS30 Network Interface CP	NT6X40AD			X+14, X	22	RUL27
DS30 Network Interface CP	NT6X40BA			X+14, X	22	RUL27
DS30 C-Side Interface CP	NT8X18BA			X+14, X	22	RUL28
DS30 C-Side Interface CP	NT8X18BB			X+14, X	22	RUL28
# DS-512 Network Interface CP	NT6X40CA			X+14, X	22	RUL29
# DS-512 Network Interface CP	NT6X40FA			X+14, X	22	RUL29
DS-512 Network Interface CP	NT6X40FB			X+14, X	22	RUL29
# DS-512 Paddleboard	NT6X40DA			X+14, X	22R	RUL29
DS-512 Paddleboard	NT6X40GA			X+14, X	22R	RUL29

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
# Fiber I/F H/W Assembly	NT6X02BU			51,65	22R	RUL30
# Connector Key Bracket	P0638263			18,32		
# Power Conv +/-5V & 12V CP	NT2X70AD			X+14, X	25	RUL31
# Power Conv +/-5V & 12V CP	NT2X70AE			X+14, X	25	RUL31
Power Conv +/-5V & 12V CP	NT2X70AF			X+14, X	25	RUL31
NT2X70AF Upgrade Kit	NT2X70AY			X+14, X		RUL31
Desig. Label for NTAX74AA	P0800860			X+14, X	12	RUL39
Desig. Label for NTBX02AA	P0697919			X+14, X	1-5	RUL39
Desig. Label for NTBX02BA	P0737724			X+14, X	1-5	RUL39
Desig. Label for NT6X50AB	P0690976			X+14, X	1-5	RUL39
Desig. Label for NT6X50EC	P0735419			X+14, X	1-5	RUL39
Desig. Label for NT6X48AA	P0626877			X+14, X	6,7	RUL39
Desig. Label for NT6X47AC	P0711663			X+14, X	10	RUL39
Desig. Label for NT6X46BB	P0711664			X+14, X	11	RUL39
Desig. Label for NT6X78AB	P0731980			X+14, X	13	RUL39
Desig. Label for NT6X44AA	P0698316			X+14, X	14	RUL39
Desig. Label for NT6X44CA	P0707641			X+14, X	14	RUL39
Desig. Label for NTAX78AA	P0737140			X+14, X	14	RUL39
Desig. Label for NTAX78AB	P0803131			X+14, X	14	RUL39
# Desig. Label for NT6X92BB	P0690565			X+14, X	14	RUL39
# Desig. Label for NT6X92BC	P0737431			X+14, X	14	RUL39
Desig. Label for NT6X92EA	P0835224			X+14, X	14	RUL39
Desig. Label for NT6X62AB	P0711789			X+14, X	16	RUL39

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Desig. Label for NTBX01AB	P0735418			X X+14,	16	RUL39
Desig. Label for NTBX01BA	P0713794			X X+14,	16	RUL39
Desig. Label for NT6X69AC	P0710476			X X+14,	18	RUL39
Desig. Label for NT6X69AD	P0800014			X X+14,	18	RUL39
# Desig. Label for NT6X80BA	P0707642			X X+14,	19	RUL39
Desig. Label for NT6X80BB	P0800015			X X+14,	19	RUL39
Desig. Label for NT6X40CA	P0710477			X X+14,	22	RUL39
# Desig. Label for NT6X40AC	P0695397			X X+14,	22	RUL39
Desig. Label for NT6X40AD	P0834806			X X+14,	22	RUL39
Desig. Label for NT6X40FA	P0729895			X X+14,	22	RUL39
Desig. Label for NT6X40FB	P0834807			X X+14,	22	RUL39
Desig. Label for NT7X05AA	P0808071			X X+14,	22	RUL39
Desig. Label for NT2X70AD	P0664133			X X+14,	25	RUL39
# Desig. Label for NT2X70AE	P0698943			X X+14,	25	RUL39
Desig. Label for NT2X70AF	P0809960			X X+14,	25	RUL39
Frame Supervisory Panel	NT0X28EB	FSP	1	45		AP
# Cooling Inverter Unit	NT3X90AA	CU		04		RUL32
# Cooling Inverter Unit	NT3X90AB	CU		04		RUL32
DC Cooling Inverter Unit	NT3X90AC	CU		04		RUL32
SMS-R Product Change Kit	NT6X0205			X+14, X		RUL2
Jumper Kit for Base	NTRX36NI			X+14, X		RUL33
NT6X86AB Product Change Kit	NT6X02WC			X+14, X		RUL34
NT6X80BB Product Change Kit	NT6X02WE			X+14, X		RUL35

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
SMA to ISDN Conversion Kit	NT6X02YR			X+14, X		RUL36
SMR to SMU Conversion Kit	NT6X02YA			X+14, X		RUL37
SMR to SMSR Conversion Kit	NT6X02YB			X+14, X		RUL38

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT6X41AC	LTD	N/A
NT6X47AB	MD	NT6X47AC
NT6X46BA	MD	NT6X46BB
NT6X45AC	MD	NT6X45BA
NT6X45AF	STD	NT6X45BA
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

PEC	RATING	REPLACED BY PEC
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 lower module, X is shelf position 18; and X+14 is shelf position 32. For upper module, X is shelf position 51; and X+14 is shelf position 65.
- 4) If any packs are required in slots 1-5 of a module then at least two (2) packs per shelf must be provisioned. If no packs are required in these slots, then the rule has no effect. Customer engineering to specify the total number of packs required.

RULES:

- AP 1) When PEC NT6X01AD is ordered, these items are provided.
- RUL1 1) Provide one (1) P0709862 Label sheet for each TOPS TMS System application.
- RUL2 1) Provide maximum two (2) packfills per frame.
- 2) Provide one (1) NT6X0205 product change kit per SMS-R module, this kit contains the wiring necessary to the operation of the SMS-R.
- RUL3 Provide one (1) NT6X02AB packfill per unequipped module.
- RUL4 Provide two (2) NT0X50AAs per module for unequipped positions.
- RUL5 1) Always provide maximum nine (9) NTB02BAs per (ISDN) LGC/LTC module per customer requirements for all new production.
- 2) Provide maximum four (4) NTB02BAs (3 active + 1 hot spare) per SMA or (ISDN) SMU per customer requirements.
- 3) The DCH (NTB02AA) and the EDCH (NTB02BA) are both supported in XPM02, XPM03, XPM04, and XPM05. Only the EDCH (NTB02BA) is supported in XPM06 and above.
- 4) NTB02AA are not provided for (ISDN) DTC applications. Provide one additional NTB02AA per module to serve as hot spare. The spare should not be counted when determining the number of NTB02AA required to handle d-channel traffic.

DCH PACK PROVISIONED	SHELF POS	CP POS	ASSIGN TO LOGICAL PORT NO.
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	9
7TH	X+14	4	7
8TH	X	4	5
9TH	X+14	5	3
10TH	X	5	1

For lower module, X is shelf position 18; X+14 is shelf 32.
For upper module, X is shelf position 51; X+14 is shelf 65.

RUL6 1) Provide a maximum of ten (10) NT6X85AB/ACs per SMS/SMU/SMSR module. The NT6X85AC should be used for new production.

RUL7 1) The NT6X50AB should be used in applications to interface a fiber span (SONET). The NT6X50AA should not be used in sonet applications.

2) US applications only:

* Provide maximum ten (10) NT6X50ABs per DTC/LGC/LTC/SMA module or per (ISDN) DTC/LGC/LTC module; or eight (8) per (ISDN) SMU module.

* Provide maximum ten (10) NT6X50AAs per SMR or DMS-300 DTC module.

3) Cdn applications only:

* The NT6X50AB will only be provided if the customer orders the extended super frame (ESF) format and/or 64kb/s clear channel capability based on B8ZS.

* The enhanced features of the NT6X50AB will not be available on SMR.

* If the customer wants the NT6X50AA feature set only the NT6X50AA will be provided. In this case, provide maximum ten (10) NT6X50AA or NT6X50ABs for each DTC/LGC/LTC/SMR module as per customer requirements.

- 4) All applications: Provide one NT6X50AB (or NT6X50AA) for each two DS-1 ports required. Peripheral port/pack location relationship is as follows:

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

Assign NT6X50AB to module starting at port 0 and continue in sequential order to port 19. Each NTBX02AA already assigned to CP position 1 to 5 physically makes the two DS-1 ports shown above unavailable for assignment to DS-1.

- 5) TOPS-TMS requirements (minimum, for up to 64 operator positions):

* Provide slot 5 of each shelf in module with DS-1 card (NT6X50AB) for TPC interface.

* Provide additional DS-1 cards per customer requirements as follows: For more than 64 operator positions - TPC interface is slot 4 on shelf 0, Database access is slot 4 on shelf 1 and slot 3 on shelf 0, and Inter DCH for ORDB is slot 3 on shelf 1.

- 6) The NTAX78AA required the use of the NT6X50AB/EC port cards when provisioned to NT6X02LF/RF DMS-250 modules. The NTAX78AA is not compatible with the NT6X50AA in these applications.

- 7) Provide maximum ten (10) NT6X50ECs per DMS-250 DTC/Enhanced DTC/ FXPM DTC/(ISDN) FXPM DTC module per customer requirements when echo cancellation functionality is required. NT6X50AA/ABs may also be used.

RUL8 1) Provide minimum two (2), maximum four (4) NT6X48AAs per LGC/LTC or (ISDN)LGC/LTC modules per customer requirements.

RUL9 1) Provide four (4) NT6X45BAs per NT6X02CT SMR, DTC/LGC/LTC/SMS/SMU/SMSR, DMS-250 FXPM DTC or (ISDN)

DTC/LGC/LTC/SMU/DMS-250 FXPM modules per customer requirements.

- RUL10 1) Provide two (2) NTMX77AAs per DTC/LGC/LTC/SMS/SMU/SMSR, (ISDN) DTC/LGC/LTC/SMU or NT6X02ID/LF/RF DMS-250 module per customer requirements.
- 2) Provide two (2) NTMX71AAs per DTC/LGC/LTC/SMS/SMU/SMSR, (ISDN) DTC/ LGC/LTC/DMU or NT6X02ID/LF/RF DMS-250 module when the NTMX77AAs are provided (**how about when AX74s are provided)
- 3) The NTMX77AA, along with the NTMX71AA, must be used for XPM plus. The NTMX77AA replaces the NT6X45, NT6X46, and NT6X47 packs.
- 4) For ISDN applications with the NTMX77AA processor, the NTB01AB, NTB01AC, or NTB01BA may be used (the NTB02BA is the only EISP available for new production).
- RUL11 1) The NTAX74AA (CAP) is a new upgraded processor used in place of the NTMX77AA for SMA and MCI DTCI ACD applications only. It provides enhanced features such as TR303 in SMA, expanded memory for future load growth, and improved real-time call processing capabilities.
- 2) The NTAX74AA is initially supported in XMP06 (NA004), and is required in XMP07 for SMA.
- 3) The NTAX74AA requires an "XPM plus ready" frame baseline which includes the NTMX71AA paddlecard.
- 4) The NTAX74AA in ISDN applications requires the NTB01AC/BA or later.
- 5) The NTAX74AA does not support the NT7X05AA (peripheral recovery loader). If the NT7X05AA is present, replace it with an NT0X50__ and associated designation label.
- RUL12 1) Provide four (4) NT6X45BAs per NT6X02CT SMR, DTC/LGC/LTC/SMS/SMUSMSR, DMS-250 FXPM or (ISDN) DTC/LGC/LTC/SMU/DMS-250 FXPM DTC modules per customer requirements.
- RUL13 1) Provide two (2) NT6X47ACs per NT6X02CT SMR, DTC/LGC/LTC/SMS/SMU/SMSR, (ISDN)DTC/LGC/LTC/SMU or DMS-250 DTC/Enhanced DTC/FXPM DTC/(ISDN) FXPM DTC module.

- RUL14 1) Provide two (2) NT6X46BBs per DTC/SMS/SMU/SMSR, (ISDN) DTC/LGC/LTC/SMU or NT6X02AI/ID/LE/LF/RE/RF DMS-250 module.
- 2) The NT6X46BB must be used in LGCI/LTCI applications when there is a LCME subtending from it.
- RUL15 1) Provide two (2) NT6X70AAs per DTC module when the module is handling CCIS/CCS7 voice trunking. Provide two (2) NT6X70AAs for each NT6X02AI/ID/LE/LF DTC (DMS-250) when this module is handling CCIS/CCS7 voice trunking.
- RUL16 1) Provide two (2) NT6X78ABs per LGC/LTC or (ISDN)LGC/LTC/DTC/SMU module in slot 13 and two (2) per SMS/SMU module in slot 16 when CLASS CND is required.
- RUL17 1) Provide either two (2) NT6X86AAs or two (2) NT6X86ABs per NT6X02DS SMS or NT6X02PH SMSR. Provide NT6X86ABs in XPM Plus systems which use the NTMX77AA unified processor pack, otherwise use NT6X86AAs.
- RUL18 1) Provide two (2) NT6X44AAs per (ISDN) LGC/DTC/LTC, NT6X02NA/IH DTC module.
- 2) Provide two (2) NT6X44AA/AB per NT6X02AI/FJ/LF/RF/PK/FH packfill modules. Provide two (2) NT6X44AA for all new production.
- 3) Provide two (2) NT6X44ABs per NT6X02CT SMR or DMS-250 packfill module.
- 4) Provide two (2) NTAX78AAs per NT6X02IH DTC module instead of NT6X44AAs for Dialable Wideband Service (DWS). Provide two (2) NTAX78AAs per DTC, (ISDN)DTC/LGC/LTC or NT6X02LF/RF DMS-250 module per customer requirements. NTAX78AA enhanced time switch is required instead of NT6X44AA time switch when dialable wideband service (DWS) functionality is desired for DTC7/DTCI or DMS-250 FXPM DTC/DTCI applications.
- 5) The NTAX78AA requires the use of NT6X50AB/EC port cards when provisioned to NT6X02LF/RF DMS-250 modules. The NTAX78AA is not compatible with the NT6X50AA in these applications.
- 6) Provide two (2) NT6X44CAs per NT6X02CX ISDN SMU. For Digital Test Access (DTA) feature provide two (2) NTAX78ABs, instead of NT6X44CAs, per NT6X02CX module. Provide two (2) NTAX78ABs for DTA or TR303 feature with NA003 or higher software in SMA applications per customer requirements.

- 7) Provide one (1) NT6X02CY product change kit per module when converting NT6X02ES ISDN SMU to NT6X02CX ISDN SMU. For field applications only. In the NT6X02ES module, slot 14 is always provided with NT6X44CA. Product change kit NT6X02CY makes slot 14 provisionable with either NT6X44CA or NTAX78AB. The NTAX78AB is required for digital test access (DTA) functionality. Applying NT6X02CY kit converts the ISDN SMU from NT6X02ES to NT6X02CX.
- RUL19 1) Provide up to four (4) NT6X92BB/BCs in slots 15, 16 per DTC/LGC/LTC module for digitone receivers (lines) or MF receivers (trunks). A pair of NT6X92BBs provides 30 circuits.
- 2) Provide two (2) NT6X92BB/BCs in slot 15 per module when analog (POTS) lines are to be supported on (ISDN) LGC/LTC or when non-ISDN trunks (A/B bit signalling) are interfaced to an (ISDN) DTC.
- 3) Provide two (2) NT6X92BB/BCs in slot 15 per SMA, SMU, (ISDN) SMU or DMS-250 NT6X02AI/ID/LF/EP/TF/RF module per customer requirements. Provide NT6X92BCs when available.
- 4) Provide two (2) NT6X92BB/BCs in slot 17 per NT6X02DH/DR/DS SMS module per customer requirements. The NT6X69AC must be used when the NT6X92BB/BC is provisioned.
- 5) SMU supporting LDTPSAPS (E-911) service must remain dedicated only to LDTPSAPS to ensure priority service to 911. Due to this consideration, SMU with LDTS will not allow any NT6X92__ (BB/BC/EA) UTR/GTR to be datafilled.
- 6) NT6X69AC/AD must be used when the NT6X92BB/BC UTR is provisioned.
- 7) Provide two (2) or four (4) NT6X92EA in slots 15 and 16 per DTC/LGC/LTC (NT6X02CZ/LC/MC) module for digitone receivers (lines) or MF receivers (trunks). Provide NT6X92EA in ISDN LGC/LTC/DTC/SMU (NT6X02NA/ES/CX) when non-ISDN lines or non-ISDN trunks are utilized.
- 8) Provide two (2) NT6X92EA in slot 15 per SMA (NT6X02TJ), SMU (NT6X02US), or DMS-250 (NT6X02AI/FJ/LF/RF), or slot 17 per SMS module (NT6X02DV).
- 9) Each active NT6X92EA provides 30 circuits (channels). For new production, provide the NT6X92EA when available. The NT6X69AC or AD must be used when the NT6X92EA is provisioned. The NT6X92EA is an LSSGR compliant tone receiver.

Do not mix the NT6X92EA with other types of NT6X92 within the same module.

10) Provide one designation label P0835224 for each NT6X92EA.

RUL20 1) Provide two (2) NT6X62AA/ABs per NT6X02AI/ID/LE/LF module when re-origination and or blue box fraud features are required. The NT6X62AB STR/BBF CP is for DMS-250 applications only.

RUL21 1) Provide two (2) NTB01BA packs per module per customer requirements for LGCI/DTCI/LTCI/SMUI. NTB01BA cannot be used with non-XPM plus ISDN applications.

2) All SMA frames with packfills NT6X02TE and NT6X02TF should have NTB01AB replaced with NTB01AC or NTB01BA packs.

RUL22 1) Provide two (2) NT7X05AA for the peripheral recovery loader option. The NT7X05AA must be used with the unified processor -- NTMX77. Provide NT7X05AA in slot 15 for NT6X02DU and slot 17 for all other packfills.

RUL23 1) Provide two (2) NT6X69ACs per DTC/LGC/LTC/SMS/SMU/SMSR, (ISDN) DTC/LGC/LTC or DMS-250 DTC/Enhanced DTC/FXPM DTC/(ISDN) FXPM DTC modules per customer requirements.

2) The NT6X69AC, NT6X69AB (MD), or NT6X69MA packs may be used. The NT6X69AC is the low power version of the NT6X69MA. ENET based peripherals must use either the NT6X69AC or the NT6X69MA. The NT6X69AC must be used when the NT6X92BB (UTR) is provisioned in the NT6X02DH SMS module.

3) Provide two (2) NT6X69ABs per DTC/LGC/LTC/SMS/SMU/SMSR, (ISDN)DTC/ LGC/LTC or DMS-250 DTC module per customer requirements.

4) Provide two (2) NT6X69ADS, instead of NT6X69ACs, per LGC/LTC/SMS/SMU/ SMSR, (ISDN) LGC/LTC, NT6X02ES/CX (ISDN) SMU or NT6X02TF SMA module per customer requirements when the ADSI/SCWID feature is required. The ADSI/SCWID feature requires class modem resource in the (RCC or RCC2 for SMSR).

5) NT6X69ADS can be provisioned in ADSI/SCWID or non-ADSI/SCWID applications. Use the NT6X69AD for new production. Exceptions: The NT6X69AD cannot be used in any DMS10 applications, SMSR applications, or SMS with MP/SP (non-XPM+) with XPM03 or lower software loads. SMS will support NT6X69AD with XPM+ with BCS36 and later.

- 6) Provide one (1) NT6X02WB product change kit per module when converting NT6X02EL (ISDN) SMU to the NT6X02ES (ISDN) SMU module. Also, provide one (1) NT6X02WB when converting NT6X02TE SMA to NT6X02TF SMA module. For field applications only. In the NT6X02EL/TE modules, slot 18 was always provided (i.e., on the stocklist) with NT6X69AC. Product change kit NT6X02WB makes slot 18 provisionable with either NT6X69AC or NT6X69AD, which is required for the ADSI/SCWID feature. Applying the kit converts NT6X02EL/TE to NT6X02ES/TF, respectively.
- RUL24 1) Provide two (2) NTMX76AAs per LGC/LTC Plus modules for extended distance capability (EDC) per customer requirements. Use of the NTMX76AA requires the module to be configured with the NTMX77AA processor pack. Use with the NT6X45 processors is not supported.
- 2) Provide two (2) NTMX76ABs instead of NTMX76AAs, in both the host and remote, when the ADSI/SCWID feature is required with extended distance capability.
- RUL25 1) Provide two (2) NT6X80AA/ABs, per NT6X0DS SMS, or NT6X02PH SMSR module. The previous vintage of the modules (NT6X02DR/NT6X02PB) had the NT6X80AA as always provided on the stocklist. Slot 19 of the NT6X02DS/PH is now provisionable with NT6X80AA/BBs. Provide NT6X80BB for new production.
- 2) In packfills where slot 19 is always provided with NT6X80AAs, use the NT6X02WG CP kit to make slot 19 provisionable with NT6X80AA/BB. NT6X80BB must be used in XPM Plus systems which use the NTMX77, NTMX71, and NT6X86AB circuit packs.
- 2) Provide two (2) NT6X80BA/BBs per NT6X02TH SMA or NT6X02ES/CX (ISDN) SMU module. The previous vintage of the modules (NT6X02TE/EL) had the NT6X80BA always provided on the stocklist. Slot 19 of the NT6X02TF/ES (and later vintages) is now provisionable with the NT6X80BA/BB. Provide NT6X80BBs for new production. The NT6X80BB must be used in XPMs which use the NTMX77, NTMX71, and NT6X86AB circuit packs.
- 3) Provide two (2) NT6X80BBs, per NT6X02ET SMU modules instead of NT6X80BAs. The previous vintage of the module (NT6X02EM) had the NT6X80BA always provided on the stocklist.

- 4) For initials and extensions, provide only NT6X80BBs in the NT6X02ES (ISDN) SMU or NT6X02EP SMU modules. The NT6X80BB is required to reduce crosstalk during frequency selective ringing (FSR) in DMS-1Us, which interface SMUs/(ISDN) SMUs.

- RUL26 1) Provide maximum ten (10) NT6X55ABs per DTC module per customer requirements.

DS1 Circuit Pack Shelf Position and Port Relation						
SHELF	CP Position	5	4	3	2	1
65 AND/OR 32	PORTS	2	6	10	14	18
51 AND/OR 18	PORTS	0	4	8	12	16

- RUL27 1) Provide two (2) NT6X40AC/AD/BA CPs per module per customer requirements. For the SMS provide NT6X40BAs when a maximum of four c-side ports are provisioned. Provide NT6X40AC/AD to the SMS when more than four c-side ports (16 max) are provisioned. The NT6X40AD must be used for non-fiberized peripheral new production.
- 2) Use NT6X40AC/AD for DTC/LGC/LTC/SMA/SMU/SMR/SMS, (ISDN) DTC/LGC/ LTC/SMU. NT6X40AD should be used for all new production.
- 3) Use NT6X40BA for SMS.
- 4) The NT6X40AD has enhanced loop-around test feature. The NT6X40AD will perform as an NT6X40AC when provisioned (datafilled) as an NT6X40AC. A mix of NT6X40AC and NT6X40AD in a module is acceptable when both are provisioned as an NT6X40AC.
- RUL28 1) Provide two (2) NT8X18BA/BBs per module when providing DS30A C-side interface for SMSR modules.
- RUL29 1) Provide two (2) NT6X40CA/DA per DTC/LGC/LTC/SMA/SMS/SMU, (ISDN) DTC/LGC/LTC/SMU or NT6X02LE/LF/RE/RF module per customer requirements for fiber interface to ENET. Provide NT6X40FAs when available.

- 2) The NT6X40FB has enhanced loop-around test feature. The NT6X40FB will perform as an NT6X40FA when provisioned (datafilled) as NT6X40FA. A mix of NT6X40FA and NT6X40FB in a module is acceptable when both are provisioned as NT6X40FA.
 - 3) Provide two (2) NT6X40DA paddleboards per DTC/LGC/LTC/SMA/SMS/SMU or (ISDN) DTC/LGC/LTC/SMU module per customer requirements for fiber interface to ENET. Provide NT6X40GA when available.
 - 4) NT6X40CA/DA (or NT6X40FA/GA) and NT6X69MA or NT6X69AC are required in ENET applications. NT6X69MA cannot be used for SMS applications due to power restrictions.
- RUL30
- 1) Provide one (1) NT6X02UF Universal Fiber XPM (UFXPM) interface per double shelf module for initials and extensions for both copper and fiber network interfaces.
 - 2) Provision one (1) NT6X02UF per module that is being fiberized in the field if the module is not already provisioned with NT6X02UF or NT6X02BU.
 - 3) Bracket NT6X02BU and connector key bracket P0638263 have been replaced by the NT6X02UF.
 - 4) Provide one (1) NT6X0251 fiber cable conversion kit when provisioning fiber interface (NT6X40CA/DA or NT6X40FA/GA) to the frame if the NT6X02UF mechanicals are provisioned. Provide one (1) per module or maximum two (2) per frame. This kit contains hardware that is required when fiber cables are applied using the NT6X02UF mechanicals. This kit shall be provisioned for new modules that require fiber or for upgrades to fiber in the field.
- RUL31
- 1) Provide two (2) NT2X70AF for all new production. For all DTC7+ and DTC+ application NT2X70AD or NT2X70AF may be used. For all other applications, NT2X70AD, NT2X70AE, or NT2X70AF may be used. Note: The NT2X70AE has been MD'd and replaced by the NT2X70AF.
 - 2) Provide one (1) NT2X70AY upgrade kit per module where the NT2X70AE power converter is always provided.
- RUL32
- Provide one (1) cooling inverter unit per frame.
- RUL33
- 1) Provide one (1) NTRX36NI base jumper kit per module when non-ISDN functionality is required. The NTRX36NI contains two (2) jumpers for connecting XX-12 pin 7A to XX-12 pin

8A, which allows the NT6X01AD frame to function in a non-ISDN capacity.

- RUL34 1) Provide one (1) NT6X02WC product change kit per module when converting NT6X02DR SMS to the NT6X02DS SMS module or when converting NT6X02PG SMSR to the NT6X02PH SMSR. For field applications only.

NOTE: In the NT6X02DR/PG modules, slot 13 was always provided with the NT6X86AA. Product change kit NT6X02WC makes slot 13 provisionable with either NT6X86AA or NT6X86AB. Applying NT6X02WC kit converts NT6X02DR/PG to NT6X02DS/PH, respectively.

- RUL35 1) Provide one (1) NT6X02WE product change kit per module when converting NT6X02EM SMU to the NT6X02EP SMU module. For field application only.

NOTE: In the NT6X02EM module, slot 19 is always provided with NT6X80BA. Product change kit NT6X02WE makes slot 19 provisionable with only the NT6X80BB. The NT6X80BB is required to reduce crosstalk during frequency selective ringing (FSR) in DMS-1Us, which interface SMUs/(ISDN) SMUs.

- RUL36 1) Provide one (1) NT6X02YR per module (for SMA to ISDN conversion) to the NT6X01AD frame. SMA packfills NT6X02TE/TF/TH/TJ can be converted to ISDN DTCI, LGCI, or LTCI packfill NT6X02NA.

- RUL37 1) Provide one (1) NT6X02YA per module to perform a module conversion of SMR to SMU. SMR packfill NT6X02CT can be converted to an SMU packfill NT6X02DU. Refer to the NT6X02YA engineering manual section for further details (section includes information for upgrading from previous versions of the SMR packfill).

- RUL38 1) Provide one (1) NT6X02YB per module to perform a module conversion of SMR to SMS. SMR packfill NT6X02CT can be converted to an SMS packfill NT6X02EU. Refer to the NT6X02YB engineering manual section for further details (section includes information for upgrading from previous versions of the SMR packfill).

- RUL39 1) Provide one (1) designation label for each CP specified.

- RUL40 1) NT6X41AC XPM Formatter/Clock CP is only available for VO jobs.

- 2) Provide two (2) NT6X41AC per XPM module.

- 3) The NT6X41AC can directly replace the NT6X41AA and is fully backwards compatible with any XPM type (LTC, DTCI, SMS, etc.) and any software baseline.
- 4) When providing the NT6X41AC, do NOT provide the associated packfill for the XPM module (NT6X02NA, LC, MC, ES, FJ, DU, EU, PL, CX, CZ, LF, or RF). Instead, provide the NT6X42AA, NT0X50AA, and required module designation strip per the respective engineering manual section for that packfill (i.e., for LTCI, refer to EMS NT6X02NA for detailed information on packs to be ordered in addition to the NT6X41AC). NOTE: The NT6X41AC directly replaces the NT6X41AA, and the NT6X41AA pack should not be ordered when provisioning the NT6X41AC!
- 5) The CP designation label for the NT6X41AC has not yet been defined.

- RUL41
- 1) Provide one (1) NT6X0250 universal ground point per new frame for initials and extensions.
 - 2) Provision one (1) NT6X0250 per frame when NT6X02UF UFXPM mechanicals are provisioned for field upgrades to fiber or when XPM+ upgrade kits are provisioned. 3) Only one (1) NT6X0250 is ever required per frame.

ISDN ENHANCED LINE DRAWER

PEC CODE: NTBX32BA

CPC CODE: B0229366

RATING: Standard

REPLACES: NTBX31AA

REPLACED BY: Not Applicable

ABBREVIATION NAME: LD

ENGINEERING DESCRIPTION: The ISDN Enhanced Line Drawer houses up to 60 line cards in two (2) Line Sub Groups. A maximum of eight (8) line drawers may be assigned to one LCME module.

| REFERENCE DOCUMENTATION: MSBX32BA 00 06

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)

NTBX32BA EMA2-19-ELD-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-----	-----	Previous history not available
93 04 15	ECM 536 03	ECD 011-17820 - Introduce NT6X76AD Hayes Supported AILC to replace NT6X76AC and all previous NT6X76___'s
93 07 12	ECM 616 12	Incorporates Line Card Omissions and update to the current API/ECM Spec.
93 09 17	ECM 616 14	Add NT6X71BA in RUL1.
96 02 09	ECM 685 10	Correct references to Rules 7,8 and 9. Update line cards per current MS.
97 03 21	ECM 685 13	Solve ET83293/SR RR60311. Update EMS to MD PECs NT6X21AA/AB, NT6X71AA/AB and NT6X93EA per EC 024-97629.
97 08 28	ECM 685 14	Update EMS Rules 6 and 10 to reflect NT6X99AA IBERT Card provisioning requirements per EC 011-21643. Also, minor editing correction to Rule 8.
97 11 14	ECM 685 15	Update EMS to include NT6X21BC Line Card provisioning for International applications (GL03-China) per EC 024-98361. Also, reflect line cards NT6X93CA, NT6X94CA, and NT6X95AB as provisionable for China support, even though they are rated MD.

The ISDN Enhanced Line Drawer is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
ISDN Enh. Line Drawer Assy	NTBX3204		1	XX		AP
ISDN Enh. LCME BIC	NTBX36BA		1	XX		AP
Line Circuits	AR			XX		RUL1
ISDN Enh. Line Drawer PUPS	NTBX71AA		1	XX		AP
# Line Drawer Cutoff Strap	A0285591					RUL2
Line Drawer Cutoff Strap	A0384362					RUL2
BIC Insertion Tool	A0322985					RUL2
2-Slot LC Removl/Insert Tool	A0313317					RUL2
1-Slot LC Removl/Insert Tool	A0298291					RUL2
ISDN 2B1Q 'U' I/F Line Card	NTBX27AA					RUL3
ISDN 'S/T' I/F LC	NTBX26AA					RUL3
# Data Line Card	NT6X71AA					RUL4
# Data Line Card	NT6X71AB					RUL4
Data Line Card	NT6X71BA					RUL4
# Asynchronous I/F Line Card	NT6X76AA					RUL5
# Asynchronous I/F Line Card	NT6X76AC					RUL5
Asynchronous I/F Line Card	NT6X76AD					RUL5
# Business Set Line Card	NT6X21AA					RUL6
# Business Set Line Card	NT6X21AB					RUL6
Business Set Line Card	NT6X21AC					RUL6
Type C Line Card (A-Law)	NT6X21BC					RUL12
POTS Message Waiting	NT6X19AA					RUL9
Message Waiting Converter LC	NT6X20AA					RUL9
# POTS Line Card	NT6X17AA					RUL7
# POTS Line Card	NT6X17AB					RUL7
POTS Line Card	NT6X17AC					RUL7
World Line Card Type A	NT6X17BA					RUL7
World Line Card Type B	NT6X18BA					RUL8
IBERT	NT6X99AA					RUL10
# Australia Line Card Type A	NT6X93EA					RUL11
# Line Card Type A (China)	NT6X93CA					RUL13
# Line Card Type B (China)	NT6X94CA					RUL13
# Metering Tone Generator	NT6X95AB					RUL14

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT6X76AA	MD	NT6X76AC
NT6X76AC	MD	NT6X76AD
NT6X17AA	MD	NT6X17AB
NT6X17AB	MD	NT6X17AC
A0285591	MD	A0384362
NT6X21AA	MD	NT6X21AB
NT6X21AB	MD	NT6X21AC
NT6X71AA	MD	NT6X71AB
NT6X71AB	MD	NT6X71BA
NT6X93EA	MD	NT6X17BA
NT6X93CA	MD	NT6X17BA
NT6X94CA	MD	NT6X18BA
NT6X95AB	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:

- "XX" can be one of 05, 19, 40, 54.
- The line drawers are divided into two (2) line sub groups. LSG N has 32 slots while LSG N+1 has 28 slots as shown below:

B	1	3	5	7	9	11	13	15	17	19	21	23	25	27	PUPS	<LSG N+1	
	0	2	4	6	8	10	12	14	16	18	20	22	24	26			
I	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	<LSG N
	0	2	4	6	8	10	12	14	16	18	20	22	24	26			

For reliability, distribute line cards over physical drawers. Within a physical drawer, populate horizontally before being distributed vertically in a manner similar to the present LCM provisioning method. Refer to TABLE C - Line Drawer Provisioning, section EMA14-03-000, for more information.

RULES:

AP 1) When PEC NTB32BA is ordered, these items are provided.

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

DESCRIPTION	PEC	# OF CARD SLOTS	MAX # PER LCME
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
Single Slot Data Line Card	NT6X71BA	1	480
Asynchronous I/F Line Card	NT6X76AA/AC/AD	2	208
Business Set Line Card	NT6X21AC	1	480
Type C Line Card (A-Law)	NT6X21BC	1	480
POTS Message Waiting	NT6X19AA	1	472
Message Waiting Converter LC	NT6X20AA	2	1
POTS Line Card	NT6X17AA/AB/AC	1	480
World Line Card Type A	NT6X17BA	1	480
World Line Card Type B	NT6X18BA	1	480
IBERT	NT6X99AA	2	1 per LCME

LCMEs with BCS-31 will support the ISDN lines only. LCMEs with BCS-32 and higher will support all those lines mentioned above.

2) Any of the line cards supported can be mixed with any other line cards of a Line Subgroup. However, if there is 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.

RUL2 1) Provide one (1) A0384362 (Line Drawer 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 simultaneously in this state. 3) Provide one (1) A0322985 (BIC Insertion Tool) per office, for insertion of the Bus Interface Card into Line Drawers.
 - 4) Provide one A0313317 (2-Slot Insertion/Removal Tool) for offices that have double slot Line cards or double slot converters.
 - 5) Provide one (1) A0298291 (1-Slot Insertion/Removal Tool) for each 10,000 lines in each host and or remote site.
- RUL3
- 1) Provide one NTB27AA per ISDN U Line (2B1Q signalling) as per Telco specifications as of BCS-31 and later. Maximum 60 per physical line drawer, see Rule #1.
 - 2) Provide one NTB26AA per ISDN T Line as per Telco specifications. Maximum 30 per physical line drawer, see Rule #1.
 - 3) 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.
- RUL4
- 1) Provide the NT6X71BA for all new jobs in BCS-32 or higher, to provide an interface for data units; provide one per datapath line. This card is identical to NT6X71AB except that it requires only one line drawer slot. The NT6X71BA replaces all previous NT6X71-- codes, See Rule #1.
- RUL5
- 1) Provide one (1) NT6X76AD (Async Line Card Type-D per data unit that requires an asynchronous interface. The NT6X76AD replaces all previous NT6X76-- codes, See Rule #1.
 - 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.
- RUL6
- 1) Provide one (1) NT6X21AC (Line Card Type C) in offices equipped BCS-32 or later to support the Business Set only. NT6X21AC replaces both the NT6X21AA and NT6X21AB, See Rule #1.
 - 2) Do not provision the NT6X21AC within two (2) horizontally adjacent slots of the NT6X99AA IBERT Card on either side.

- RUL7 1) Provide one (1) NT6X17BA (World Line Card Type A) as of BCS-33 for Initial and Extension offices, per Type-A POTS line required, See Rule #1. The NT6X17BA - replaces NT6X17AA/AB/AC without any equipment changes.
- 2) The NT6X17BA (World Line Card Type A) provides a software programmable selection of impedance and features through a software template. This CP can be specified for all POTS Markets requiring Type A functionality except Japan.
- 3) RNS engineered jobs shall continue to provide the NT6X17AC until the NT6X17BA becomes qualified for use in the RNS market.
- RUL8 1) Provide one (1) NT6X18BA (World Line Card Type B) per Type B line required as of BCS-34 and later. This CP is provisioned for Initial and Extension offices for all COIN and Metering Markets (Type B) except Japan. In Japan, NT6X18BA provides Type A functionality.
- 2) The NT6X18BA provides software programmable selection of impedance and features through a software template, See Rule #1. The NT6X18BA - replaces NT6X18AA/AC.
- 3) Provide one (1) NT6X18AA (Line Card Type B) per Type B line required as of BCS-32 and later. This CP is provides all the current Type B features with the exception of +48v.
- RUL9 1) Provide one (1) NT6X19AA (Msg Waiting Line Card) per line as of BCS-32 for lines requiring the Message Waiting Lamp Feature, See Rule #1.
- 2) The POTS Message Waiting cards require one (1) NT6X20AA (Message Waiting Converter Line Card) two slots high per line drawer to function.
- 3) Provide one (1) NT6X20AA (Msg Waiting Converter CP) as of BCS-32 per physical line drawer when any NT6X19AAs are provided in the drawer.
- RUL10 1) Provide one (1) NT6X99AA (IBERT Line Card) as of BCS-32 and later, per Telco request. This card provides an optional maintenance capability for testing the data loops in a DMS office (e.g. offices equipped with datapath features). See Rule #1.
- 2) Do not provision other card types within two (2) horizontally adjacent slots of the NT6X99AA IBERT Card on either

side. The only exception to this is the NT6X20AA Message Waiting Converter Card.

- 3) Provision IBERT for data path/ISDN loop testing. Provision only one per LCME.

RUL11 1) Provide one (1) NT6X93EA (Australia Line Card Type A) per POTS Line required. This card provides Type A service only, See Rule #1. MD. Replaced by WLC NT6X17BA.

RUL12 1) The NT6X21BC Type C Line Card (P-Phone Line Card) may be provisioned for UK applications or International applications (GL03-China) requiring A-Law. Provide when used with business sets.

- 2) Do not provision the NT6X21BC within two (2) horizontally adjacent slots of the NT6X99AA IBERT Card on either side.

RUL13 1) For China, provide one (1) NT6X93CA for each POTS line or one (1) NT6X94CA for each line requiring meter pulse coin control.

RUL14 1) For applications using tone metering, provide one (1) NT6X95AB Metering Tone Generator per line drawer equipped with any Type B line card version, except for the World Line Card Type B, NT6X18BA. The Metering Tone Generator card is assigned to slot 0 of the upper LSG only, (i.e. the odd line subgroup).

LCMI FILLER FACEPLATE FILL

NTBX31AB

RATING: Standard

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The NTBX31AB contains required filler faceplates to fill those shelves on an LCEI frame which are not equipped with an LCMI common circuit pack fill.

REFERENCE DOCUMENTATION: N/A

The LCMI Filler Faceplate Fill is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Faceplate	NT0X50AA		3	X+14	19, 20, 21	AP
Filler Faceplate	NT0X50AM		2	X+14	22, 25	AP
Slot Label (ISDN)	P0690637		1	X+14		AP
Designation Label	P0690364		1	X+14		AP
Filler Faceplate	NT0X50AA		3	X	19, 20, 21	AP
Filler Faceplate	NT0X50AM		2	X	22, 25	AP
Slot Label (ISDN)	P0690637		1	X		AP
Designation Label	P0690364		1	X		AP

NOTE:

- 1) One LCMI Filler Faceplate Fill can be assigned on the frame to shelf positions 65 and 51 (X=51) and the other to shelf positions 32 and 18 (X=18).

RULE:

- AP 1) When PEC NTB31AB is ordered, these items are provided.

ISDN ENHANCED LINE CONCENTRATING MODULE COMMON CP

PEC CODE: NTBX31BC

CPC CODE: B0243164

RATING: Standard

REPLACES: NTBX31BB

REPLACED BY: Not applicable

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: SLBX31BC 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)

NTBX31BC EMA2-19-LCME-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
96 02 09	ECM 685 10	Introduce NTBX31BC LCME Packfill with NTBX34CB ISDN LCM Proc CP per EC 011-21510 and EC 011-21357.

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	NTBX34CB		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)	P0832020		1			AP
LCMI Digroup Control CP	NTBX35AA		1	X	19	AP
LCMI Digroup Control CP	NTBX35AA		1	X	20	AP
LCME Processor CP	NTBX34CB		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)	P0832020		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 NTB31BC is ordered, these items are provided.

LCME CIRCUIT PACKFILL

PEC CODE: NTB31BD

CPC CODE: B0248220

RATING: Standard

REPLACES: Not Applicable

REPLACED BY: Not applicable

ABBREVIATION NAME: LCME

ENGINEERING DESCRIPTION: The LCME Circuit Packfill equips the LCME module with always provided circuit packs. The LCME, when equipped, can accommodate up to 480 line cards in eight line drawers.

The NTB31BD LCME Circuit Packfill contains the NTB34CB ISDN LCM Proc CP and the NTB35CA ISDN LCM Digroup Control CP for use in International applications (GL03-China).

REFERENCE DOCUMENTATION: SLB31BD 00 01

MARKETS: Applicable markets:

Asia/Pacific
Europe

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

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

NTBX31BD EMA2-19-LCME-4 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 11 14	ECM 685 15	Introduce NTBX31BD LCME Packfill with NTBX34CB ISDN LCM Proc CP and NTBX35CA ISDN LCM Digroup Control CP for use in International applications (GL03-China) per EC 024-98361.

The LCME CIRCUIT PACKFILL is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
ISDN LCM Digroup Control CP	NTBX35CA		1	X+14	19	AP
ISDN LCM Digroup Control CP	NTBX35CA		1	X+14	20	AP
LCME Processor CP	NTBX34CB		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
NTBX31BD Packfill Des Strip	P0866573		1			AP
ISDN LCM Digroup Control CP	NTBX35CA		1	X	19	AP
ISDN LCM Digroup Control CP	NTBX35CA		1	X	20	AP
LCME Processor CP	NTBX34CB		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
NTBX31BD Packfill Des Strip	P0866573		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 NTB31BD is ordered, these items are provided.

ISDN LINE CONCENTRATING MODULE COMMON CP

PEC CODE: NTBX31AA

| CPC CODE:

RATING: Standard

| REPLACES: Not applicable

| REPLACED BY: NTBX31AC

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The ISDN Line Concentrating Module Common CP equips the LCMI module with always provided circuit packs. The LCMI, when equipped, can accommodate up to 384 line cards in eight line drawers.

REFERENCE DOCUMENTATION: N/A

| MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA
Carrier
Wireless

| ISSUE AUTHOR: NTI: Merdia Drummer Dept. 3471 (PPK)

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

NTBX31AA EMA2-19-LCMI-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
----- 93 07 12	----- ECM 616 12	Previous history not available Incorporate the following changes: - EC018-40820 - Add the NT6X30CA North American ring generator to the NTRX30BA CLMI and reflect NTBX32AA, NTBX31AA, AC, and NTBX31AD as MD

The ISDN 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
LCMI Processor CP	NTBX34AA		1	X+14	21	AP
Power Converter	NT6X53EA		1	X+14	22	AP
Power Converter	NT6X53BA		1	X+14	25	AP
Designation Label	P0696883		1			AP
Slot Label	P0690637		1			AP
LCMI Digroup Control CP	NTBX35AA		1	X	19	AP
LCMI Digroup Control CP	NTBX35AA		1	X	20	AP
LCMI Processor CP	NTBX34AA		1	X	21	AP
Power Converter	NT6X53EA		1	X	22	AP
Power Converter	NT6X53BA		1	X	25	AP
Designation Label	P0696883		1			AP
Slot Label	P0690637		1			AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
Not Applicable		

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

RULES:

AP 1) When PEC NTB31AA is ordered, these items are provided.

ISDN LINE CONCENTRATING MODULE COMMON CP

PEC CODE: NTBX31AC

| CPC CODE: B0226727

RATING: Standard

| REPLACES: Not Applicable

| REPLACED BY: NTBX31BA

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The ISDN Line Concentrating Module Common CP equips the LCMI module with always provided circuit packs. The LCMI, when equipped, can accommodate up to 384 line cards in eight line drawers.

REFERENCE DOCUMENTATION: N/A

| MARKETS: Applicable markets:

| US
| Canada
| Europe
| Asia/Pacific
| CALA

| ISSUE AUTHOR: NTI: Merdia Drummer Dept. 3471 (PPK)

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

NTBX31AC EMA2-19-LCMI-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
----- 93 07 12	----- ECM 616 12	Previous history not available Incorporate the following changes: - EC018-40820 - Add the NT6X30CA North American ring generator to the NTRX30BA CLMI and reflect NTBX32AA, NTBX31AA, AC, and NTBX31AD as MD

The ISDN 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
LCMI Processor CP	NTBX34AB		1	X+14	21	AP
Power Converter	NT6X53EA		1	X+14	22	AP
Power Converter	NT6X53BA		1	X+14	25	AP
Designation Label	P0697031		1			AP
Slot Label	P0690637		1			AP
LCMI Digroup Control CP	NTBX35AA		1	X	19	AP
LCMI Digroup Control CP	NTBX35AA		1	X	20	AP
LCMI Processor CP	NTBX34AB		1	X	21	AP
Power Converter	NT6X53EA		1	X	22	AP
Power Converter	NT6X53BA		1	X	25	AP
Designation Label	P0697031		1			AP
Slot Label	P0690637		1			AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
Not Applicable		

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

RULES:

AP 1) When PEC NTB31AC is ordered, these items are provided.

LCME PACKFILL UPGRADE KIT

PEC CODE: NTBX31PB

CPC CODE: B0244969

RATING: Standard.

| REPLACES: NTBX31PA

REPLACED BY: Not Applicable

ABBREVIATION NAME: Not Applicable

ENGINEERING DESCRIPTION: One NTBX31PB LCME Packfill Upgrade Kit up-grades one NTBX31BB LCME Packfill to NTBX31BC LCME Packfill.

REFERENCE DOCUMENTATION: SLBX31BB 00 01
SLBX31BC 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)

NTBX31PB EMA2-19-PCKIT-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
96 02 09	ECM 685 10	Introduce NTBX31PB PC Kit per EC 011-21510. Replaces NTBX31PA.

The LCME Packfill Upgrade Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	LCME Processor CP	NTBX34BC		1	X+14	21	AP
REMOVE	Des Strip (NTBX31BB)	P0744678		1			AP
ADD	LCME Processor CP	NTBX34CB		1	X+14	21	AP
ADD	Des Strip (NTBX31BC)	P0832020		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 NTBX31PB is ordered, these items are provided.

ISDN LINE CONCENTRATING EQUIPMENT FRAME

PEC CODE: NTB30AB

CPC CODE: B0226877

RATING: Standard

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: LCEI

ENGINEERING DESCRIPTION: The ISDN Line Concentrating Equipment Frame is a standard DMS frame which houses two dual shelf LCMI modules, two dual shelf LCME modules, or a combination of each module. The LCMI module houses eight (8) line drawers each of which can support 48 line cards. The LCME module houses eight (8) line drawers each of which can support 60 line cards. The primary function of the LCEI is to support ISDN line cards.

| REFERENCE DOCUMENTATION: MSBX30AB 00 11

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)

NTBX30AB EMA2-19-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-----	-----	Previous history not available
92 12 18	ECM 616 09	ECD 018-38694 Add NTEX60AA Prov. Rules
93 07 12	ECM 616 12	Incorporate the following changes: - EC018-40820 - Add the NT6X30CA North American ring generator to the NTRX30BA CLMI and reflect NTBX32AA, NTBX31AA, AC, and NTBX31AD as MD
94 10 26	ECM 685 05	Replace NTBX31BA with NTBX31BB. Add NTBX31PA Kit.
94 11 23	ECM 685 06	Formatting correction
95 07 13	ECM 685 07	MD NTBX30BA per EC 11-21026.
95 10 19	ECM 685 08	Show NT0X25AH as a provisionable item per ET 30989.
96 02 09	ECM 685 10	Changes per BB Rat and GMF recommendations. Also, replace EMSs NTBX30BB, NTBX31BB and NTBX31PA with NTBX30BC, NTBX31BC and NTBX31PB EMSs all per EC 011-21357 and EC 011-21510.
97 11 14	ECM 685 15	Update NTBX30AB to introduce the new NTBX31BD LCME Circuit Packfill and add the NT6X30DA Ring Generator for International applications (GL03-China) per EC 024-98361.

The ISDN Line Concentrating Equipment Frame is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
LCEI Frame Supervisory Pnl	NTBX37AB	FSP	1	72		AP
Universal Framework	NT0X25AH		1			RUL14
Ringing Generator (N.Amer.)	NT6X30CA			72		RUL2
Ringing Generator (China)	NT6X30DA			72		RUL2
Ringing Gen Filler Plate	NT6X3005			72		RUL2
Baffle Assembly	NT6X1402		1	67		AP
# LCME Common CP	NTBX31BB	LCME		40		RUL3
LCME Common CP	NTBX31BC	LCME		40		RUL3
LCME Common CP	NTBX31BD	LCME		40		RUL3
LCMI Filler Face Plate Fill	NTBX31AB			40		RUL3
ISDN Line Conc Arr Shf Assy	NTBX3104	LCAI	1	54		AP
ISDN Enhanced Line Drawer	NTBX32BA			54	1, 5, 9, 13	RUL5
Line Drawer Filler Plate	NT6X05AX			54	1, 5, 9, 13	RUL11
ISDN Line Conc Arr Shf Assy	NTBX3104	LCAI	1	40		AP
ISDN Enhanced Line Drawer	NTBX32BA			40	1, 5, 9, 13	RUL5
Line Drawer Filler Plate	NT6X05AX			40	1, 5, 9, 13	RUL11
D.C. Fan Unit	NTBX63AA		1	33		AP
# LCME Common CP	NTBX31BB	LCME		05		RUL3
LCME Common CP	NTBX31BC	LCME		05		RUL3
LCME Common CP	NTBX31BD	LCME		05		RUL3
LCMI Filler Face Plate Fill	NTBX31AB			05		RUL3
ISDN Line Conc Arr Shf Assy	NTBX3104	LCAI	1	19		AP
ISDN Enhanced Line Drawer	NTBX32BA			19	1, 5, 9, 13	RUL5
Line Drawer Filler Plate	NT6X05AX			19	1, 5, 9, 13	RUL11
ISDN Line Conc Arr Shf Assy	NTBX3104	LCAI	1	05		AP
ISDN Enhanced Line Drawer	NTBX32BA			05	1, 5, 9, 13	RUL5
Line Drawer Filler Plate	NT6X05AX			05	1, 5, 9, 13	RUL11

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Grille Assy	NTBX3010			01		AP
Shelf Pos ID Label	P0707612					RUL1
Line Drawer ID Label	P0690495					RUL10
Line Drawer ID Label	P0709652					RUL10
Warning Label (French)	P0689450					RUL7
Cable Assembly	NT6X1441					RUL9
Cable Assembly	NT6X1448					RUL9
Cable Assembly	NTBX3028					RUL9
Cable Assembly	NTBX3029					RUL9
Cable Tie	P0633702					RUL9
Cable Braid Assembly	NT0X9503					RUL9
Screw	P097F814					RUL9
Lock Washer	P0183220					RUL9
Dwr Identification Labels	P0690495					RUL6
# ISDN LCMI to LCME Upgr Kit	NTBX30BB					RUL12
ISDN LCMI to LCME Upgr Kit	NTBX30BC					RUL12
# NTBX31BB Upgrade Kit	NTBX31PA					RUL13
NTBX31BC Upgrade Kit	NTBX31PB					RUL15

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NTBX30BB	MD	NTBX30BC
NTBX31BB	MD	NTBX31BC
NTBX31PA	A&M	NTBX31PB

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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 manufac-
tured and cannot be ordered.

NOTES:

- 1) NTB30AB is a single bay frame which can be equipped with up to two (2) independent ISDN Line Concentrating Modules (LCME/LCMI).

The LCME module is for the ISDN 2B1Q Access Subsystem.
The LCMI module is Manufacture Discontinued. However, when it was available it was used for the ISDN AMI Access Subsystem.

- 2) The LCMI Module is Manufacture Discontinued. The shelf assembly becomes an ISDN Line Concentrating Array Shelf (LCAI) that can house up to four (4) Line Drawers. Within each LCMI, the lower LCAI is LCAI 0 and the upper LCAI is LCAI 1.
- 3) The LCMI Module is Manufacture Discontinued. In the LCMI, the 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	00,01,02
05 or 40	1	03,04,05
05 or 40	2	06,07,08
05 or 40	3	09,10,11
19 or 54	4	12,13,14
19 or 54	5	15,16,17
19 or 54	6	18,19,20
19 or 54	7	21,22,23

In the LCME, the 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

- 4) The Frame Supervisory Panel, NTB37AB always contains two FSP Alarm CP NT6X36AA.
- 5) To ensure forced air cooling requirements are met, provision filler face plate NTB31AB and Line Drawer Filler Plate NT6X05AX for all unequipped LCMIs.
- 6) Refer to ECM-125 and NT0X32 for Frame Doors, Trim Panels, EMI requirement and other miscellaneous hardware.

RULES:

- AP 1) When PEC NTB30AB is ordered, these items are provided.
- RUL1 1) Provide one (1) Shelf Position Identification Label for the Trim Panel, P0707612, for every six (6) LCEI Frames.
- RUL2 1) Provide two (2) Ringing Generators if analog ringing is required. Data, Business Set and ISDN 'U' Interface Line Cards do not require ringing. Ringing type and level is set by switch settings in the Ringing Generators.
- 2) Provide two (2) Ringing Generator Filler Plates NT6X3005 if Ringing Generators are not equipped.
- 3) The NT6X30AA Ringing Generator is Manufacture Discontinued. Provision the NT6X30CA Ringing Generator for North America applications.

The following CPs are required as spare for the NTB30AA only:

NT6X37AA Ringing Amplifier CP
NT6X38AA Ringing Control CP

- 4) Provide two (2) NT6X30DA Ringing Generators when analog ringing is required for International applications (GL03-China).
- RUL3 1) Provide one (1) NTB31AA LCMI Common CP Fill for each LCMI (AMI) in offices equipped with BCS-27 or lower software release (see next item). The NTB31AA is Manufacture Discontinued.
- 2) Provide one (1) NTB31AC LCMI Common CP Fill for each LCMI (AMI) in offices equipped with BCS-27 (Canadian V.O. applications only, or general U.S. application) or higher BCS

(all applications). The NTB31AC is Manufacture Discontinued.

- 3) Provide one (1) NTB31BC LCME Common CP Fill for each LCME (2B1Q) in offices equipped with BCS-31 or higher software release. The NTB31BB is MD and replaced by NTB31BC.
- 4) Provide one (1) NTB31BD LCME Circuit Packfill for each equipped LCME being used in International applications (GL03-China).
- 5) Provide one (1) NTB31AB LCMI Filler Face Plate Fill for each LCMI/LCME module that is not equipped.

RUL4 1) Reserved for future use.

RUL5 1) Provide one (1) NTB32BA 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 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) BCS-31 will enable the LCME to support only ISDN lines. BCS-32 will enable the LCME to support in addition to ISDN lines POTS, EBS, and DATAPATH lines. Refer to the section on ISDN Enhanced Line Drawer NTB32BA for more information.

RUL6 1) Provide one (1) P0690495 Line Sub Group Identification Labels per LCEI frame. Each item contains two sets of labels for Line Sub Groups 00 to 23 housed in eight Line Drawers in each LCMI.

RUL7 1) Provide one (1) P0689450 French Warning Label when frame is required by Canadian customers. This label is to be affixed to the frame FSP.

RUL8 1) Reserved for future use.

RUL9 1) Provide the following hardware when EMI protection is required for LCEI frames provisioned in a Remote Switching Center (RSC) being equipped with ISDN 2B1Q service. This hardware package only applies to NT0X25AL or equivalent

frames as per Engineering Manual section EMA15-01-000, and only to ISDN 2B1Q upgrades of existing RSC sites.

Cable

Ties: Sixteen (16) P0633702 per frame (eight per module)

Cables: One (1) NT6X1441 per frame
One (1) NT6X1448 per frame
Two (2) NTB3028 per frame (one per module)
Two (2) NTB3029 per frame (one per module)

- 2) In addition to items specified above, NT0X32DF, NT0X32CH, NT0X32CE and associate hardware per Engineering Manual section EMA15-03-000 must be specified.
- 3) Provide one (1) NT0X9503 Cable Braid Assembly, one (1) P097F814 Screw and two (2) P0183220 Lock Washers per LCEI when frame is used in a raised floor RSC application with underfloor cabling. This hardware provides frame grounding multiple cable and associated mounting hardware.
- 4) For new RSC sites requiring EMI compliant LCEI frames, the EMI hardware package is not required. Instead, specify NTN38BA MCLM-ISDN cabinet.

RUL10 1) Provide one (1) P0690495 Line Sub Group Identification Labels per LCEI frame equipped with NTB32AA Line Drawers. Each item contains two sets of labels for Line Sub Groups 00 to 23 housed in eight Line Drawers in each LCMI.

- 2) Provide one (1) P0709652 Line Drawer Identification Labels per LCEI frame equipped with NTB32BA Line Drawers. P0709652 provides enough labels for 16 Line Drawers.

RUL11 1) For each unequipped line drawer position provide one (1) NT6X05AX Line Drawer Filler Plate.

RUL12 1) Provide one (1) NTB30BC ISDN LCMI to LCME Upgrade Kit to convert one (1) AMI LCMI to a 2B1Q LCME. The LCMI 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. Either module 0 or module 1 or both modules of an existing NTB30AB frame may be upgraded to an LCME. New line drawers (NTB32BA) must replace all existing NTB32AA line drawers on the upgraded module. NTB32AA line drawers cannot be provided on an LCME module.

- 2) Provide one (1) NTB30BC ISDN LCMI to LCME Upgrade Kit when adding a new LCME module to an unequipped module position

on an existing LCEI frame already equipped with only one LCMI module. Also provide four (4) NTB35AA LCMI Digroup Group Controller CP with the NTB30BC Kit. Do not provide the LCME CP Fill.

- 3) All existing LCEI jobs, equipped with four (4) 20 Amp fusing (2A and 2B), must be upgraded to 30 Amp fusing in order that the LCME can be supported.

RUL13 1) Use packfill upgrade kit NTB31PA to upgrade the NTB31BA packfill to an NTB31BB packfill.

RUL14 1) Provide one (1) Universal Framework per NT0X25AH.

RUL15 1) Provide packfill upgrade kit NTB31PB to upgrade the NTB31BB packfill to an NTB31BC packfill.

INTERNATIONAL LGC/DTC COMMON CP

PEC CODE: NTFX33BH

CPC CODE: B0242747

| RATING: STD

REPLACES: NTFX33BC

REPLACED BY: Not Applicable

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The NTFX33BH is the common circuit pack fill
used in the International Cabinetized FCTM
NTFX33AA.For Digital N5 applications use NTFX33BJ in-
stead of NTFX33BH.

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)

NTFX33BH EMA2-20-ILGC-6 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 04 03	ECM 646 10	Changes per ECD 024-93969. Created a new packfill NTFX33BH that replaced 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	NT2X70AF		2	X+14,X	25	AP
Designation Label (NT2X70AF)	P0809960		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 NTFX33BH is ordered, these items are provided.

INTERNATIONAL LGC/DTC COMMON CP

PEC CODE: NTFX33BJ

CPC CODE: B0242748

| RATING: STD

REPLACES: NTFX33BD

REPLACED BY: Not Applicable

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The NTFX33BJ is the common circuit pack fill used in the International Cabinetized FCTM NTFX33AA for Digital N5 applications.

For other than Digital N5 applications use NTFX33BH instead of NTFX33BJ.

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)

NTFX33BJ EMA2-20-ILGC-7 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 04 03	ECM 646 10	Changes per ECD 024-93969. NTFX33BJ is a replacement for 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	NT2X70AF		2	X+14,X	25	AP
Designation Label (NT2X70AF)	P0809960		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 NTFX33BJ is ordered, these items are provided.

INTERNATIONAL LGC/DTC COMMON CP

PEC CODE: NTFX33BE

CPC CODE: B0238812

| RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The NTFX33BE is the common circuit pack fill used in the International Cabinetized FCTM NTFX33AA for XPM (MP/SP/FP) and XPM PLUS (UP) Applications.

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)

NTFX33BE EMA2-20-ILGC-8 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 07 07	ECM 646 11	Changes per ECD 024-93910. NTFX33BE is introduced for the NTFX33AA Cabinet.

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
Filler Face Plate	NT0X50AA		2	X+14,X	15	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
Designation Label (NTFX33BE)	P0814883		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 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 NTFX33BE is ordered, these items are provided.

| INTERNATIONAL MTM-DRA SHELF

NT2X58BD

RATING: Standard

ABBREVIATION NAME: IMTM

ENGINEERING DESCRIPTION: The International Trunk Maintenance Module Digital Recorded Announcement (IMTM-DRA) shelf is a blank shelf primarily intended to house DRA circuit packs for international switches.

REFERENCE DOCUMENTATION: MS2X58BD 01 01

The International MTM-DRA Shelf is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
DRA Shelf Assembly	NT2X5830		1	X		AP
Common Circuit Pack(s)	AR			X		RUL1
Trunk Cards	AR			X	05-16	RUL1

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 NT2X58BD 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.

IPTM WITH OAU COMMON CIRCUIT PACK FOR ICAM

NTFX37BA

RATING: Standard

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The NTFX37BA Common Pack equips the two International Packaged Trunk Module (IPTM) shelves of the International Cabinet Auxiliary Module (ICAM) with the circuit packs required 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 IPTM shelves.

REFERENCE DOCUMENTATION: N/A

The International Packaged Trunk Module Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
TM Interface	NT2X45BA		1	47	1	AP
TM Processor	NT0X70AA		1	47	2	AP
TM Control	NT2X53AA		1	47	3	AP
Group CODEC	NT2X59CA		1	47	4	AP
OAS Dead Sys w/Comm Audible	NT3X82AB		1	47	5	AP
OAS Alarm Transfer	NT3X83AA		1	47	6	AP
Misc Scanner	NT0X10AA		1	47	7	AP
Metallic Test Access	NT3X09BA		1	47	8	AP
102 Test - Milliwatt	NT1X00AE		1	47	11	AP
SD Card	NT2X57AA		1	47	12	AP
LTU Analog Card	NT2X10AB		1	47	13	AP
LTU Digital Card	NT2X11AD		1	47	14	AP
INC/OG Test Trunk	NT2X90AD		1	47	15	AP
Balance Network 900 ohms	NT2X77AA		1	47	15	AP
102 Test - Milliwatt	NT1X00AE		1	47	16	AP
Multi O/P Power Converter	NT2X09AA		1	47	17	AP
Filler Face Plate	NT0X50AA		1	47	19	AP
Power Converter CP	NT2X70AE		1	47	20	AP
TM Interface	NT2X45BA		1	33	1	AP
TM Processor	NT0X70AA		1	33	2	AP
TM Control	NT2X53AA		1	33	3	AP
Group CODEC	NT2X59CA		1	33	4	AP
OAS Dead Sys w/Comm Audible	NT3X82AB		1	33	5	AP
Call Waiting Tone Generator	NT3X68AC		1	33	6	AP
Filler Faceplate	NT0X50AC		1	33	7	AP
TTT Test Signal Generator	NT1X90BA		1	33	9	AP
PCM Level Meter	NT2X96BA		1	33	10	AP
TTU Trans. Tst. Mod.	NT2X47BA		1	33	11	AP
Digital Filter	NT2X56BA		1	33	12	AP
Multi O/P Power Converter	NT2X09AA		1	33	17	AP
Filler Face Plate	NT0X50AA		1	33	19	AP
Power Converter CP	NT2X70AE		1	33	20	AP
Designation Strip	P0726439		1			AP
Designation Strip	P0726503		1			AP

RULES:

AP 1) When PEC NTFX37BA is ordered, these items are provided.

IPTM COMMON CIRCUIT PACK FOR ICAM

NTFX37BB

RATING: Standard

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The NTFX37BB Common Pack equips a single International Packaged Trunk Module (IPTM) shelf in the International Cabinet Auxiliary Module (ICAM) with the circuit packs required to support the provisionable maintenance and service circuit packs in the remaining free CP slots of the shelf.

REFERENCE DOCUMENTATION: N/A

The International Packaged Trunk Module Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
TM Interface	NT2X45BA		1	X	1	AP
TM Processor	NT0X70AA		1	X	2	AP
TM Control	NT2X53AA		1	X	3	AP
A-Law TM CODEC	NT2X59CA		1	X	4	AP
Multi O/P Power Converter	NT2X09AA		1	X	17	AP
Filler Face Plate	NT0X50AA		1	X	19	AP
Power Converter CP	NT2X70AE		1	X	20	AP
Designation Strip	P0726440		1	X		AP

NOTES:

- 1) X = Shelf Position 33 or 47.

RULES:

- AP 1) When PEC NTFX37BB is ordered, these items are provided.

LGCI/DTCI COMMON CIRCUIT PACK (OFFSHORE)

PEC CODE: NTFX33CG

CPC CODE: B0242765

| RATING: STD

REPLACES: NTFX33CD

REPLACED BY: Not Applicable

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The NTFX33CG is the common circuit pack fill used in the Offshore cabinet (NTFX33CA). The NTFX33CG Packfill may be provisioned for Non-XPM+ and XPM+ Applications. The NT2X70AF power converter is always provided in this Packfill.

REFERENCE DOCUMENTATION:

MARKETS: Applicable markets:

Europe
Asia/Pacific
CALA

ISSUE AUTHOR: Ken Clisso Dept. 3471 (PPK)

MAIN CONTACT: Ken Clisso Dept. 3471 (PPK)

NTFX33CG EMA2-20-LGCI-10 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
----- 95 08 30	----- ECM 647 12	Previous history not available Per ECD 024-94268 introduced NTFX33CG Packfill.

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

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Channel Supervision Msgs CP	NT6X42AA		1	X+14	20	AP
+5/12V Pwr Converter 50A CP	NT2X70AF		1	X+14	25	AP
Designation Label (NT2X70AF)	P0809960		1	X+14	25	AP
Designation Strip (NTFX33CA)	P0734232		1	X+14		AP
Designation Strip (NTFX33CD)	P0739765		1	X+14		AP
Channel Supervision Msgs CP	NT6X42AA		1	X	20	AP
+5/12V Pwr Converter 50A CP	NT2X70AF		1	X	25	AP
Designation Label (NT2X70AF)	P0809960		1	X	25	AP
Designation Strip (NTFX33CA)	P0734232		1	X		AP
Designation Strip (NTFX33CD)	P0739765		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 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 NTFX33CG is ordered, these items are provided.

INTERNATIONAL CIDC LGC/DTC FIBER COMMON PACKFILL

PEC CODE: NTRX46AC

| CPC CODE: B0242819

| RATING: STD

REPLACES:

REPLACED BY:

ABBREVIATION NAME: DTCO
LGC0

ENGINEERING DESCRIPTION: The NTRX46AC is the common circuit packfill used to equip LGC and DTC modules in the NTRX46AA Cabinetized International Processor Equipment (CIPE).

REFERENCE DOCUMENTATION: SLRX46AC 01 01
MSRX46AA 00 11

MARKETS: Applicable markets:

CALA
Asia/Pacific
Europe

ISSUE AUTHOR: Ken Clisso Dept. 3471 (PPK)

MAIN CONTACT: Ken Clisso Dept. 3471 (PPK)

NTRX46AC EMA2-20-LGCI-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 09 08	ECM 659 18	ECD 024-94268. Introduce NTRX46AC packfill.

The International CIDC LGC/DTC Fiber Common Packfill is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	08	AP
4MB MP Memory CP	NT6X47AC		2	X+14,X	09	AP
Filler Faceplate	NT0X50AA		2	X+14,X	10	AP
Signal Processor Memory CP	NT6X46BB		2	X+14,X	11	AP
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	12	AP
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
Filler Faceplate	NT0X50AA		2	X+14,X	23	AP
Filler Faceplate	NT0X50AA		2	X+14,X	24	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 (NTRX46AB)	P0737236		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 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 NTRX46AC is ordered, these items are provided.

LGCI/DTCI COMMON CIRCUIT PACK (OFFSHORE)

PEC CODE: NTFX33CE

CPC CODE: B0242749

| RATING: MD

REPLACES: NTFX33CB

REPLACED BY: Not Applicable

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The NTFX33CE is the common circuit pack fill
used in the Offshore Line Trunk ISDN Module
(LTEM) cabinet (NTFX33CA).

REFERENCE DOCUMENTATION:

MARKETS: Applicable markets:

Europe
Asia/Pacific
CALA

| ISSUE AUTHOR: Otis Gibbs DEPT. 3471 (PPK)

| MAIN CONTACT: Otis Gibbs DEPT. 3471 (PPK)

NTFX33CE EMA2-20-LGCI-4 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
----- 95 05 08	----- ECM 464 11	Previous history not available Per ECD 024-93969 MD'd NTFX33CB and introduced the NTFX33CE.
96 04 26	ECM 647 14	Per ECD 024-95240 MD'd NTFX33CE packfill. The NTFX33CG packfill shall be used for the NTFX33CA cabinet.

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	NT2X70AF		1	X+14	25	AP
Designation Label (NT2X70AF)	P0809960		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	NT2X70AF		1	X	25	AP
Designation Label (NT2X70AF)	P0809960		1	X	25	AP
Designation Strip (NTNX33CB)	P0729038		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 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 NTFX33CE is ordered, these items are provided.

LGCI/DTCI COMMON CIRCUIT PACK (OFFSHORE)

PEC CODE: NTFX33CF

CPC CODE: B0242750

| RATING: MD

REPLACES: NTFX33CC

REPLACED BY: Not Applicable

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: The NTFX33CF is the common circuit pack fill used in the Offshore cabinet (NTFX33CA). The NTFX33CF Packfill may be provisioned for Non-XPM+ Applications. The NT2X70AF power converter is always provided in this Packfill.

REFERENCE DOCUMENTATION:

MARKETS: Applicable markets:

Europe
Asia/Pacific
CALA

| ISSUE AUTHOR: Otis Gibbs Dept. 3471 (PPK)

| MAIN CONTACT: Otis Gibbs Dept. 3471 (PPK)

NTFX33CF EMA2-20-LGCI-9 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
----- 95 08 30	----- ECM 647 12	Previous history not available Per ECD 024-94268 introduced NTFX33CF Packfill.
96 04 26	ECM 647 14	Per ECD 024-95240 MD'd NTFX33CF packfill. The NTFX33CG packfill shall be used for the NTFX33CA cabinet.

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	NT6X46BB		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	NT2X70AF		1	X+14	25	AP
Designation Label (NT2X70AF)	P0809960		1	X+14	25	AP
Designation Strip (NTNX33CA)	P0734232		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	NT6X46BB		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	NT2X70AF		1	X	25	AP
Designation Label (NT2X70AF)	P0809960		1	X	25	AP
Designation Strip (NTNX33CA)	P0734232		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 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 NTFX33CF is ordered, these items are provided.

INTERNATIONAL CABINET LGE/DTE

PEC CODE: NTFX33AA

CPC CODE: B0232342

RATING: STD

REPLACES: None

REPLACED BY: None

ABBREVIATION NAME: FCTM

ENGINEERING DESCRIPTION: NTFX33AA is a Meridian style Common Peripheral Controller Equipment cabinet for international applications.

Each FCTM may be provisioned as:

PLGC - PCM30 Line Group Controllers
PDTC - PCM30 Digital Trunk Controllers

ILGC - International Line Group Controllers (DMS100i)
IDTC - International Digital Trunk Controllers (DMS100i)

An ILGC/PLGC may be provisioned to support copper interface (DS-30) or fiber interface (DS-512) to the network, PCM-30 links to RLCM, RSC or OPM, DS-30A interface to LCM.

An IDTC/PDTC may be provisioned to support copper interface (DS-30) or fiber interface (DS-512) to the network, PCM-30 links to other offices, Common Channel Signaling 7 (CCS7).

REFERENCE DOCUMENTATION: MSFX33AA 00 10

MARKETS:

Applicable markets:

Europe
Asia/Pacific
CALA

ISSUE AUTHOR: Deniece Land Dept. 3471 (PPK)

MAIN CONTACT: Deniece Land Dept. 3471 (PPK)

NTFX33AA EMA2-20-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 02 18	ECM 646 01	Transfer from ECM 464, Update per ECDs 011-16859, 011-17311, Clarify NT6X28AA provisioning ET110670 Correct NT6X55CA provisioning ET111220 Correct NT6X55BA provisioning ET111570
93 03 04	ECM 646 02	Update cabinet abbreviation name as
93 04 08	ECM 646 03	ILGE, IDTE, PLGE, or PDTE.
93 07 07	ECM 646 04	Restore abbreviated name to FCTM.
93 07 14	ECM 646 05	Correct typo in RUL5 2): NTFX3390 should be NTN3390.
93 09 02	ECM 646 07	Correct typo in EQUIPMENT FLAGGED: - Blank the RATING column.
94 02 07	ECM 646 08	Update XPM+ per ECD 011-18052 to XPM+ and per ECD 018-41629: MD NT6X01BU, and add NT6X02UF, NT6X0251, NT6X0250.
94 07 21	ECM 646 09	Delete P0745307, which was introduced prematurely. Show NT6X27AC and NT6X27BA are MD and replaced by NT6X27BB.
95 04 03	ECM 646 10	Changes per ECD 024-93969.
95 07 07	ECM 646 11	Changes per ECD 024-93910.
96 02 16	ECM 646 13	Changes per ECD 024-93910. Replace NTMX71AA with NTMX71BA. NTMX71AA is not MD'd. Per ECD 024-95646 add NT6X03DD Upgrade kit. Add NT6X03DE XPM+ Upgrade kit to replace the NT6X02XH Kit. The NTMX70AC is MD'd and has no replacement. Add NT6X78AB CMR card.
96 04 22	ECM 646 14	Introduction of GTR, NT6X92EA.
96 07 29	ECM 646 15	Change per ECD 024-96554. add the NT6X40FB (NTZZ02HN), NT6X40AD and show NT6X02UF always provided as part of the NTFX33AA stocklist. Clarify notes for NT6X78AB CMR.
96 09 17	ECM 646 16	Correct EMS to show NT6X02UF as AP with frame.
97 03 14	ECM 704 02	Consolidation of ECM 646 issue 16. Per EC 024-94268 change bushing from P0682727 to P0689010. Show linedrawer NT6X02CA MD'ed replaced by NTMX90AB

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
		per EC 024-96494. Show one wiring list per module SR70780. Clarify NT6X02UF.

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

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Two Inch Filler Plate	P0684448		1	65		AP
Frame Supervisory Panel	NT7X34DA	FSP	1	60		AP
CPCE Shelf Assembly	NT6X0211		4	X+14,X		AP
Universal Ground Point	NT6X0250			60R		RUL20
# Internatnl LGC/DTC Common CP	NTFX33BA	ILGC/IDTC/ PLGC/PDTC		X		RUL1
# Internatnl LGC/DTC Common CP	NTFX33BC	ILGC/IDTC/ PLGC/PDTC		X		RUL1
# Internatnl LGC/DTC Common CP	NTFX33BD	ILGC/IDTC/ PLGC/PDTC		X		RUL1
Internatnl LGC/DTC Common CP	NTFX33BH	ILGC/IDTC/ PLGC/PDTC		X		RUL1
Internatnl LGC/DTC Common CP	NTFX33BJ	ILGC/IDTC/ PLGC/PDTC		X		RUL1
Internatnl LGC/DTC Common CP	NTFX33BE	ILGC/IDTC/ PLGC/PDTC		X		RUL1
Filler Faceplate Kit	NT6X02AB			33		RUL1
8-port 64Kbit I/F CP	NT6X55CA			X	01	RUL17
DSO to B/H Cable assembly	NTFX3303			X+14,X		RUL17
8-port 64Kbit I/F CP Kit	NTFX33ZB			X+14,X		RUL17
CCITT 64-Kbit Access CP	NT6X55BA			X+14,X	01-04	RUL17
CCITT 64-KB Cable Assembly	NTFX3305			47,19		RUL17
CCITT 64-KB Cable Assembly	NTFX3306			33,05		RUL17
# PCM-30 Interface CP	NT6X27AC			X+14,X	01-04	RUL2
# Enhanced PCM-30 Interface CP	NT6X27BA			X+14,X	01-04	RUL2
Enhanced PCM-30 Interface CP	NT6X27BB			X+14,X	01-04	RUL2
Filler Faceplate	NT0X50AA			X+14,X	01-06	RUL6
PCM-30 Coaxial I/F Assy	NTNX3369			47,19		RUL11
PCM-30 Coaxial I/F Assy	NTNX3366			33,05		RUL11
PCM-30 Twist Pair I/F Assy	NTNX3370			X+14,X		RUL12
PCM-30 Twist Pair I/F Assy	NTNX3371			X+14,X		RUL12
Designation Labels	P0711579			X+14,X		RUL12
DS-30A Interface CP	NT6X48AA			X+14,X	05,06	RUL16
DS-30A Interfce 6-Port Cable	NTNX3307			33		RUL16
DS-30A Interfce 6-Port Cable	NTNX3319			33		RUL16

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
DS-30A Interfce 6-Port Cable	NTNX3320			33		RUL16
DS-30A Interfce 6-Port Cable	NTNX3321			33		RUL16
DS-30A Interfce 4-Port Cable	NTNX3308			33		RUL16
DS-30A Interfce 4-Port Cable	NTNX3322			33		RUL16
DS-30A Interfce 4-Port Cable	NTNX3323			33		RUL16
DS-30A Interfce 4-Port Cable	NTNX3324			33		RUL16
DS-30A I/F 6-Port Cable	NTNX3305			05		RUL16
DS-30A I/F 6-Port Cable	NTNX3313			05		RUL16
DS-30A I/F 6-Port Cable	NTNX3314			05		RUL16
DS-30A I/F 6-Port Cable	NTNX3315			05		RUL16
DS-30A I/F 4-Port Cable	NTNX3306			05		RUL16
DS-30A I/F 4-Port Cable	NTNX3316			05		RUL16
DS-30A I/F 4-Port Cable	NTNX3317			05		RUL16
DS-30A I/F 4-Port Cable	NTNX3318			05		RUL16
Cable Mounting Bushing	P0638259			X		RUL16
Cable Mounting Washer	P0423631			X		RUL16
# Connector Key Bracket	P0638261			X+14,X	05R,06R	RUL16
Connector Key Bracket	P0745307			X+14,X	05R,06R	RUL16
Universal Time Switch CP	NT6X44EA		2	X+14,X	07	AP-01
Universal Time Switch CP	NT6X44EA		2	X+14,X	07	AP-02
Universal Time Switch CP	NT6X44EA		2	X+14,X	07	AP-04
# Universal Tone Receiver	NT6X92CA			X+14,X	08	RUL3
Global Tone Receiver CP	NT6X92EA			X+14,X	08	RUL3
CCITT N5 Spec Tone Rec CP	NT6X62DA			X+14,X	08	RUL18
Filler Faceplate	NT0X50AA			X+14,X	08	RUL6
Class Modem Resource card	NT6X78AB			X+14,X	08	RUL26
# Universal Tone Receiver	NT6X92CA			X+14,X	09	RUL3
Global Tone Receiver CP	NT6X92EA			X+14,X	09	RUL3
Continuity Tone Detector	NT6X70AA			X+14,X	09	RUL4
Contin. Tone Detect. Wiring	NTNX33WA			X+14,X	09	RUL4
Filler Faceplate	NT0X50AA			X+14,X	09	RUL6
Class Modem Resource card	NT6X78AB			X+14,X	09	RUL26
Msg Protocol & Downld CP	NT6X69LB		2	X+14,X	10	AP-01
Msg Protocol & Downld CP	NT6X69LB		2	X+14,X	10	AP-02
Msg Protocol & Downld CP	NT6X69LB		2	X+14,X	10	AP-04
# Universal Tone Receiver	NT6X92CA			X+14,X	11	RUL3
Global Tone Receiver CP	NT6X92EA			X+14,X	11	RUL3
CCITT N5 Spec Tone Rec CP	NT6X62DA			X+14,X	11	RUL18
Filler Faceplate	NT0X50AA			X+14,X	11	RUL6
Class Modem Resource card	NT6X78AB			X+14,X	11	RUL26
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	12	AP-01
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	12	AP-02

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
LGC/DTC Processor CP	NT6X45BA			X+14,X	12	RUL19
XPM Plus Processor CP	NTMX77AA			X+14,X	12	RUL19
SP Memory Plus CP	NT6X46BB		2	X+14,X	13	AP-01
SP Memory Plus CP	NT6X46BB		2	X+14,X	13	AP-02
SP Memory Plus CP	NT6X46BB			X+14,X	13	RUL19
Bus Shorter CP	NT7X80AA			X+14,X	13	RUL19
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	14	AP-01
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	14	AP-02
LGC/DTC Processor CP	NT6X45BA			X+14,X	14	RUL19
Filler Faceplate 0.875	NT0X50AA			X+14,X	14	RUL19
Filler Faceplate	NT0X50AA		2	X+14,X	15	AP-01
Filler Faceplate	NT0X50AA		2	X+14,X	15	AP-02
Filler Faceplate	NT0X50AA		2	X+14,X	15	AP-04
4 MB MP Memory CP	NT6X47AC		2	X+14,X	16	AP-01
4 MB MP Memory CP	NT6X47AC		2	X+14,X	16	AP-02
4 MB MP Memory CP	NT6X47AC			X+14,X	16	RUL19
Filler Faceplate 0.875	NT0X50AA			X+14,X	16	RUL19
SP Memory Plus CP	NT6X46BB		2	X+14,X	17	AP-01
SP Memory Plus CP	NT6X46BB		2	X+14,X	17	AP-02
SP Memory Plus CP	NT6X46BB			X+14,X	17	RUL19
Bus Shorter CP	NT7X80AA			X+14,X	17	RUL19
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	18	AP-01
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	18	AP-02
LGC/DTC Processor CP	NT6X45BA			X+14,X	18	RUL19
Filler Faceplate 0.875	NT0X50AA			X+14,X	18	RUL19
PCM-30 Signaling I/F CP	NT6X28AA			X+14,X	19	RUL5
Filler Faceplate	NT0X50AA			X+14,X	19	RUL6
Echo Cancllr Ctrl Paddle Bd	NTCX50AA			X+14,X	19R	RUL5
Echo C.C.Intrcnct Cable Assy	NTNX3390			X		RUL5
Echo Cancellor Wiring List	NTFX33WE			X+14,X		RUL5
Echo Cancellor Control Kit	NTFX33ZA			X+14,X		RUL5
Filler Faceplate	NT0X50AA		2	X+14,X	20	AP-01
Filler Faceplate	NT0X50AA		2	X+14,X	20	AP-02
Filler Faceplate	NT0X50AA		2	X+14,X	20	AP-04
XPM+ Terminator Paddleboard	NTMX71BA			X+14,X	8R, 20R	RUL19

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Wiring List With XPM+	NT6X01WL			X		RUL19
Wiring List Without XPM+	NT6X01WK			X		RUL19
XPM+ Upgrade Kit	NT6X01XE			X		RUL19
NT7X05AA Product Change Kit	NT6X02WF		1	05, 33		RUL21
# 3P XPM Plus Change Kit	NT6X02XH		1	05, 33		RUL22
# 3P XPM Plus Paddlecard Kit	NTMX70AC		1	05, 33		RUL23
Enhanced 3P XPM+ Upg. Kit	NT6X03DE		1	05, 33		RUL27
Option Slot Upg. Kit for 3P	NT6X03DD		1			RUL28
XPM Plus Echo Cancellor Kit	NT6X01XG		1	05, 33		RUL24
CSM and N5 Splitter CP	NT6X42CA			X+14, X	21	RUL18
Wiring List N5 Splitter	NTFX33WF			X+14, X		RUL18
Channel Supervision Mgs CP	NT6X42AA		2	X+14, X	21	AP-01
Channel Supervision Mgs CP	NT6X42AA		2	X+14, X	21	RUL18
Speech Bus Formatter CP	NT6X41AB		2	X+14, X	22	AP-01
Speech Bus Formatter CP	NT6X41AB		2	X+14, X	22	AP-02
Speech Bus Formatter CP	NT6X41AB		2	X+14, X	22	AP-04
DS-30 Network Interface CP	NT6X40AC			X+14, X	23	RUL15
DS-30 Network Interface CP	NT6X40AD			X+14, X	23	RUL15
# DS-512 Interface CP	NT6X40CA			X+14, X	23	RUL14
# DS-512 Link Paddleboard	NT6X40DA			X+14, X	23R	RUL14
DS-512 Interface CP	NT6X40FA			X+14, X	23	RUL14
DS-512 Interface CP	NT6X40FB			X+14, X	23	RUL14
DS-512 Link Paddleboard	NT6X40GA			X+14, X	23R	RUL14
# FXPM Bracket Assembly Kit	NT6X02BU			X		RUL14
UFXPM Kit	NT6X02UF			X+14, X	23R	AP
Fiber Cable Conversion Kit	NT6X0251			X+14, X	23R	RUL14
Fiber Adapter Plate Assy Kit	NTFX33GD			X+14, X	23R	RUL14
Optical Fiber Danger Label	P0736273					AP-03
Fiber Cover Plate	P0713256			47, 19		RUL14
Fiber Cover Plate	P0713105			33, 05		RUL14
# Bushing	P0682727			33, 05		RUL14
Snap Bushing	P0689010			33, 05		RUL14
Connector Cover Plate	P0713257			47, 33		RUL15
# DS-30 Interface 6-Port Cable	NTNX3389			47, 33		RUL15
DS-30 Backplane Cable Assy	NTFX3311			47		RUL15
DS-30 Backplane Cable Assy	NTFX3310			33		RUL15
Connector Cover Plate	P0713258			19, 05		RUL15
# DS-30 Interface 6-Port Cable	NTNX3384			19, 05		RUL15

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
DS-30 Backplane Cable Assy	NTFX3309			19		RUL15
DS-30 Backplane Cable Assy	NTFX3308			05		RUL15
Filler Faceplate	NT0X50AA		2	X+14,X	24	AP-01
Filler Faceplate	NT0X50AA		2	X+14,X	24	AP-02
Filler Faceplate	NT0X50AA		2	X+14,X	24	AP-04
# Power Converter	NT2X70AE		2	X+14,X	25	AP-01
# Power Converter	NT2X70AE		2	X+14,X	25	AP-02
Power Converter	NT2X70AF		2	X+14,X	25	AP-01
Power Converter	NT2X70AF		2	X+14,X	25	AP-02
Power Converter	NT2X70AF		2	X+14,X	25	RUL19
Power Converter	NT2X70AF		2	X+14,X	25	RUL25
Cooling Unit	NTNX27CA	CU	1	00		AP
Merid Cab. Common Framework	NTNX25AA	FW	1			AP
Anchor Kit E'qke Slab Flr	NTNX2540					RUL9
Anchor Kit E'qke Cmptr Flr	NTNX2578					RUL9
Anchor Kit Non E.Q. Slab	NTNX2579					RUL9
Anchor Kit Non E.Q. Cmptr	NTNX2580					RUL9
Door Assy-Right (Grey)	NTNX2513					RUL10
Door Assy-Left (Grey)	NTNX2515					RUL10
Right Door Label (Grey)	P0699158					RUL10
Left Door Label (Grey)	P0677704					RUL10
Cabinet Label (Grey)	P0714721					RUL10
Right Door Assy (Brown)	NTNX2552					RUL10
Left Door Assy (Brown)	NTNX2550					RUL10
Right Door Label (Brown)	P0695230					RUL10
Left Door Label (Brown)	P0699464					RUL10
Cabinet Label (Brown)	P0714720					RUL10
Designation Strip	P0734233		2	X+14,X		AP-01
Designation Strip	P0734231		2	X+14,X		AP-02
Designation Strip	P0814883		2	X+14,X		AP-04
Desig. Label (NT6X78AB)	P0731980					RUL13
Desig. Label (NT6X27AC)	P0706381					RUL13
Desig. Label (NT6X27BA)	P0731399					RUL13
Desig. Label (NT6X27BB)	P0739157					RUL13
Desig. Label (NT6X28AA)	P0653635					RUL13
Desig. Label (NT6X40CA)	P0710477					RUL13
Desig. Label (NT6X40FA)	P0729895					RUL13

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Desig. Label (NT6X40AD)	P0834806					RUL13
Desig. Label (NT6X40FB)	P0834807					RUL13
Desig. Label (NT6X42CA)	P0731400					RUL13
Desig. Label (NT6X42AA)	P0737138					RUL13
Desig. Label (NT6X45BA)	P0665152					RUL13
Desig. Label (NT6X46BB)	P0711664					RUL13
Desig. Label (NT6X47AC)	P0711821					RUL13
Desig. Label (NT6X55BA)	P0731374					RUL13
Desig. Label (NT6X55CA)	P0731375					RUL13
Desig. Label (NT6X62DA)	P0731401					RUL13
Desig. Label (NT6X70AA)	P0628358					RUL13
Desig. Label (NT6X92CA)	P0677831					RUL13
Desig. Label (NT6X92EA)	P0835224					RUL13
Desig. Label (NTMX77AA)	P0735417					RUL13
Desig. Label (NT7X80AA)	P0742962					RUL13
Desig. Label (NT2X70AF)	P0809960					RUL13

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NTFX33BA		NTFX33BC
NT6X46BA		NT6X46BB
NT6X27AC	MD	NT6X27BB
NT6X27BA	MD	NT6X27BB
Pair NT6X40CA and NT6X40DA	MD	Pair NT6X40FA and NT6X40GA
NT6X02BU	MD	NT6X02UF and NT6X0251
NTNX3384	MD	NTNX3308 and NTNX3309
NTNX3389	MD	NTNX3310 and NTNX3311
NT2X70AE	MD	NT2X70AF
NTFX33BA	MD	NTFX33BC
NTFX33BC	MD	NTFX33BH
NTFX33BD	MD	NTFX33BJ
P0638261	A&M	P0745307
NT6X01XE	MD	NT6X02XH
NTMX70AC	MD	No Replacement
NT6X02XH	MD	NT6X03DE

PEC	RATING	REPLACED BY PEC
NT6X92CA P0682727	STD *	NT6X92EA P0789010

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.

* Meaning NT6X92CA is still STD. It will be replaced by NT6X92EA. Check availability before ordering the NT6X92EA.

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).

RULES:

- AP 1) When PEC NTFX33AA is ordered, these items are provided.
- AP-01 1) This item is always provided with NTFX33BC/BH Cabinetized Fiber International LGC/DTC Common CP.
- AP-02 1) This item is always provided with NTFX33BD/BJ Cabinetized Fiber International LGC/DTC Common CP.
- AP-03 1) This item is always provided in NT6X0251 Fiber Cable conversion kit provisioned per RUL14.
- AP-04 1) This item is always provided in NTFX33BE Cabinetized Fiber International LGC/DTC Common CP.
- RUL1 1) The Active Packfills are NTFX33BH/BJ for XPM only and NTFX33BE for either XPM or XPM+. The NTFX33BE is the preferred packfill.

For offices with the XPM (MP/SP/FP) feature, for each equipped NTFX33BE module provide:

- six (6) NT6X45BA LGC/DTC Processor CPs,
- four (4) NT6X46BB SP Memory Plus CPs,
- two (2) NT6X47AC 4 MP Memory CPs,
- two (2) NT2X70AF Power Converter CPs, and
- one (1) NT6X01WK Wiring List Without XPM+ Application.

For offices with the XPM PLUS (UP) feature, for each equipped NTFX33BE module provide:

- two (2) NTMX77AA Unified Processor CPs,
- four (4) NT7X80AA Bus Shorter Card CPs,
- four (4) NTMX71BA XPM+ Terminator PBs
- six (6) NT0X50AA Filler Faceplates,
- two (2) NT2X70AF Power Converter CPs and
- one (1) NT6X01WL Wiring List E/W XPM+.

XPM (MP/SP/FP) feature, for each equipped module, except for Digital N5 applications, provide:

- one (1) NTFX33BH International LGC/DTC Common CP.

For Digital N5 application, provide for each equipped module:

- one (1) NTFX33BBJ International LGC/DTC Common CP (see RUL18 for CPs provisioned for Digital N5).

The NTFX33BH/BJ/BE Common CP fill contains AP hardware for both shelves in the module.

- 2) If the second module is not equipped in the cabinet, provide:

- one (1) NT6X02AB CPC Module Filler Faceplate Kit.

- RUL2 1) For each equipped module, provide as per customer requirements:

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

For NT6X28AA information see RUL5.

- 2) 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	4	3	2	1

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

When both PCM-30 and 8-port 64-Kbit interface (see RUL17) are provisioned in the same cabinet simultaneously, the number of associated ports per module will be fourteen (14) PCM-30 ports and eight (8) 64-Kbit ports.

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

- 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).

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

- two (2) NTNX3370 PCM-30 Twisted Pair Interface Assemblies
- two (2) NTNX3371 PCM-30 Twisted Pair Interface Assemblies

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

- one (1) P0711579 Designation Labels Sheet.
One sheet contains sufficient cable connector designation for both modules in the frame.

As the Echo Canceller Control interface cable uses the bulkhead connector positions normally used for twisted pair PCM-30, the ECC can only be provisioned when these connectors are not being used.

- 3) The formerly provided NT6X27AC and NT6X27BA have been changed to MD status and replaced by NT6X27BB. RUL3 1) The NT6X92CA Universal Tone Receiver 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.

For each equipped module, provide per customer requirements:

- zero (0), two (2) or four (4) Nt6X92CA UTR Circuitpacks.

The first provisionable UTR (NT6X92CA) pair shall be located in CP slot 8 unless CP slot 8 is equipped with an NT6X62DA. The second provisionable UTR pair shall be located in CP slot 9, unless CP slot 9 is equipped with an NT6X70AA. In this case, the second UTR pair will be located in CP slot 11. Each UTR on the shelf is paired with a UTR in the same circuit pack position on the other shelf in the module.

-OR-

- 1A) Provide Zero (0) Two (2) or Four (4) GTR's NT6X92EA in slots 8,9 or 11 for DIGITONE receivers (LINES) or MF receivers (TRUNKS). Each of the NT6X92EA circuit pack provides tone reception for PCM 30 Channels. The NT6X92EA is a CCITT compliant tone receiver. (Complies with CCITT Recommendations Q.24, Q.323 and Q.455 for DTMF and MF tone reception) Check availability before ordering the NT6X92EA. DO NOT mix NT6X92 CP types on the same shelf.
- 2) The first provisionable UTR (NT6X92CA) pair shall be located in CP slot 8 unless CP slot 8 is equipped with an NT6X62DA per RUL18. The second provisionable UTR pair shall be located in CP slot 9, unless CP slot 9 is equipped with an NT6X70AA per RUL4. In this case, the second UTR pair will be located in CP slot 11. Each UTR on the shelf is paired with a UTR in the same circuit pack position on the other shelf in the module.

- RUL4 1) When this DTC is handling CCIS/CCS7 voice trunking, provide for each equipped module:

- two (2) NT6X70AA Continuity Tone Detector CPs.

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.

An LGC may not be provisioned with NT6X70AA CPs.

- 2) For each NT6X70AA ordered, provide:

- one (1) NTN33WA Continuity Tone Detector Wiring Assembly.

- RUL5 1) For each equipped LGC/DTC which supports PCM-30 links (NT6X27 PCM-30 Interface CPs provided per RUL2), or for

each equipped LGC module which supports links to an LCM (NT6X48 DS30A LCM Interface CPs provided per RUL16), and the LCM is equipped with a PCM-30 line drawer, Such as 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).

- 2) When the Echo canceller feature is required, provide for each pair of NT6X28AAs provisioned:

- two (2) NTCX50AA Echo Canceller Control Paddle Boards.
- one (1) NTN3390 Echo Canceller Control Interconnect Cable Assembly and
- one (2) NTFX33WE Echo Canceller Wiring List per equipped module.

As the Echo Canceller Control interface cable uses the bulkhead connector positions normally used for twisted pair PCM-30 (see RUL12), the ECC can only be provisioned when these connectors are not being used.

- 3) For the field application of the Echo Cancelling feature, provide for each equipped module:

- one (1) NTFX33ZA Echo Canceller Control Kit.

This kit consists of:

- two (2) NTCX50AA paddle boards and
- one (1) NTN3390 interconnect cable assembly.

- RUL6 1) For each unequipped CP slot 1-6, 8,9,11, and 19, provide:

- one (1) NT0X50AA Filler Faceplate.

- RUL9 1) When cabinet is installed in seismic (earthquake) zones

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

provision for each cabinet:

- for slab-type flooring,
- one (1) NTN2540 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 each cabinet:
- for slab-type flooring,
 - one (1) NTNX2579 Frame Mounting Kit, or
 - for computer-type flooring,
 - one (1) NTNX2580 Frame Mounting Kit.
- RUL10 1) When specifying a brown cabinet, provision for each cabinet:
- 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) P0714720 Cabinet Type Label (Brown).
- 2) When specifying a grey cabinet, provision for each cabinet:
- 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) P0714721 Cabinet Type Label (Grey),
- RUL11 1) For PCM-30 interface via coaxial cable, provide for each equipped module:
- 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).
- RUL12 1) For PCM-30 interface via twisted pair wiring, provide for each equipped IDTC module:
- two (2) NTNX3370 PCM-30 Twisted Pair Interface Assemblies, and
 - two (2) NTNX3371 PCM-30 Twisted Pair Interface Assemblies.

As the Echo Canceller Control interface cable uses the bulkhead connector positions normally used for twisted pair PCM-30, the ECC can only be provisioned when these connectors are not being used (see RUL5).

- 2) When twisted pair PCM-30 interface is equipped, provide for each cabinet:

- one (1) P0711579 Designation Labels Sheet.

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

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

- RUL14 1) For each module equipped with network interface via fiber cabling in an ENET office, provide:

One (1) - NTZZ02HM Containing:

two (2) NT6X40FA DS-512 Interface CP
two (2) P0729895 NT6X40FA designation labels
two (2) NT6X40GA DS-512 Link Paddleboard
one (1) NT6X0251 Fiber Cable Conversion Kit
(For new cabinets NT6X02UF is always provided
as part of the NTFX33AA per ECD 024-96554.)

OR

One (1) - NTZZ02HN Containing:

two (2) NT6X40FB DS-512 Interface CP
two (2) P0834807 NT6X40FB designation labels
two (2) NT6X40GA DS-512 Link Paddleboard
one (1) NT6X0251 Fiber Cable Conversion Kit
(For new cabinets NT6X02UF is always provided
as part of the NTFX33AA per ECD 024-96554.)

AND one (1) NTFX33GD fiber adapter plate kit.

Also when either module in the cabinet is equipped with network interface via fiber cabling , provide:

Module 0 one (1) P0713105 Fiber Cover Plate

Module 0 one (1) P0689010 Bushing

Module 1 one (1) P0713256 Fiber Cover Plate

module 1 one (1) P0689010 Bushing

The NT6X40FB is backwards compatible with NT6X40FA. However, the NT6X40FB has an enhanced C-side Loop-around diagnostic feature available with XPM05+ software loads. If the NT6X40FA and NT6X40FB are mixed in a module, they must be datafilled as NT6X40FA in order for the diagnostics to pass. Use the NT6X40FB CP with the NT6X40GA paddleboard for new production.

NT6X40CA and NT6X40DA functional pair and MD'ed and replaced by NT6X40FA/FB and NT6X40GA functional pair. The paddleboards and circuit packs cannot be mixed because they do not function in mismatched pairs.

The NT6X02UF UFXPM kit is used for both Fiber (DS512) transmission or non-fiber (DS30) transmission, with one (1) kit serving one (1) module.

The NT6X02UF/NT6X0251/NTFX33GD combination shall be provisioned for new modules that require fiber or for upgrades to fiber in the field.

The NT6X02UF only, shall be used for DS30, when this feature is a requirement. NT6X02UF is AP on the frame for new production.

- RUL15 1) For each upper module (Shelf positions 33 and 47) equipped with network interface via copper cabling, provide:
- two (2) NT6X40AC or NT6X40AD DS-30 Interface CP's
 - two (2) CP Designation labels P0695397 or P0834806
 - one (1) P0713257 Connector Cover Plate - Module 1
 - one (1) NTFX3311 DS-30 Backplane Cable Assembly - Module 1
 - one (1) NTFX3310 DS-30 Backplane Cable Assembly - Module 1

For each lower module (Shelf positions 05 and 19) equipped with network interface via copper cabling provide:

- two (2) NT6X40AC or NT6X40AD DS-30 Interface CP's
- two (2) CP Designation labels P0695397 or P0834806
- one (1) P0713258 Connector Cover Plate - Module 0
- one (1) NTFX3309 DS-30 Backplane Cable Assembly - Module 0
- one (1) NTFX3308 DS-30 Backplane Cable Assembly - Module 0

The NT6X40AD is backwards compatible with the NT6X40AC. However, the NT6X40AD has an enhanced C-side loop-around diagnostic feature available with XPM05+ software loads. If the NT6X40AC and NT6X40AD are mixed in a module, they must be datafilled as NT6X40AC in order for the diagnostics to pass. The NT6X40AD should be used for non-fiber new production.

- RUL16 1) For ILGC applications to interface links from ILCM, provide:

- four (4) NT6X48AA DS30A LCM Interface CPs, and
- four (4) P0745307 Connector Key Brackets
(one P0745307 for each NT6X48AA provided).

For IDTC applications, provide:

- four (4) NT0X50AA Filler Faceplates.
- 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 0 (lower shelf of the module) and the other assigned to LGAI 1 (upper shelf of the module).
- 3) The two pairs of NT6X48AA provide interfaces for up to twenty (20) DS30A ports (links) from ILCMs. The following is a listing of DS30A ports per DS30A LCM Interface CP, NT6X48AA location.

	CP POS 5	CP POS 6
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.

DS30A ports must be selected from those peripheral ports that remain unassigned after NT6X27 (PCM-30) ports are provisioned.

- 5) DS30A Port Cables shall be provisioned by the job engineer based on CCS/line requirements. These cables connect DS30A signals from the modules to the FCTM bulkhead. Cables are equipped with six connectors (6-Port cables) or four connectors (4-Port cables) and shall be provisioned based on port requirements.

6-Port Cable and Bulkhead Connector Designations:

CABLE PEC	CONNECTS SHELF	BULKHEAD CONNECTOR DESIGNATION
NTNX3305	05-19	0P0
NTNX3313	05-19	0P1
NTNX3314	05-19	0P2
NTNX3315	05-19	0P3
NTNX3307	33-47	1P0
NTNX3319	33-47	1P1
NTNX3320	33-47	1P2
NTNX3321	33-47	1P3

4-Port Cable and Bulkhead Connector Designations:

CABLE PEC	CONNECTS SHELF	BULKHEAD CONNECTOR DESIGNATION
NTNX3306	05-19	0P4
NTNX3316	05-19	0P5
NTNX3317	05-19	0P6
NTNX3318	05-19	0P7
NTNX3308	33-47	1P4
NTNX3322	33-47	1P5
NTNX3323	33-47	1P6
NTNX3324	33-47	1P7

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

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

RUL17 1) When an 8-port 64Kbit interface is requested by the customer, provide for each equipped module:

- one (1) NT6X55CA 8-port 64-Kbit I/F CP, and
- one (1) NTFX3303 Cable Assembly.

When both PCM-30 (see RUL2) and 8-port 64-Kbit interface are provisioned in the same cabinet simultaneously, the number of associated ports per module will be fourteen (14) PCM-30 ports and eight (8) 64-Kbit ports.

2) For the field application of the 8-port 64Kbit feature, provide for each equipped module:

- one (1) NTFX33ZB 8-port 64Kbit Interface Circuit Kits.
- Each NTFX33ZB kit consists of:

- one (1) NT6X55CA 8-port 64-Kbit I/F CP, and
- one (1) NTFX3303 Cable assembly.

3) For each 1-port 64Kbit interface required, maximum 1 per shelf of an equipped module, provide:

- one (1) NT6X55BA 64-Kbit Access CPs,

for each shelf in position 19 or 47 provisioned with a NT6X55BA, provide:

- one (1) NTFX3305 Cable Assembly, and

for each shelf in position 05 or 33 provisioned with a NT6X55BA, provide:

- one (1) NTFX3306 Cable Assembly.

The NT6X55BA should only be provisioned when DS30A p-side ports (provisioned per RUL16) are not used.

- RUL18 1) For Digital N5 applications, provide for each module equipped with NTFX33BJ/BE Common CP as per customer requirements:

- two (2) NT6X42CA CSM and N5 Splitter CPs, and
- two (2) NT6X62DA CCITT N5 Version Special Tone Receiver (STR) CPs.
- one (1) NTFX33WF wiring list per equipped module.

For standard CSM applications, provide for each module equipped with NTFX33BJ/BE Common CP as per customer requirements:

- two (2) NT6X42AA Channel Supervision Mgs CPs.

- RUL19 1) For offices with the XPM (MP/SP/FP) feature, provide for each equipped LGC or DTC (NTFX33BE) module:

- six (6) NT6X45BA ILGC/IDTC Processor CPs,
- two (2) NT6X47AC 4MB MP Memory CPs,
- four (4) NT6X46BB Signal Processor Memory Plus CPs, and
- two (2) NT2X70AF Power Converter CPs, and
- one (1) NT6X01WK Wiring List Without XPM+ Application.

Alternatively, for offices with the XPM Plus (UP) feature, provide for each equipped LGC or DTC (NTFX33BE) module:

- two (2) NTMX77AA XPM Plus Processor CPs,
- four (4) NTMX71BA XPM Plus Paddleboards, and
- six (6) NT0X50AA Filler Faceplates in CP slots 14,16 and 18,
- two (2) NT2X70AF Power Converter CPs,

- four (4) NT7X80AA Bus Shorter CPs, and
 - one (1) NT6X01WL Wiring List With XPM+ Application.
- 2) To convert one PDTC module equipped for XPM to XPM+ provide:
- one (1) NT6X01XE XPM+ 3P Upgrade Kit.

The NT6X01XE kit includes:

- two (2) NTMX77AA XPM Plus Processor CPs,
- two (2) NTMX71AA XPM Plus Paddleboards,
- four (4) NT7X80AA Bus Shorter CPs, and
- backplane wiring modifications for XPM+.

The XPM CPs NT6X45BA, NT6X47AC, and NT6X46BB must be removed before the NT6X01XE XPM+ 3P Upgrade Kit is applied.

The NT6X01XE kit has been replaced by the NT6X02XH field upgrade kit.

If the customer has the NT6X01XE kit in stock the NTMX70AC kit maybe used to provide back panel modifications necessary for the XPM+ upgrade.

- RUL20 1) For each cabinet, provide for equipment maintenance at rear of cabinet:
- one (1) NT6X0250 Universal Ground Point.
- RUL21 1) Provide one (1) NT6X02WF (NT7X05AA PRODUCT CHANGE KIT) when the peripheral recovery loader option is required. The NT7X05AA requires the XPM PLUS unified processor NTMX77. If the NT6X02WF (NT7X05AA) is provisioned. The quantity of NT6X92 packs use will be limited to two (2) per module.
- RUL22 1) Provide one (1) NT6X02XH 3P XPM PLUS packfill change kit per DMS-100 NTFX33BE module to upgrade to XPM PLUS functionality. This kit is for field upgrades only.(NT6X02XH kit has been replaced with the NT6X03DE Enhanced Upgrade Kit.)
- RUL23 1) Provide one (1) NTMX70AC 3P XPM PLUS paddlecard upgrade kit, Instead of the NT6X02XH when a module needs to be upgraded to XPM PLUS and the office already has the NTMX77, NTMX71, and NT7X80 circuit packs stocked on site. The NTMX70AC does not contain the NTMX77, NTMX71, and NT7X80 nor the designation labels for these circuit packs. This

kit is for field upgrades only.(NTMX70AC kit has been MD'd and has no replacement.)

- RUL24 1) Provide one (1) NT6X01XG XPM PLUS echo canceller upgrade kit per module where XPM PLUS is used in Upgrades or New Product.

The NT6X28AC and NTCX50AB CPs are required for echo cancellation in XPM PLUS. The NT6X28AA and NTCX50AA CPs are used for NON-XPM PLUS echo cancellation and will not function with XPM PLUS.

For Echo Cancelling, in non-XPM+ applications provide for each equipped module:

- two (2) NTCX50AA Echo Canceller Controls paddleboards and
- one (1) NTN3390 ECC Interconnect Cable Assembly.

Echo Cancellation can not be provisioned in conjunction with twisted pair PCM30 because of conflicting bulkhead cut-outs (S01,S11).

- RUL25 1) To change the NTFX33BC packfill to NTFX33BH or to change the NTFX33BD to NTFX33BJ provide two (2) NT2X70AF Power Converters and two (2) P0809960 designation labels for CP location 25 per module.

- RUL26 1) Provide two (2) NT6X78AB CMR cards per module when Class Modem Resource is required. The CMR cards available slots are 8 or 9 or 11 per shelf. If The Backplane (NT6X0211) is REL 70 or lower the NT6X03DD Upgrade kit must be applied before the NT6X78AB Class Modem Resource CP. (see RUL28)

- RUL27 1) Provide one (1) NT6X03DE Enhanced 3P Backplane XPM+ Upgrade Kit per module to upgrade to XPM PLUS functionality. This new kit includes all the necessary circuit packs, paddleboards, and cable assemblies to upgrade on PDTC/PLGC module to XPM+. The kit includes the new NTMX71BA terminator paddleboards and the option slot straps. It also includes the wiring templates and labels that are necessary for performing the upgrade to XPM+. The "PLUS+" and "OPT" labels P0833380 and P0833381 are included for marking the frame/cabinet when the XPM+ upgrade is complete.(This kit is for field upgrades only.) This NT6X03DE replaces the NT6X02XH and the NTMX70AB. It includes Upgrade "OPT" so that the NT6X78AB Class Modem Resource card may be provisioned.

- RUL28 1) Provide one (1) NT6X03DD Option Slot Upgrade Kit, per frame, before NT6X78AB if Backplane Rel is 70 or lower.

Providing the material and instructions for upgrading four NT6X0211 shelves (with NT6X0212 backplane) to "Option Slot Ready" functionality. This kit provides enough green 26 AWG wire to add the option slot straps to an entire frame or cabinet. Wiring templates are included to aid the installer in locating the correct pins. A label is also included which will be installed on the frame or cabinet next to the PEC and release. The label will have the letters "OPT" to signify "Option Slot Ready". This label provides a visual indication of whether the straps have been added to the frame. The presence of the kit in office records will provide a method of tracking to which frames these straps have been applied.

CABINETIZED LINE TRUNK EQUIP MODULE

PEC CODE: NTFX33CA

CPC CODE: B0233454

RATING: Standard

REPLACES: None

REPLACED BY: None

ABBREVIATION NAME: LTEM

ENGINEERING DESCRIPTION: The NTFX33CA Cabinetized International Line Trunk Equipment Module houses one or two International PCM-30 LGC/DTC/LTC dual shelf modules with ISDN or non-ISDN capability.

Each PCM-30 LGC/DTC module is equipped to support PCM-30 trunk interfaces.

REFERENCE DOCUMENTATION: MSFX33CA 00 11

MARKETS: Applicable markets:

Europe
Asia/Pacific
Cala

ISSUE AUTHOR: Deniece Land DEPT. 3471 (PPK)

MAIN CONTACT: Deniece Land DEPT. 3471 (PPK)

NTFX33CA EMA2-20-001 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 10 15	ECM 647 01	ECDs 011-16761 & 011-16850
92 11 03	ECM 647 02	Correct NTN33WG to read NTFX33WG.
92 11 20	ECM 647 03	Clarify NTB01AA and NT6X70AA may not be provisioned in the same DTC.
92 12 04	ECM 647 04	Clarify NT6X28AA provisioning per ET-110670.
93 01 28	ECM 647 05	ECD 011-17311.
93 07 07	ECM 647 06	Restore abbreviated name to LTEM.
93 08 31	ECM 647 08	Clarify provisioning of DS30A port cables per ET112300.
94 11 15	ECM 647 09	Add that a minimum of 4 NT6X27 is required per equipped module. Update per ECD 011-18850, adds NT6X02XG XPM+ Upgrade Kit, plus other updates per latest issue of MSFX33CA.
95 04 04	ECM 647 10	Update per ECD 024-93969, NT2X70AF replaces NT2X70AE.
95 08 30	ECM 647 12	Update per ECD 024-94268.
96 04 26	ECM 647 14	Add NTB02BA in Rules. MD NTFX33CE and NTFX33CF Packfills. MD designation strips P0729038, P0724232. Add paddleboard insertion guides, P0749586, provisioned w/NTMX71 XPM+ paddleboard.
96 07 28	ECM 647 15	Introduction of GTR, NT6X92EA. Per ECD 024-96554 add the NT6X60FB, NT6X40AD and NT6X78AB. (NTZZ02HN, NTZZ02GC, NTZZ97AA) Show NT6X40CA/DA and NT6X78AA MD'ed. A&M NT6X46BA.
96 08 30	ECM 647 16	Show NT6X02UF - AP always provided. Correct the number shelf assemblies NT6X0216 from (1) one to (4) four.
97 03 14	ECM 704 02	Consolidation of ECM 647 issue 16. add NTZZ02EA for CMR per 024-96344. Per 024-96494 show NT6X05CA MD'ed and replaced by NTMX90AB. 024-95726 MD NTB01AA and NTB02AA replaced by NTB01AC/BA and NTB02BA. 024-96589 MD NTB01AB replaced by NTB01AC/BA and MD NTB01AC replaced

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
		NTBX01BA. Clarify Rules.

The Cabinetized Line Trunk Equip Module is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
2" Filler Panel	P0684448			65		RUL14
ESD Ground Panel Assembly	NTFX3713			65		RUL14
ESD Ground Terminator	NTFX3703			60R		RUL14
Universal GND Point	NT6X0250			60R		RUL14
Frame Supervisory Panel	NTNX26NA	FSP	1	60		AP
International CPC Shelf Assy	NT6X0216		4	X,X+14		AP
PCM-30 LGC/DTC Common CP UK	NT6X02UB	LGC/		X,X+14		RUL1
		DTC/				
		LTC/				
		PLGC/				
		PDTC				
# LGC/DTC COMMON CP	NTFX33CB			X,X+14		RUL1
# LGC/DTC Common CP	NTFX33CC			X,X+14		RUL1
# LGC/DTC Common CP	NTFX33CD			X,X+14		RUL1
# LGC/DTC Common CP	NTFX33CE			X,X+14		RUL1
# LGC/DTC Common CP	NTFX33CF			X,X+14		RUL1
LGC/DTC Common CP	NTFX33CG			X,X+14		RUL1
CPC Filler Faceplate Kit	NT6X02AB			X,X+14		RUL1
# ISDN D-Channel Handler CP	NTBX02AA			X,X+14	01-05	RUL3
Enhanced D-Channel Handler	NTBX02BA			X,X+14	01-05	RUL3
DS-1 Interface CP	NT6X50AB			X,X+14	01-05	RUL16
# PCM-30 Trunk Interface CP	NT6X27AC			X,X+14	02-05	RUL4
PCM-30 Trunk Interface CP	NT6X27BB			X,X+14	02-05	RUL4
PCM-30 Coaxial I/F Assy	NTNX3369			19		RUL4
PCM-30 Coaxial I/F Assy	NTNX3366			05		RUL4
PCM-30 Twist Pair I/F Assy	NTNX3370			X,X+14		RUL4
PCM-30 Twist Pair I/F Assy	NTNX3371			X,X+14		RUL4
Designation Labels	P0711579					RUL4
DS30A LCM Interface CP	NT6X48AA			X,X+14	06,07	RUL5
Connector Key Bracket	P0638261			X,X+14	6R,7R	RUL5
DS30A Interface Cable Assy	NTNX3308			47		RUL5
DS30A Interface Cable Assy	NTNX3322			47		RUL5
DS30A Interface Cable Assy	NTNX3323			47		RUL5
DS30A Interface Cable Assy	NTNX3324			47		RUL5
DS30A Interface Cable Assy	NTNX3307			33		RUL5

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
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	NTNX3306			19		RUL5
DS30A Interface Cable Assy	NTNX3316			19		RUL5
DS30A Interface Cable Assy	NTNX3317			19		RUL5
DS30A Interface Cable Assy	NTNX3318			19		RUL5
DS30A Interface Cable Assy	NTNX3305			05		RUL5
DS30A Interface Cable Assy	NTNX3313			05		RUL5
DS30A Interface Cable Assy	NTNX3314			05		RUL5
DS30A Interface Cable Assy	NTNX3315			05		RUL5
Cable Mounting Bushing	P0638259					RUL5
Cable Mounting Washer	P0423631					RUL5
LGC/DTC Processor CP	NT6X45BA			X,X+14	08	RUL6
Filler Face Plate	NT0X50AA			X,X+14	08	RUL6
4 MB MP Memory CP	NT6X47AC			X,X+14	09	RUL6
Filler Face Plate	NT0X50AA			X,X+14	09	RUL6
Filler Faceplate	NT0X50AA			X+14,X	10	RUL6
# SP Memory Plus CP	NT6X46BA			X,X+14	11	RUL6
SP Memory Plus CP	NT6X46BB			X,X+14	11	RUL6
Filler Face Plate	NT0X50AA			X,X+14	11	RUL6
LGC/DTC Processor CP	NT6X45BA			X,X+14	12	RUL6
XPM Plus Processor CP	NTMX77AA			X,X+14	12	RUL6
Wiring List XPM Plus/ISDN	NTNX33WG			X		RUL6
# XPM Plus Change Kit	NT6X02XA			X,X+14		RUL6
# XPM Plus ISDN Change Kit	NT6X02XB			X,X+14		RUL6
XPM Plus Upgrade Kit	NT6X02XG			X,X+14		RUL6
Paddlecard Upgrade Kit	NTMX70AB			X,X+14		RUL6
Continuity Tone Detector CP	NT6X70AA			X,X+14	13	RUL7
CLASS Modem Resource CP	NT6X78AB			X,X+14	13	RUL7
Universal Time Switch CP	NT6X44EA			X,X+14	14	RUL1
# Universal Tone Receiver CP	NT6X92CA			X+14,X	15,17	RUL8
Global Tone Receiver CP	NT6X92EA			X+14,X	15,17	RUL8
# ISDN Signal Pre-Processor CP	NTBX01AA			X,X+14	16	RUL6
# XPM Plus ISDN Sig Preproc CP	NTBX01AB			X,X+14	16	RUL6
# Enhanced ISDN Sig Preproc CP	NTBX01AC			X,X+14	16	RUL6
Enhanced ISDN Sig Preproc CP	NTBX01BA			X,X+14	16	RUL6
# CPP Msg Protocol & Tones CP	NT6X69LA			X,X+14	18	RUL1
CPP Msg Protocol & Tones CP	NT6X69LB			X,X+14	18	RUL1
NT7X05AA Product Change Kit	NT6X02WF			X,X+14	17,19	RUL17

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
PCM-30 Signalling CP	NT6X28AA			X,X+14	19	RUL15
XPM Plus Paddleboard	NTMX71AA			X,X+14	20R	RUL6
PB Insertion Guides	P0749586			X,X+14	20R	RUL6
Channel Supervision Mgs CP	NT6X42AA		1	X,X+14	20	AP-01
Speech Bus Formatter CP	NT6X41AB		1	X,X+14	21	AP-01
Speech Bus Formatter CP	NT6X41AB		1	X,X+14	21	Ru119
DS30 Network Interface CP	NT6X40AC			X,X+14	22	RUL9
DS30 Network Interface CP	NT6X40AD			X,X+14	22	RUL9
DS30 Interface Cable Assy	NTNX3352			47		RUL9
DS30 Interface Cable Assy	NTNX3353			47		RUL9
DS30 Interface Cable Assy	NTNX3348			33		RUL9
DS30 Interface Cable Assy	NTNX3349			33		RUL9
DS30 Interface Cable Assy	NTNX3350			19		RUL9
DS30 Interface Cable Assy	NTNX3351			19		RUL9
DS30 Interface Cable Assy	NTNX3346			05		RUL9
DS30 Interface Cable Assy	NTNX3347			05		RUL9
Connector Cover Plate	P0713257			05, 19		RUL9
Connector Cover Plate	P0713258			33, 47		RUL9
Connector Key Bracket	P0638263			X,X+14	22R	RUL9
Fiber Cover Plate	P0713105			05, 33		RUL9
Fiber Cover Plate	P0713256			05, 33		RUL9
Snap Bushing	P0689010			05, 33		RUL9
# DS512 Network Interface CP	NT6X40CA			X,X+14	22	RUL9
# DS512 Paddle Board	NT6X40DA			X,X+14	22R	RUL9
DS512 Network Interface CP	NT6X40FA			X,X+14	22	RUL9
DS512 Network Interface CP	NT6X40FB			X,X+14	22	RUL9
DS512 Paddle Board	NT6X40GA			X,X+14	22R	RUL9
# DS512 Fiber I/F to Ntwk Kit	NTNX33SD			X,X+14	22R	RUL9
Fiber Adapter Plate Assembly	NTFX33GD			05, 33	0P7, 1P7	RUL9
Fiber Cable Conversion Kit	NT6X0251			05, 19	22R	RUL9
				33, 47		RUL9
# Optical Fiber Danger Label	P0736273					RUL9
Filler FP .875	NT0X50AA		2	X,X+14	23, 24	AP-01
# Power Converter +-5V 50A CP	NT2X70AE			X,X+14	25	RUL1
Power Converter +-5V 50A CP	NT2X70AF			X,X+14	25	RUL1
NT2X70AF Upgrade Kit	NT2X70AY			X,X+14	25	RUL18
Cooling Unit	NTNX27CA	CU	1	00		AP

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Merid Cab. Common Framework	NTNX25AA	FW	1			AP
Filler Faceplate	NT0X50AA					RUL2
Desig. Label (NT0X50AA)	P0578498					RUL2
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
Left Door Ass'y (brown)	NTNX2550					RUL11
Right Door Label (brown)	P0695230					RUL11
Left Door Label (brown)	P0699464					RUL11
Cabinet Type Label (grey)	P0729035					RUL11
Cabinet Type Label (brown)	P0729036					RUL11
Cable Duct Cover (Bottom)	P0685168					RUL12
Bottom mounting screws	P097F839					RUL12
Cable Duct Cover (Top)	P0674549					RUL12
Top mounting screws	P097Y374					RUL12
Desig. Label (NT0X50AA)	P0578498					RUL13
# Desig. Label (NTBX02AA)	P0697919					RUL13
Desig. Label (NTBX02BA)	P0737724					RUL13
Desig. Label (NTMX77AA)	P0735417					RUL13
Desig. Label (NT6X27BB)	P0739157					RUL13
# Desig. Label (NT6X40CA)	P0710477					RUL13
Desig. Label (NT6X40FA)	P0729895					RUL13
Desig. Label (NT6X40FB)	P0834807					RUL13
Desig. Label (NT6X70AA)	P0628358					RUL13
Desig. Label (NT6X46BB)	P0711664					RUL13
Desig. Label (NT2X70AF)	P0809960					RUL13
# Desig. Label (NTBX01AB)	P0735418					RUL13
# Desig. Label (NTBX01AC)	P0803505					RUL13
Desig. Label (NTBX01BA)	P0713794					RUL13
Desig. Label (NT6X45BA)	P0665152					RUL13
Desig. Label (NT6X47AC)	P0711821					RUL13
Desig. Label (NT6X28AA)	P0653635					RUL13
Desig. Label (NT6X40AC)	P0695397					RUL13
Desig. Label (NT6X40AD)	P0834806					RUL13
Desig. Label (NT6X48AA)	P0626877					RUL13

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Desig. Label (NT6X78AA)	P0699568					RUL13
Desig. Label (NT6X78AB)	P0731980					RUL13
Desig. Label (NT6X92CA)	P0677831					RUL13
Desig. Label (NT6X92EA)	P0835224					RUL13
Desig. Label (NT6X41AB)	P0683208					RUL13

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT2X70AE	MD	NT2X70AF
NT6X27AC	MD	NT6X27BB
NT6X40CA	MD	NT6X40FA
NT6X40DA	MD	NT6X40GA
NT6X46BA	A&M	NT6X46BB
NT6X78AA	MD	NT6X78AB
NT6X69LA	MD	NT6X69LB
NT6X02XA	MD	NT6X02XG
NT6X02XB	MD	NT6X02XG
NTNX33SD	A&M	NTFX33GD
P0736273	A&M	NT6X02UF
NTFX33CB	MD	NTFX33CE
NTFX33CC	MD	NTFX33CF
NTFX33CD	MD	NTFX33CG
NTFX33CE	MD	No Replacement
NTFX33CF	MD	No Replacement
P0729038	MD	No Replacement
P0734232	MD	No Replacement
NT6X92CA	STD *	NT6X92EA
NTBX01AA	MD	NTBX01AC/BA
NTBX01AB	MD	NTBX01AC/BA
NTBX01AC	MD	NTBX01BA
NTBX01AA	MD	NTBX01AC/BA

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.

* Meaning the NT6X92CA is rated STD. This CP will be replaced by the NT6X92EA when available. The NT6X40CA and NT6X40DA are Manufacture Discontinued and replaced by the NT6X40GA Paddleboard and the NT6X40FA/FB CP for fiber applications.

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).

RULES:

AP 1) When PEC NTFX33CA is ordered, these items are provided.

AP-01 1) This PEC is always provided with NT6X02UB DTC/LGC Common CP.

RUL1 1) For each equipped module being engineered for U.K. Markets provide:

- one (1) NT6X02UB LGCI/DTCI International Common CP,
- two (2) NT6X44EA Time Switch CPs,
- two (2) NT6X69LB CPP Msg Protocol & Downldbl Tones CPs, (in a non-ENET office with copper interface to the Network the NT6X69LA may be substituted for the preferred NT6X69LB),
- two (2) NT2X70AF Power Converters.

The formerly provided NT6X69LA Message Protocol and Tone CP has been changed to MD status and replaced by the NT6X69LB.

- 2) Alternatively, for each equipped module being engineered for the JAPANESE market, provide:
 - one (1) NTFX33CG LGC/DTC Common Packfill,
 - two (2) NT6X44EA Time Switch CPs and
 - two (2) NT6X69LB CPP Msg Protocol & Downldbl Tones CPs

NOTE: The NTFX33CG includes two (2) NT2X70AF Power Converter CPs.

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

- 3) The formerly provided NTFX33CB, NTFX33CC, NTFX33CD, NTFX33CE and NTFX33CF have been changed to MD status. Active packfills are NTFX33CG and NT6X02UB.

The NTFX33CG or NT6X02UB packfills may be provisioned one per module, for NON-XPM+ and XPM+ applications. (The NT2X70AF power converter is always provided in the NTFX33CG). The Recovery Loader option (NT7X05) may only be provisioned with XPM+ applications. The NTFX33CG may be provisioned for DS1 or ISDN application. The NT6X02UB packfill may be provisioned for PCM30 or ISDN applications.

- 4) If the second module is not equipped in the 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 BRI functions are required (ISDN functions on subscriber lines) for each equipped LGC module, provide in addition to NTB01'S provided per RUL6:

- Up to seven (7) NTB02AA/BA D Channel Handler CPs for U.K Market requirements, or
- Up to nine (9) NTB02AA/BA D Channel Handler CPs for Japanese market requirements.

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

- One (1) additional NTB02AA/BA D Channel Handler CP.

NOTE: No NTB02AA/BA CPs are required where the LGC module supports only NON-ISDN LCMs.

- 2) Each NTB02AA/BA Supports up to 124 BRA D-Channels. The spare DCH CP should not be counted when determining the number of NTB02AA/BA required to support D-Channel Traffic.
- 3) Each NTB02AA/BA DCH, including the spare, requires one (1) peripheral port on the module. Assign NTB02AA/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) NTBX02AA/BA DCH CPs are not required for PCM-30 DTC (PRI) applications, nor on a DTC which is provisioned with NT6X70AAs per RUL7 to handle CCIS/CCS7 voice trunking.

RUL4 1) For each PCM-30 LGC or DTC module, provide:

- 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.

The NT6X27BB provides full compliance to CCITT, improved alarm handling, and support for DCME.

Assign NT6X27BB to module starting at Port 0 and continue in sequential order to port 15. Each NTBX02AA already assigned to CP position 2 to 5 makes the two PCM30 Ports shown below unavailable for assignment to PCM30.

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	4	3	2	1
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 Cable 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 Assemblies, and
 - two (2) NTNX3371 PCM-30 Twisted Pair Interface Assemblies.

When twisted pair PCM-30 interface is provided, provide for each cabinet.

- one (1) P0711579 Designation Labels Sheet.

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

- RUL5 1) For PCM-30 LGC/LTC ISDN or not applications, to interface links from LCMI, LCME, and/or LCM, provide for each module equipped:
- four (4) NT6X48AA DS30A LCM Interface CPs, and
 - four (4) P0638261 Connector Key Brackets.

For PCM-30 DTC/DTC ISDN or not applications NT6X48AA are not required; therefore 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. A pair consists of one pack in the same pack position in each of the two shelves of a given 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 of the LGC modules 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

6) 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,
 - two (2) NT0X50AA Filler Face Plate (in CP slot 10), and
 - two (2) NT6X46BA/BB Signal Processor Memory Plus CPs,
- for each equipped DTC/LGC module:
 - when ISDN services are required,
 - two (2) NTB01AA/AB/AC ISDN Sig. Preproc. CPs, or
 - when ISDN services are not required,
 - two (2) NT0X50AA Filler Face Plates.

Note that NTB01AA/AB/AC CP's are MD'ed. The replacement pack NTB01BA will NOT function with MP/SP processors and will work only with NTMX77 or NTAX74. NTB01AB will not function with NTAX74's. The NTB01AA does not function with

XPM+. Do not provision a NTB01 on a DTC which is provisioned with NT6X70'S to handle CCIS/CCS7 voice trunking.

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) NTFX33WG Wiring List XPM Plus/ISDN, and
 - eight (8) NT0X50AA Filler Face Plates in slots 8, 9, 10 and 11.
 - two (2) P0749586 Paddleboard Insertion Guides
- for each equipped DTC/LGC module:
 - when ISDN services are required,
 - two (2) NTB01AB/AC/BA ISDN Sig. Preproc. CPs, or
 - when ISDN services are not required,
 - two (2) NT0X50AA Filler Face Plates.

The NTB01AA is not compatible with the NTMX77AA in ISDN applications. For ISDN XPM+ applications the NTB01BA must be used. The NTB01AA/AB/AC CP's are rated MD. replaced by NTB01BA. The NTB01BA may only be used with NTMX77 or NTAX74 processors (XPM+).

Note that NTB01AB/AC/BA ISDN CPs may not be provisioned on a DTC which is provisioned with NT6X70AAs per RUL7 to handle CCIS/CCS7 voice trunking.

- 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 Paddleboards 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 NTB01AA ISDN Signalling Pre-processor CPs are present in a module being upgraded to XPM PLUS, provide two (2) NTB01AB/AC/BA CP's and (2) Designation Labels, and use them to replace the NTB01AA's. The NTB01AA/AB/AC CP'S are MD'ED - replaced by NTB01BA. The BA must be used with the NTMX77 or NTAX74 processors (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 module is handling CCIS/CCS7 voice trunking, provide for each equipped PCM-30 DTC 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 NTB01 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 required, provide for each equipped module:

- one (1) NTZZ02EA containing:
two (2) NT6X78AB Class Modem Resource CP's and
two (2) P0731980 Nt6x78AB design. labels

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

- zero (0), two (2) or four (4)
NT6X92CA Universal Tone Receiver CPs.

(OR)

- 1A) Provide two (2) or four (4) NT6X92EA in slots 15 or 17 per PDTC/PLGC module for Digitone receivers (lines) or MF receivers (Trunks). Each of the NT6X92EA circuit pack provides tone reception for PCM 30 Channels. The NT6X92EA is a CCITT compliant tone receiver. (Complies with CCITT Recommendations Q.24, Q.323 and Q.455 for DTMF and MF tone re-

ception) Check availability before ordering the NT6X92EA.
DO NOT mix NT6X92 CP types on the same shelf.

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

The NT6X92 is a combined service circuit that can perform the function of Digitone Receiver for lines and MF Receiver for trunks. One pair of NT6X92 provides up to thirty circuits.

- 3) The number of NT6X92 circuit packs will be limited to two (2) per module (in pos 15) if NT7X05AA is provisioned in slot 17 for the Peripheral Recovery Loader Option.

- RUL9 1) When DS30 copper network interface is required in a non-ENET office, provide for each PCM-30 LGC/DTC module:
- two (2) NT6X40AC DS30 Network Interface CPs,
 - two (2) P0695397 NT6X40AC design. labels
 - two (2) NT6X69LB CPP Protocol & Downld CPs. (NT6X69LA is MD'
 - two (2) P0713213 NT6X69LB design. labels
- Note: Per EC 024-96554 the NT6X02UF will be provided in NTFX33CA Stocklist for fiber and non-fiber applications

OR

- one (1) NTZZ02GC containing:
 - two (2) NT6X40AD DS30 Network Interface CPs,
 - two (2) P0834806 NT6X40AD design. labels

and

- two (2) NT6X69LB CPP Protocol & Downld CPs. (NT6X69LA is MD'
 - two (2) P0713213 NT6X69LB design. labels
 - two (2) P0638263 Connector Key Brackets
- Note: Per EC 024-96554 the NT6X02UF will be provided in NTFX33CA Stocklist for fiber and non-fiber applications.

The NT6X40AD is backwards compatible with the NT6X40AC. However, the NT6X40AD has a C-side loop-around diagnostic feature available with XPM05+ software loads. If the NT6X40AC and NT6X40AD are mixed in a module, they must be datafilled as NT6X40ac in order for the diagnostics to pass. Use NT6X40AD for new production.

When NT6X40AC/AD is provided, provide,

- For the top module equipped in the cabinet:
 - one (1) P0713257 Connector Cover Plate,

- one (1) NTNX3348 DS30 Interface Cable Assembly,
 - one (1) NTNX3349 DS30 Interface Cable Assembly,
 - one (1) NTNX3352 DS30 Interface Cable Assembly, and
 - one (1) NTNX3353 DS30 Interface Cable Assembly, and
- For the bottom module equipped in the cabinet:
- one (1) P0713258 Connector Cover Plate and
 - one (1) NTNX3346 DS30 Interface Cable Assembly,
 - one (1) NTNX3347 DS30 Interface Cable Assembly,
 - one (1) NTNX3350 DS30 Interface Cable Assembly, and
- 2) Otherwise, when fiber network interface is required in an ENET office, provide for each PCM-30 LGC/DTC module:
- one (1) NTZZ02HM containing:
- two (2) NT6X40FA DS-512 Link Control CPs,
 - two (2) NT6X40GA DS-512 Link Control Paddleboard
 - one (1) NT6X0251 Fiber Cable Conversion Kit,
 - two (2) P0729895 NT6X40FA design. labels.
- OR
- one (1) NTZZ02HN containing:
- two (2) NT6X40FB DS-512 Link Control CPs,
 - two (2) NT6X40GA DS-512 Link Control Paddleboard
 - one (1) NT6X0251 Fiber Cable Conversion Kit,
 - two (2) P0834807 NT6X40FB design. labels.
- AND
- two (2) NT6X69LB DS-512 CPP Protocol & Downld CPs,
 - 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.
- Note: Per EC 024-96554 the NT6X02UF will be provided in the NTFX33CA Stocklist for fiber and non-fiber applications.

The NT6X40FB is backwards compatible with the NT6X40FA. However, the NT6X40FB has an enhanced C-side loop-around diagnostic feature available with XPM05+ software loads. If the NT6X40FA and NT6X40FB are mixed in a module, they must be datafilled as NT6X40F in order for the diagnostics to pass. Use NT6X40FB for new product

The NT6X40FB is backwards compatible with the NT6X40FA. However, the NT6X40FB has an enhanced C-side loop-around diagnostic feature available with XPM05+ software loads. If the NT6X40FA and NT6X40FB are mixed in a module, they must be datafilled as NT6X40FA in order for the diagnostics to pass. Use NT6X40FB for new production.

Depending on availability, NT6X40CA and NT6X40DA are MD'ed. The Preferred functional pair is NT6X40FB CP's and NT6X40GA paddleboards. (NT6X40FA acceptable - see previous note.) The paddleboards and circuit packs cannot be mixed because they do not function in mismatched pairs.

Both pairs in a module must be NT6X40FA/FB and NT6X40GA or both NT6X40CA and NT6X40DA. (CA/DA are MD'ed)

- 2) The formerly provided NTNX33SD DS512 Interface Kit has been replaced by the NTFX33GD Fiber Adapter Plate Assembly.
- 3) The formerly provided NT6X02BU FXPM Bracket Assembly Kit is MD'ed.

The P0736273 Fiber Warning Label is moved to SL6X0251 (part of 6X02UF Universal Connector Kit). NT6X02UF AP in the NTFX33CA Stocklist per ECD 024-96554.

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

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

provide:

- 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, provide:

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

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), and
- two (2) P0695230 Right Door Labels (Brown),

one each for front and rear respectively, as well as

- one (1) P0729036 Cabinet Type Label (Brown).
- 2) When specifying a grey cabinet, provide:
- two (2) NTN2515 Left Door Assemblies (Grey),
 - two (2) P0677704 Left Door Labels (Grey),
 - two (2) NTN2513 Right Door Assemblies (Grey), and
 - two (2) P0699158 Right Door Labels (Grey),
- one each for front and rear respectively, as well as
- one (1) P0729035 Cabinet Type Label (Grey).
- RUL12 1) When cabling exits from the cabinet through the top of the cable housing, provide for each cabinet:
- one (1) P0685168 Cable Duct Cover (Bottom), and
 - eight (8) P097F839 (Bottom) Mounting Screws.
- 2) When cabling exits from the cabinet through the bottom of the cable housing, provide for each cabinet:
- one (1) P0674549 Cable Duct Cover (Top), and
 - eight (8) P097Y374 (Top) Mounting Screws.
- RUL13 1) Provide the appropriate designation label for each CP provided.
- RUL14 1) For U.K market applications, when ground strap termination is required per British telephone standards, provide for each cabinet:
- One (1) NTFX3703 ESD Ground terminator and
 - One (1) NTFX3713 ESD Ground Panel Assembly.
- 2) For all non-British telephone applications, provide for each cabinet:
- one (1) P0684448 Two-inch (2") Filler Plate.
- 3) Provide one (1) NT6X0250 Universal Ground Point per cabinet, for equipment maintenance at rear of cabinet.
- RUL15 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).

RUL16 1) The DS-1 Interface NT6X50AB may be provisioned in the NTFX33CG packfill for NON-ISDN applications, 10 per module.

RUL17 1) The Peripheral Loader Option may be added to a XPM+ packfill by providing the NT6X02WF Product Change Kit. The NT6X02WF kit contains 2 NT7X05AA CPs and 2 Designation labels.

2) The NT7X05 can only be used with the NTMX77 Unified Processor.

3) For PCM30 applications the NT7X05AA will be provided in slot 17. For applications that do not use NT6X28 in slot 19, the NT7X05AA may be provisioned in slot 19.

RUL18 1) The formerly provided NT2X70AD Power Converter CP has been changed to MD status and replaced by the NT2X70AE. The NT2X70AF replaces the NT2X70AE, The NT2X70AF should be used for all new production and all DTC+ field applications. NT2X70AE may be used on all other applications.

Provide one NT2X70AY Upgrade Kit per module where the NT2X70AE Power Converter is always provided, (NTFX33CB/CC/CD).

RUL19 1) Provide two (2) NT6X41AB Speech Bus Formatter CPs for each NTFX33CG LGC/DTC Common CP per customer requirements. The NT6X41AB is always provided in the NT6X02UB Packfill.

LGC/DTC OFFSHORE COMMON CP

PEC CODE: NT6X02UB

CPC CODE: B0232341

RATING: Standard. Replaces NT6X02UA.

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: LTCI

ENGINEERING DESCRIPTION: The NT6X02UB is the common circuit pack fill
for International peripheral controller ap-
plications.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

Europe
Asia/Pacific
CALA

ISSUE AUTHOR: NTC: George Boutnikoff Dept. S646 (BRW)

MAIN CONTACT: NTC: George Boutnikoff Dept. S646 (BRW)

NT6X02UB EMA2-21-LTCI-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 01 28	ECM 647 05	Transfer from ECM-464.
93 08 20	ECM 643 04	Correct quantities in QTY column.

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

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Channel Supervision Mgs CP	NT6X42AA		2	X,X+14	20	AP
Speech Bus Format (Turkey)	NT6X41AB		2	X,X+14	21	AP
Filler FP .875	NT0X50AA		4	X,X+14	23,24	AP
Design Strip	P0713212		2	X,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 LGC/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).

RULES:

- AP 1) When PEC NT6X02UB is ordered, these items are provided.

COMMON PERIPHERAL EQUIPMENT FRAME

PEC CODE: NT6X01AC

CPC CODE: B0231014

RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: LGEO (Line Group Equipment Off-Shore Non-ISDN)
ILGE (International Line Group Equipment)
LGEI (Line Group Equipment ISDN)
PLGE (PCM-30 Line Group Equipment)
DTEO (Digital Trunk Equipment Off-Shore Non-ISDN)
IDTE (International Digital Trunk Equipment)
DTEI (Digital Trunk Equipment ISDN)
PDTE (PCM-30 Digital Trunk Equipment)

ENGINEERING DESCRIPTION: NT6X01AC is a general purpose Common Peripheral Controller Equipment Frame for international applications. It houses two dual shelf peripheral modules which support PCM30 links, ISDN services, and Common Channel Signaling 7 (CCS7) features.

Each of the two modules in the frame may be configured as:

- LGCO Line Group Controller Offshore
- LGCI Line Group Controller ISDN
- DTCO Digital Trunk Controller Offshore
- DTCI Digital Trunk Controller ISDN
- TMS TOPS Message Switch
- ETMS TOPS Message Switch (XPM PLUS)
- OC-ETMS Operator Centralization Enhanced TOPS Mes
- ILGC International Line Group Controller
- IDTC International Digital Trunk Controller
- PLGC PCM-30 Line Group Controller
- PDTC PCM-30 Digital Trunk Controller

NT6X01AC may be provisioned using EMS NT6X01AC and NTZZ41DA. note: The OC-ETMS may be referred to as "OCET" in the tools

due to spacing limitations. The actual Label is "OC-ETMS".

REFERENCE DOCUMENTATION: MS6X01AC 00 15

MARKETS: Applicable markets:

Europe
Asia/Pacific
CALA

ISSUE AUTHOR: Deniece Land Dept. 3471 (PPK)

MAIN CONTACT: Deniece Land Dept. 3471 (PPK)

NT6X01AC EMA2-21-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 09 28	ECM 643 01	ECDs 011-16490, 011-16761 & 011-16850
92 11 20	ECM 643 02	Clarify NTBX01AA and NT6X70AA may not be provisioned in the same DTC.
92 12 04	ECM 643 03	Clarify provisioning NT6X28AA per ET-110670.
93 08 20	ECM 643 04	Add EMS NT6X02XB XPM Plus ISDN Packfill Change Kit.
94 02 01	ECM 643 06	Add provisioning rules for TMS. Add building block provisioning. Update per ECD 018-41629:
94 03 10	ECM 643 07	MD NT6X01BU, and add NT6X02UF, NT6X0251, NT6X0250.
94 07 22	ECM 643 08	Replace NT6X02XB XPM Plus ISDN Packfill Change Kit with NT6X02XF per ECD 011-20115.
94 12 07	ECM 643 10	Delete P0745307, which was introduced prematurely.
95 03 10	ECM 468 07	Add NT6X02XG and NTMX70AB per EC 011-21135.
95 04 03	ECM 643 12	Correct PCM-30 provisioning for TMS. Correct DCH assignment for TMS. Other miscellaneous changes.
95 07 18	ECM 643 14	NT2X70AF replaces NT2X70AE per EC 024-93969.
95 09 18	ECM 468 09	Add NT6X01XG and NT6X02WF per ECD 024-93910 to NT6X01AC. Change location of NTMX71AA from 19R to 20R.
95 12 11	ECM 643 18	Add ETMS, OC ETMS and EDCH. Add NTN3601, NT6X01XK, and NT6X01XJ to the NT6X01AC per ECD 024-94920.
96 04 26	ECM 643 19	Add NT2X70AY CP/Label Kit to NT6X01AC. Remove NT6X01XG from the NT6X01AC. Introduction of GTR, NT6X92EA.
96 07 27	ECM 643 20	Implementation of ECD: 024-95240 to introduce BX01AC/BA and NTBX02BA. Implementation of ECD: 024-95726 Per EC 024-96554 Introduce NT6X78AB-Class Modem Resource (CMR) NTZZ97AA, NT6X40FB FIBER DS512 - NTZZ02HN, NT6X40AD NON-FIBER DS30 - NTZZ02GC, REMOVE NT6X01ZE COAX Panel, Show the NT6X02UF Bracket Kit as AP always

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
96 08 23	ECM 643 21	provided as part of the frame.(Remove NT6X02UF from NTZZ41DA.) The following sections will change per the EC: EMS NT6X01AC, NTZZ41DA, ADD NTMX70AB NTZZ02HN, NTZZ02GC and NTZZ97AA. Correct Abbreviations for module/frame Clarify the NT6X01WE wiring notes per SR66446.
97 03 14	ECM 704 02	Per BRW PLM correct Abbreviations. All other changes are to correct text format errors. No technical changes. Consolidation of ECM 643 issue 21 and provisioning information from NTZZ41DA. Per 024-96344 MD NTZZ97AA add NTZZ02EA. Per SR 6D816 correct the label for NTB02BA to P0737724. Show NT6X05CA MD'ed replaced by NTMX90AB. reference only per 024-96494.
97 06 09	ECM 704 03	024-95726 MD NTB01AA and NTB02AA. replaced by NTB01AC/BA and NTB02BA. 024-96589 MD NTB01AB replaced by NTB01AC/BA and MD NTB01AC replaced NTB01BA. Clarify Rules. Per SR73229 clarify NT6X01XK Notes for Echo Canceller provisioning. Per SR74789 show TMS to support both fiber and non-fiber interfaces. Clarify the provisioning rules for UTR's when BX01's are used. NT6X0250 is not "AP" correct note. Remove NT6X02WF & NT7X05AA per 024-98050.
97 07 23	ECM 704 04	Show Equipment for NTZZ41DA as AP-01. Correct AP-01 items to AP and add the NT6X0250 to the NTZZ41DA AP-01. Chg. NTZZ41DA for AP-01, NT6X02UB for AP-02 NTZZ02HM for AP-12 and NTZZ02HN for AP-14.
97 09 12	ECM 704 06	Add OC-ETMS as Module option per the TMS ECM468.

The Common Peripheral Equipment Frame is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Cntr Arry Shlf Assy	NT6X0216		4	X+14,X		AP
Frame Supervisory Panel	NT0X28EB	FSP	1	45		AP
Cable Support Bracket	NT6X02UF		1			AP
Basic framework NT6X01AC	NTZZ41DA		1	X+14,X		RUL1
DC Cooling Inverter Unit	NT3X90AC			04		AP-01
Universal Framework Assy	NT0X25AH					AP-01
International Frame	NT6X01AC					AP-01
Universal Ground Point	NT6X0250			56R		AP-01
Logic Return Cable Assy	NT0X0009			74		RUL2
CPC Filler Face Plate Kit	NT6X02AB					RUL3
Filler Faceplate	NT0X50AA			X+14,X		RUL4
# LGC/DTC Intrntnl Common CP	NT6X02UA	DTC0,LGC0	X			RUL5
LGC/DTC Intrntnl Common CP	NT6X02UB	DTC0,LGC0 TMS/ETMS OC-ETMS IDTC,ILGC PDTC,PLGC	X			RUL5
Filler FP .875	NT0X50AA		4	X,X+14	23,24	AP-02
Channel Supervision Mgs CP	NT6X42AA		2	X,X+14	20	AP-02
Speech Bus Format (Turkey)	NT6X41AB		2	X,X+14	21	AP-02
Design Strip	P0713212		2	X,X+14		AP-02
Int. XPM ISDN 48V Common CP	NTZZ37BA	DTC0,LGC0 TMS	X			RUL5
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	08	AP-03
4 MB MP Memory CP	NT6X47AC		2	X+14,X	09	AP-03
Filler Faceplate	NT0X50AA		2	X+14,X	10	AP-03
Signal Proc. Memory Plus CP	NT6X46BB		2	X+14,X	11	AP-03
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	12	AP-03
Universal Time Switch CP	NT6X44EA		2	X+14,X	14	AP-03
Msg Prot & Download Tones CP	NT6X69LB		2	X+14,X	18	AP-03
Channel Supervision Msgs CP	NT6X42AA		2	X+14,X	20	AP-03
Speech Bus Formatter CP	NT6X41AB		2	X+14,X	21	AP-03
Filler Faceplate	NT0X50AA		4	X+14,X	23,24	AP-03

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Power Conv +/-5V & 12V CP	NT2X70AF		2	X+14,X	25	AP-03
Designation Strip	P0741862		2	X+14,X		AP-03
Int. XPM+ ISDN 48V Common CP	NTZZ37BB	DTCO, LGCO ETMS OC-ETMS PDTC, PLGC IDTC, ILGC		X		RUL5
Filler Faceplate	NT0X50AA		2	X+14,X	08	AP-04
Filler Faceplate	NT0X50AA		2	X+14,X	09	AP-04
Filler Faceplate	NT0X50AA		2	X+14,X	10	AP-04
Filler Faceplate	NT0X50AA		2	X+14,X	11	AP-04
XPM Plus Processor CP	NTMX77AA		2	X+14,X	12	AP-04
Universal Time Switch CP	NT6X44EA		2	X+14,X	14	AP-04
Msg Prot & Download Tones CP	NT6X69LB		2	X+14,X	18	AP-04
XPM+ Terminator Paddleboard	NTMX71AA		2	X+14,X	20R	AP-04
Channel Supervision Msgs CP	NT6X42AA		2	X+14,X	20	AP-04
Speech Bus Formatter CP	NT6X41AB		2	X+14,X	21	AP-04
Filler Faceplate	NT0X50AA		4	X+14,X	23, 24	AP-04
Power Conv +/-5V & 12V CP	NT2X70AF		2	X+14,X	25	AP-04
Designation Strip	P0741862		2	X+14,X		AP-04
Desig. Label (NT0X50AA)	P0578498		2	X+14,X	08, 09	AP-04
Desig. Label (NT0X50AA)	P0578498		2	X+14,X	11	AP-04
Desig. Label (NTMX77AA)	P0735417		2	X+14,X	12	AP-04
@ Int. XPM ISDN 48V Common CP	NTZZ41EA	DTCO, LGCO TMS		X		RUL5
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	08	AP-05
4 MB MP Memory CP	NT6X47AC		2	X+14,X	09	AP-05
Filler Faceplate	NT0X50AA		2	X+14,X	10	AP-05
Signal Proc. Memory Plus CP	NT6X46BB		2	X+14,X	11	AP-05
LGC/DTC Processor CP	NT6X45BA		2	X+14,X	12	AP-05
Universal Time Switch CP	NT6X44EA		2	X+14,X	14	AP-05
Msg Prot & Download Tones CP	NT6X69LB		2	X+14,X	18	AP-05
Channel Supervision Msgs CP	NT6X42AA		2	X+14,X	20	AP-05
Speech Bus Formatter CP	NT6X41AB		2	X+14,X	21	AP-05
Filler Faceplate	NT0X50AA		4	X+14,X	23, 24	AP-05
Power Conv +/-5V & 12V CP	NT2X70AF		2	X+14,X	25	AP-05
Designation Strip	P0741862		2	X+14,X		AP-05
PCM-30 Signaling CPs.	NT6X28AA		2	X+14,X	19	AP-05

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Int. XPM+ ISDN 48V Common CP	NTZZ43AA	DTCO, LGCO TMS, ETMS OC-ETMS PDTG, PLGC IDTC, ILGC		X		RUL5
Filler Faceplate	NT0X50AA		2	X+14, X	08	AP-06
Filler Faceplate	NT0X50AA		2	X+14, X	09	AP-06
Filler Faceplate	NT0X50AA		2	X+14, X	10	AP-06
Filler Faceplate	NT0X50AA		2	X+14, X	11	AP-06
XPM Plus Processor CP	NTMX77AA		2	X+14, X	12	AP-06
Universal Time Switch CP	NT6X44EA		2	X+14, X	14	AP-06
Msg Prot & Download Tones CP	NT6X69LB		2	X+14, X	18	AP-06
XPM+ Terminator Paddleboard	NTMX71AA		2	X+14, X	20R	AP-06
Channel Supervision Msgs CP	NT6X42AA		2	X+14, X	20	AP-06
Speech Bus Formatter CP	NT6X41AB		2	X+14, X	21	AP-06
Filler Faceplate	NT0X50AA		4	X+14, X	23, 24	AP-06
Power Conv +/-5V & 12V CP	NT2X70AF		2	X+14, X	25	AP-06
Designation Strip	P0741862		2	X+14, X		AP-06
Desig. Label (NT0X50AA)	P0578498		2	X+14, X	08, 09	AP-06
Desig. Label (NT0X50AA)	P0578498		2	X+14, X	11	AP-06
Desig. Label (NTMX77AA)	P0735417		2	X+14, X	12	AP-06
PCM-30 Signaling CPs.	NT6X28AA		2	X+14, X	19	AP-06
# D-Channel Handler CP	NTBX02AA			X+14, X	1-5	RUL6
Enhanced D-Chn. Handler CP	NTBX02BA			X+14, X	1-5	RUL6
# PCM30 Trunk Interface CP	NT6X27AC			X+14, X	2-5	RUL7
PCM30 Trunk Interface CP	NT6X27BB			X+14, X	2-5	RUL7
Filler Faceplate	NT0X50AA			X+14, X	2-5	RUL7
DS30A LCM Interface CP	NT6X48AA			X+14, X	6, 7	RUL8
# Connector Key Bracket	P0638261			X+14, X	6R, 7R	RUL8
Connector Key Bracket	P0745307			X+14, X	6R, 7R	RUL8
LGC/DTC Processor CP	NT6X45BA			X+14, X	8, 12	RUL9
4 MB MP Memory CP	NT6X47AC			X+14, X	9	RUL9
Filler Faceplate	NT0X50AA			X+14, X	10	RUL9
# Signal Proc. Memory Plus CP	NT6X46BA			X+14, X	11	RUL9
Signal Proc. Memory Plus CP	NT6X46BB			X+14, X	11	RUL9
XPM Plus Processor CP	NTMX77AA			X+14, X	12	RUL9
XPM Plus Paddleboard	NTMX71AA			X+14, X	20R	RUL9

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Faceplate	NT0X50AA			X+14,X	8,9,11	RUL9
Wiring List XPM Plus	NT6X01WE			X		RUL9
# XPM Plus Change Kit	NT6X02XA			X+14,X		RUL9
# XPM Plus Change Kit	NT6X02XB			X+14,X		RUL9
# XPM Plus Change Kit	NT6X02XF			X+14,X		RUL9
XPM Plus Change Kit	NT6X02XG		1	X+14,X		RUL9
Paddlecard Upgrade Kit	NTMX70AB		1	X+14,X		RUL9
XPM PLUS Echo Cancellor Kit	NT6X01XK		1	X+14,X		RUL20
ECC Cable Support Brkt Kit	NT6X01XJ		1	X+14,X		RUL21
ECC Cable Assembly	NTNX3601		1	X+14,X		RUL21
LGC/DTC Wiring for NT6X01AC	NT6X01WD			X+14,X	12	RUL10
Continuity Tone Detector CP	NT6X70AA			X+14,X	13	RUL11
# Class Modem Resource CP	NT6X78AA			X+14,X	13	RUL11
Class Modem Resource	NTZZ02EA			X+14,X	13	RUL11
Class Modem Resource CP	NT6X78AB			X+14,X	13	AP-07
Desig. Label (NT6X78AB)	P0731980			X+14,X	13	AP-07
Universal Time Switch CP	NT6X44EA			X+14,X	14	RUL12
@ 30 Universal Tone Rcvr Ccts	NTZZ41CA			X+14,X	15,17	RUL13
# Universal Tone Receiver CP	NT6X92CA			X+14,X	15	AP-08
# NT6X92CA Design Label	P0677031			X+14,X	15	AP-08
@ 30 Global Tone Rcvr Ccts	NTZZ02FC			X+14,X	15,17	RUL13
Global Tone Receiver CP	NT6X92EA			X+14,X	15	AP-09
NT6X92EA Design Label	P0835224			X+14,X	15	AP-09
# ISDN Pre-Processor CP	NTBX01AA			X+14,X	16	RUL9
# XPM Plus ISDN Sig Preproc CP	NTBX01AB			X+14,X	16	RUL9
# ISDN Signalling Pre-Proc. CP	NTBX01AC			X+14,X	16	RUL9
ISDN Signalling Pre-Proc. CP	NTBX01BA			X+14,X	16	RUL9
Filler Faceplate	NT0X50AA			X+14,X	16	RUL9
# CPP Msg Protocol & Downld CP	NT6X69LA			X+14,X	18	RUL14
CPP Msg Protocol & Downld CP	NT6X69LB			X+14,X	18	RUL14
PCM30 Signalling CP	NT6X28AA			X+14,X	19	RUL18
DS30 NT6X40AC CP's & labels	NTZZ02GB			X+14,X	22	RUL14
DS30 Network Interface CP	NT6X40AC			X+14,X	22	AP-10

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Desig. Label (NT6X40AC)	P0695397			X+14,X	22	AP-10
Connector Key Bracket	P0638263					AP-10
DS30 NT6X40AD CP's & labels	NTZZ02GC			X+14,X	22	RUL14
DS30 Network Interface CP	NT6X40AD			X+14,X	22	AP-11
Desig. Label (NT6X40AD)	P0834806			X+14,X	22	AP-11
# DS512 Network Interface CP	NT6X40CA			X+14,X	22	RUL14
# DS512 Network Interface Kit	NTZZ37CH			X	22	RUL9
DS512 Network Interface	NTZZ02HM			X	22	RUL9
DS-512 XPM Interface CP	NT6X40FA		2	X+14,X	22	AP-12
Desig. Label (NT6X40FA)	P0729895		2	X+14,X	22	AP-12
DS-512 XPM Paddle Board	NT6X40GA		2	X+14,X	22R	AP-12
Fiber Cable Kit	NT6X0251		1	X	22R	AP-12
Optical Fiber Danger Label	P0736273		2	X+14,X		AP-13
DS512 Network Interface	NTZZ02HN			X	22	RUL14
DS-512 XPM Interface CP	NT6X40FB		2	X+14,X	22	AP-14
Desig. Label (NT6X40FB)	P0834807		2	X+14,X	22	AP-14
DS-512 XPM Paddle Board	NT6X40GA		2	X+14,X	22R	AP-14
Fiber Cable Kit	NT6X0251		1	X	22R	AP-14
Optical Fiber Danger Label	P0736273		2	X+14,X		AP-13
# DS512 Paddle Board	NT6X40DA			X+14,X	22R	RUL14
DS512 Paddle Board	NT6X40GA			X+14,X	22R	RUL14
# Fiber I/F H/W Assembly	NT6X02BU			X+14,X	22R	RUL14
UFXPM Kit	NT6X02UF			X,X+14	22R	RUL14
# Power Conv +/-5V & 12V CP	NT2X70AE			X+14,X	25	RUL16
NT2X70AF Upgrade Kit	NT2X70AY			X+14,X	25	RUL16
Power Conv +/-5V & 12V CP	NT2X70AF			X+14,X	25	RUL16
CPC Coax Panel	NT6X01ZA			X+14		RUL19
ICPC Coax Panel	NT6X01ZD			X+14		RUL19
ICPC Coax Panel	NT6X01ZF			X+14		RUL19
# Desig. Label (NTBX02AA)	P0697919			X+14,X	1-5	RUL17
Desig. Label (NTBX02BA)	P0737724			X+14,X	1-5	RUL17
Desig. Label (NT6X27BB)	P0739157			X+14,X	2-5	RUL17
Desig. Label (NT6X47AC)	P0711821			X+14,X	9	RUL17

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Desig. Label (NT6X46BB)	P0711664			X+14, X	11	RUL17
Desig. Label (NTMX77AA)	P0735417			X+14, X	12	RUL17
Desig. Label (NT6X70AA)	P0628358			X+14, X	13	RUL17
Desig. Label (NT6X92EA)	P0835224			X+14, X	15, 17	RUL14
Desig. Label (NTBX01AB)	P0735418			X+14, X	16	RUL17
Desig. Label (NTBX01AC)	P0803486			X+14, X	16	RUL17
Desig. Label (NTBX01BA)	P0713794			X+14, X	16	RUL17
Desig. Label (NT6X69LA)	P0705062			X+14, X	18	RUL17
Desig. Label (NT6X69LB)	P0713213			X+14, X	18	RUL17
Desig. Label (NT6X78AB)	P0731980			X+14, X	13	RUL11
Desig. Label (NT6X40AC)	P0695397			X+14, X	22	RUL17
Desig. Label (NT6X40AD)	P0834806			X+14, X	22	RUL17
Desig. Label (NT6X40CA)	P0710477			X+14, X	22	RUL17
Desig. Label (NT6X40FA)	P0729895			X+14, X	22	RUL17
Desig. Label (NT6X40FB)	P0834807			X+14, X	22	RUL17
Desig. Label (NT2X70AD)	P0664133			X+14, X	25	RUL17
Desig. Label (NT2X70AF)	P0809960			X+14, X	25	RUL17

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT6X02XA	MD	NT6X02XF
NT6X02XB	MD	NT6X02XF
NT6X02XF	A&M	NT6X02XG
NTZZ37CH	MD	NTZZ02HM and NT6X02UF
NT6X02BU	MD	NT6X02UF and NT6X0251
P0638261	MD	P0745307
NT6X02UA	A&M	NT6X02UB
NTZZ41CA	STD *	NTZZ02FC
NT2X70AE	MD	NT2X70AF
NT6X27AC	MD	NT6X27BB
NT6X40CA	MD	NT6X40FA
NT6X40DA	MD	NT6X40GA
NT6X46BA	A&M	NT6X46BB
NT6X69LA	MD	NT6X69LB
NT6X78AA	MD	NT6X78AB
P0638261	MD	P0745307
NT6X02JB	MD	NT6X02JH
NTMX70AC	MD	NT6X03DE

PEC	RATING	REPLACED BY PEC
NT6X92CA	STD *	NT6X92EA
NTBX01AA	MD	NTBX01AC/BA
NTBX01AB	MD	NTBX01AC/BA
NTBX01AC	MD	NTBX01BA
NTBX02AA	MD	NTBX02BA
NTZZ97AA	MD	NTZZ02EA

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.

* Meaning NTMX70AC is MD'ed; however, replaced by NT6X03DE is specific applications.

* Meaning NT6X92CA is still STD. It will be replaced by NT6X92EA. Check availability before ordering the NT6X92EA.

NOTES:

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

RULES:

- AP 1) When PEC NT6X01AC is ordered, these items are provided.
- AP-01 1) This PEC is always provided with NTZZ41DA per RUL1.
- AP-02 1) This PEC is always provided with NT6X02UB Packfill
- AP-03 1) This item is always provided in NTZZ37BA.
- AP-04 1) This PEC is always provided with NTZZ37BB.
- AP-05 1) This item is always provided in NTZZ341EA

- AP-06 1) This PEC is always provided with NTZZ43AA.
- AP-07 1) This item is always provided in NTZZ02EA.
- AP-08 1) This PEC is always provided with NTZZ41CA.
- AP-09 1) This PEC is always provided with NTZZ02FC.
- AP-10 1) This item is always provided in NTZZ02GB.
- AP-11 1) This PEC is always provided with NTZZ02GC.
- AP-12 1) This item is always provided in NTZZ02HM.
- AP-13 1) This PEC is always provided with NT6X0251.
- AP-14 1) This item is always provided in NTZZ02HN.
- RUL1 1) Provide for each frame,
- one (1) NTZZ41DA NT6X01AC Basic Equipment
 - 2) For existing frames not previously equipped with NT6X0250:
 - one (1) NT6X0250 Universal Ground Point.
- Provide one (1) NT6X0250 Universal Ground Point per new frame for Initials and Extensions. Provision one (1) NT6X0250 per frame when NT6X02UF UFXPM mechanicals are provisioned for field upgrades to fiber or when XPM+ upgrade kits are provisioned. Only one (1) NT6X0250 is ever required per frame. If the frame was upgraded to FIBER then it should have received an NT6X0250 upgrade. When XPM+ upgrades are required, No additional NT6X0250's are needed.
- RUL2 1) When extending existing offices not equipped with Isolated System Grounding (ISG) provide:
- one (1) NT0X0009 Logic Return Cable Assembly.
- RUL3 1) When shelves 18-32 or 51-65 are not equipped with any circuit packs, provide for each module:
- one (1) NT6X02AB CPC Filler Faceplate.
- RUL4 1) For each unequipped pack position on the module, provide:
- one (1) NT0X50AA filler faceplate.

RUL5 1) Provide per module as required:

- a) Provide for XPM or XPM+ NT6X02UB Common Packfill, or
- b) For offices with the XPM (MP/SP) feature provide:
 - one (1) NTZZ37BA Int. XPM ISDN 48VDC Common CP
- c) For offices with the XPM Plus feature provide:
 - one (1) NTZZ37BB Int. XPM Plus ISDN 48VDC Common CP, and NT6X01WE Wiring for XPM Plus is always provided. (LW6X01AC)
- d) For offices with the XPM (MP/SP)/PCM-30 provide:
 - One (1) NTZZ41EA containing:
 - one (1) NTZZ37BA all items and
 - two (2) NT6X28AA PCM-30 Signaling Interface CPs.
- e) For offices with the XPM Plus/PCM-30 feature provide:
 - One (1) NTZZ43AA containing:
 - one (1) NTZZ37BB all items and
 - two (2) NT6X28AA PCM-30 Signaling Interface CPs.
 - NT6X01WE Wiring for XPM Plus is always provided. (LW6X01AC)

The modules are named according to the services required and the circuit packs provisioned:

- PCM-30 LGC - Supports ISDN, Centrex, EBS, IBN and POTS services in applications outside North America, using PCM-30 P-side links for PCM-30 RLCM interface
 - Operation without ISDN features is planned but not yet implemented.
 - Supports AMI interface to the NT1. 2B1Q is not supported for this interface
 - All PCM-30 links from a PRCC must terminate on the same host PCM-30 LGC. Only the PCM-30 LGC Peripheral type can terminate PRCC host links.
- PCM-30 DTC - Supports CCS7 and R1 signaling in applications outside North America, using PCM-30 links.
 - In BCS-32, will also support ISDN services.
 - ISDN services like Primary Rate Interface are not supported
- PCM-30 TMS - Supports the TPC interface for TOPS MP applications as well as interfacing TOPS MPX positions to the DMS.
 - TMS does support fiber (DS512) or Copper (DS30) interface to the Network.

- For provisioning information on TMS, ETMS and OC-ETMS see ECM 468.

ILGC - Supports the Unified Processor only on the International Line Group Controller (LGC) with the 2P backplane.
Note: The ILGC+ applies only to the DMS-100i, and does support ISDN.

IDTC - Supports the Unified Processor only on the International Digital Trunk Controller (DTC) with the 2P backplane.
Note: The IDTC+ applies only to the DMS100i, and does support ISDN. An IDTC does not support CCS7 signaling links.

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

- RUL6 1) Provide maximum nine (9) D-Channel Handler CP, either NTB02AA D-Channel Handler (DCH) CP or NTB02BA 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 conditions:
- a) EDCH hardware requires BCS-35, except TMS, which requires BCS-36. Always order NTB02BA for all new jobs at these BCS levels and above.
 - b) 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.
 - c) 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.
 - d) A DCH may be spared with an EDCH circuit pack at BCS-35 and above (BCS-36 for TMS).
 - e) In BCS-28 or later, provide for use as a hot spare: - one (1) additional D Channel Handler CP.
- 2) Each NTB02AA/BA supports up to 124 BRI D-Channels. The spare DCH CP should not be counted when determining the number of NTB02AA/AB/BA required to support D-channel traffic. (TMS does not use a spare DCH CP.)

- 3) Each NTB02AA/BA DCH, including the spare, requires one peripheral port on the CPC1 module. Assign NTB02AA/BA cards to shelf and slot positions in the following order. The spare DCH should be assigned last:

		Shlf Pos	CP Pos	Assign 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

Where:

For the lower module in the frame
shelf position X=18, X+14=32

For the upper module in the frame
shelf position X=51, X+14=65

Note: One vacant slot may be left between DCH/EDCH CPs and PCM-30 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 CPC1 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.

Note that NTB01 and NTB02 ISDN CPs may not be provisioned on a DTC which is provisioned with NT6X70AAs per RUL11 to handle CCIS/CCS7 voice trunking.

For DTC, LGC and LTC with XPM+ (MX77) and ISDN: TOPS0004, TOPS0005, TOPS0006 and TOPS0007 are not supported. For

these peripheral types use LETB004 Load. For additional information refer to NTP 297-8981-599 Peripheral Module Software Release Document.

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

RUL7 1) Provide for each equipped LGC or DTC module:

- maximum eight (8) NT6X27BB PCM-30 Interface CPs.
- minimum two (2)

For TMS, ETMS, and OC ETMS applications: (also ECM 468)

- For TPC (TOPS Position Controller) interface for up to 64 operators, provide:
 - two (2) PCM-30 CPs (slot 5 bot shelves) and
 - for more than 64 operators and up to 96 operators, provide an additional:
 - one (1) PCM-30 Interface CP in CP slot 4 of shelf 0,
- For data base access, provide:
 - two (2) PCM-30 Interface CPs in CP slot 4 of shelf 1 and in CP slot 3 of shelf 0, and
- For inter DCH ORDB, provide:
 - one (1) PCM-30 Interface CP in CP slot 3 of shelf 1.

Otherwise provide for each unequipped CP slot:

- one (1) NT0X50AA Filler Faceplate.

2) Provide one (1) NT6X27BB for every two PCM 30 ports required.

Peripheral port/pack location relationship is as follows:

CP POS	5	4	3	2
SHELF POS X+14	PORTS 2,3	PORTS 6,7	PORTS 10,11	PORTS 14,15
SHELF POS	PORTS	PORTS	PORTS	PORTS

X	0,1	4,5	8,9	12,13

Where:

For the lower module in the frame
shelf position X=18, X+14=32

For the upper module in the frame
shelf position X=51, X+14=65

Assign NT6X27BB to module starting at port 0 and continue in sequential order to port 15.

Each NTBX02AA/BA already assigned to CP pos 2 to 5 physically makes the two PCM 30 ports shown above unavailable for assignment to PCM 30.

- 3) The formerly provided NT6X27AC has been changed to MD status and replaced by the NT6X27BB. 4) For each equipped LGC/DTC which supports PCM-30 links (NT6X27 PCM-30 Interface CPs) or for each equipped LGC module which supports links to an LCM (NT4X48 DS30A LCM Interface CPs) or the LCM is equipped with a PCM30 line drawer such as the NT6X05CA, provide:

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

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

The NT6X28AA is Always Provided in the NTZZ41EA and NTZZ43AA.

- RUL8 1) For PCM-30 LGC applications, to interface links from LCMI and/or LCM, provide:

- four (4) NT6X48AA DS30A LCM Interface CPs, and
- four (4) P0745307 Connector Key Brackets.

- 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 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 in RUL6 and RUL7.
- 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 (RUL6), the DS30A ports may have to be reconfigured in accordance with this rule.

- RUL9 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,
 - two (2) NT0X50AA Filler Faceplates in slot 10, and
 - two (2) NT6X46BA/BB Signal Processor Memory Plus CPs.

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,
- eight (8) NT0X50AA Filler Faceplates in slots 8, 9, 10, and 11.
- The NT6X01WE Wiring (XPM Plus) is always provided on the frame and documented in LW6X01AC.

- 2) For ISDN XPM's with MS/SP processor configuration, NTB01AA/AB/AC has been used. These CP's have been MD'ed and replaced with the NTB01BA. The NTB01AA may not be used with XPM+. The NTB01AB may not be used with the NTAX74. The NTB01BA replacement will only work with XPM+.

For ISDN XPM+ applications with the NTMX77 processor, NTB01AB/AC/BA have been used. The NTB01AB/AC are rated MD'ed and replaced with the NTB01BA. The NTB01BA will only work with XPM+.

- 2A) In offices with the XPM (MP/SP) feature, provide:

- for each equipped LGC/DTC with ISDN module:
 - two (2) NTB01AA/AB/AC ISDN Sig. Preproc. CPs.
- when ISDN services are not required,
 - two (2) NT0X50AA Filler Faceplates.

ISDN is not supported in DMS100i software loads.

Note that NTB01 ISDN CPs may not be provisioned on a DTC which is provisioned with NT6X70AAs per RUL11 to handle CCIS/CCS7 voice trunking.

- 2B) In offices with the XPM Plus (UP) feature, provide:

- for each equipped LGC/DTC module:
 - when ISDN services are required
 - two (2) NTB01AB/AC/BA ISDN Sig. Preproc. CPs.
 - when ISDN services are not required,
 - two (2) NT0X50AA Filler Faceplates.

Note that NTB01 ISDN CPs may not be provisioned on a DTC which is provisioned with NT6X70AAs per RUL11 to handle CCIS/CCS7 voice trunking. THE NTB01AB/AC has been rated MD and replaced with NTB01BA. The NTB01BA may only be used in XPM+. The NTB01AA may not be used with XPM+.

3) For existing modules 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 NTB01AA ISDN Signalling Pre-processor CPs are present in a module being upgraded to XPM PLUS, provide two (2) NTB01AB/AC/BA with two (2) Designation Labels, and use them to replace NTB01AA's. The NTB01AA/AB/AC has been rated MD replaced by BA.

- 4) The formerly provided NT6X02XF XPM Plus Upgrade Kit has been changed to A&M status and replaced by the NT6X02XG.

RUL10 1) Provide one (1) NT6X01WD Wiring Option when ISDN features are NOT required on the frame. The option adds a wire strap to the backpanel NT6X0103 Slot XX-12 between pins 7A and 8A to allow for non-ISDN operation.

RUL11 1) When this module is handling CCIS/CCS7 voice trunking, provision for each PCM-30 DTC 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 NTB01 ISDN CPs.

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.

An LGC may not be provisioned with NT6X70AA CPs.

- 2) When the module is handling CMS Calling Number Display feature, provide for each PCM-30 LGC module:
- one (1) NTZZ02EA containing: two (2) NT6X78AB CMR CP's and two (2) P0731980 design. labels.

RUL12 1) Provide for each PCM-30 LGC/DTC module:

- two (2) NT6X44EA Universal Time Switch (UK) CPs.

RUL13 1) When analog (POTS) lines are to be supported, or when non-ISDN trunks (A/B bit signalling) are interfaced to a PCM-30 DTC module, provide:

- max. two (2) NTZZ41CA containing (2) NT6X92CA UTR CPs
(2) P0677831 Labels
(OR)
- max. two (2) NTZZ02FC containing (2) NT6X92EA GTR CPs
(2) P0835224 labels

NTZZ02FC 30 Global Tone Receiver Ccts:

One (1) NTZZ02FC 30 Global Tone Receiver Ccts, includes the following:

1A) Provide two (2) or four (4) NT6X92EA in slots 15 or 17 per PDTC/PLGC module for DIGITONE receivers (LINES) or MF receivers (Trunks). Each NT6X92EA circuit pack provides tone reception for PCM 30 Channels. The NT6X92EA is a CCITT compliant tone receiver. (Complies with CCITT Recommendations Q.24, Q.323 and Q.455 for DTMF and MF tone reception) Check availability before ordering the NT6X92EA. DO NOT mix NT6X92 CP types on the same shelf.

- 2) The UTR CP may be assigned to either CP position 15 or 17. When Continuity Tone Det. CP is equipped, the UTR/GTR CP's must be assigned in position 17 (see RUL19). 3) For each PDTC+ assigned for CCS7 applications for the DMS100i product in BCS37i (or later releases), 0 (ZERO) UTRs are required to be provisioned. DMS100i supports PDTC+, and not PDTC. 4) NT6X92CA AND NTZZ41CA are rated STD. They'll be replaced by the NT6X92EA and NTZZ02FC respectively. Check availability prior to ordering the NT6X92EA or NTZZ02FC.

RUL14 1) When DS30 copper network interface is required in a non-ENET office, provide for each LGC or DTC module equipped with NT6X02GM Common CP:

- two (2) NT6X40AC/AD DS30 Network Interface CPs,
- two (2) NT6X69LB Msg Protcl & Downldbl Tone CPs, and
- in existing frames when this module was not previously equipped with NT6X02UF,
 - one (1) NT6X02UF UFXPM Kit(for new frames NT6X02UF always provided)

Provide 2 (two) NT6X40AD's per module for JNET (non-fiber) network interface. The NT6X40AD is backwards compatible with the NT6X40AC. However, the NT6X40AD has an enhanced c-side loop-around feature available with XPM05+ software loads. If a NT6X40AC and NT6X40AD are mixed in a module, they must be datafilled as NT6X40AC in order for the diagnostics to pass. Use NT6X40AD for new production. =

The NT6X69LB is recommended for use in all applications in place of the NT6X69LA. However, depending on availability, the NT6X69LA may be used when fiber network interface is not required.

Otherwise, when fiber network interface is required in an ENET office, provide for each equipped LGC or DTC module:

- two (2) NT6X40FA/FB DS512 Network Interface CPs,
- two (2) NT6X40GA DS512 Paddle Boards,
- two (2) NT6X69LB Msg Protcl & Downldbl Tone CPs,
- one (1) NT6X0251 Fiber Cable Conversion Kit, and
- in existing frames when this module was not previously equipped with NT6X02UF,
 - one (1) NT6X02UF UFXPM Kit(for new frames NT6X02UF is always provided)

Provide 2 (two) NT6X40FB's per module for ENET (fiber) Interface. The NT6X40FB is backwards compatible with the NT6X40FA. However, the NT6X40FB has an enhanced C-side Loop-around diagnostic feature available with XPM05+ software loads. If the NT6X40FA and NT6X40FB are mixed in a module, they must be datafilled as a NT6X40FA in order for the diagnostics to pass.

For fiber network interface the NT6X69LB must be used (the NT6X69LA may not be substituted for NT6X69LB when fiber network interface is required).

- 2) For new frames the following will be always provided as part of the frame stocklist for fiber and non-fiber applications.

- two (2) NT6X02UF UFXPM Kits.

- RUL15 1) For each cabinet, provide for equipment maintenance at rear of cabinet:

- one (1) NT6X0250 Universal Ground Point.

Provide one (1) NT6X0250 Universal Ground Point per new frame for Initials and Extensions. Provision one (1) NT6X0250 per frame when NT6X02UF UFXPM mechanicals are provisioned for field upgrades to fiber or when XPM+ upgrade kits are provisioned. Only one (1) NT6X0250 is ever required per frame. If the frame was upgraded to FIBER then it should have received an NT6X0250 upgrade. When XPM+ upgrades are required, No additional NT6X0250's are needed.

- RUL16 1) Provide for each PCM-30 LGC/DTC module:

- two (2) NT2X70AF Power Conv +/-5V & 12V CPs.

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

- 2) Provide two (2) NT2X70AY upgrade kits, per module, (LGCI, LTCI or DTCI). The kit contains one NT2X70AF and one P0809960 label. For all DTC+ field applications use NT2X70AF. The NT2X70AD may be used on all other field applications.

- RUL17 1) Provide the appropriate designation label for each CP provided.

- RUL18 1) For each equipped LGC/DTC which supports PCM30 links (NT6X27 PCM-30 Interface CPs provided per RUL7), or for each equipped LGC module which supports links to an LCM (NT6X48 DS30A LCM Interface CPs provided per RUL8), and the LCM is equipped with a PCM30 line drawer such as the NT6X05CA, provide:

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

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

- RUL19 1) When PCM30 feature is required, provide for each PCM-30 LGC/DTC module:

- one (1) NT6X01ZA CPC Coax Panel OR
- one (1) NT6X01ZD CPC Coax Panel.

When PCM30 Transmission is required, per CHINA and International Standards provide for each PCM-30 LGC/DTC module:

- one (1) NT6X01ZF CPC Coax Panel.

Each of the NT6X01ZD/ZF Coaxial panel may be provisioned with the NTCX50AB paddle board, when the latter is required in pos 19R. The NT6X01ZA Coaxial panel however, can not accommodate the NTCX50AB in pos 19R, because of space limitations.

When this feature is to be field installed, then the NT6X01ZA/ZD/ ZF CPC Coax Panel will require the following supporting documents: PC6X01ZB and SRJ6X01AC. (NT6X01ZE not used on this frame)

- RUL20 1) Provide one (1) NT6X01XK XPM PLUS echo canceller upgrade kit per module when Echo Cancellation is required for an XPM PLUS frame.

This kit cannot be used with the Coax Panel NT6X01ZA due to space limitations. However, the NT6X01XK may be used with the NT6X01ZD/ZF.

The NT6X28AC and NTCX50AB CPs are required for echo cancellation in XPM PLUS. The NT6X28AA and NTCX50AA CPs are used for NON-XPM PLUS echo cancellation and will not function with XPM PLUS.

- RUL21 1) Provide one (1) ECC Cable Assembly, NTNX3601, and one (1) ECC Cable support bracket kit, NT6X01XJ to replace the NTNX3390 when the customer requires the ECC Cable assembly be mounted to the frame.

REMOTE MAINTENANCE MODULE COMMON CP

NT6X13EA

MARKETS:

Applicable markets:

US
Canada
Europe
Asia/Pacific
CALA

NT6X13EA EMA2-22-RMM-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-----	-----	Previous history not available

RATING: Standard

ABBREVIATION NAME: RMM

ENGINEERING DESCRIPTION: The Remote Maintenance Module supports maintenance and service circuits for remote subscriber lines.

REFERENCE DOCUMENTATION: N/A

The Remote Maintenance Module Common CP is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
A-Law TM CODEC E/W BT Tone	NT2X59CA		1	X	1	AP
RMM Control Card CP	NT6X74AB		1	X	2	AP
Multi O/P Pwr Converter	NT2X09AA		1	X	17	AP
Filler FP .875	NT0X50AA		1	X	19	AP
Power Converter	NT2X06AB		1	X	20	AP
Design Strip (NT6X13EA)	P0685013		1	X		AP

NOTES:

- 1) One NT6X13EA Remote Maintenance Module Common CP equips always provided circuit packs for one (1) RMM Shelf (X = 51 or 65).
- 2) For more information on the frame, refer to the section on NT6X10AE.

RULES:

- AP 1) When PEC NT6X13EA is ordered, these items are provided.

SRU COMMON CP FILL

PEC CODE: NT8X95AQ

CPC CODE: B0233821

RATING: A&M

REPLACES: Not applicable

REPLACED BY: NT8X95AX

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This packfill has been rated A&M and replaced by the NT8X95AX. The SRU Common CP fill equips the SRU with always provide circuit packs needed to provide power and control to the ISDN Enhanced Line Concentrating Module (LCME) line drawers. The SRU can serve up to 240 lines across four (4) line drawers.

| REFERENCE DOCUMENTATION: MS8X95AB 01 06
SL8X95AQ 01 02

MARKETS: Applicable markets:
Europe (UK)

ISSUE AUTHOR: Barry Bond Dept. 3471 (PPK)

MAIN CONTACT: Barry Bond Dept. 3471 (PPK)

NT8X95AQ EMA2-23-SRU-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 03 18 96 03 27	ECM 527 04 ECM 527 10	Applicable Market change to UK only Changed rating to A&M.

The SRU Common CP Fill is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
LCMI Digroup Controller CP	NTBX35CA		2	19	19,20	AP
LCME Processor CP	NTBX34CA		1	19	21	AP
Power Converter	NT8X99AB		1	19	22	AP
Filler Face Plate	NT0X50AC		1	19	7	AP
LCMI Digroup Controller CP	NTBX35CA		2	05	19,20	AP
LCME Processor CP	NTBX34CA		1	05	21	AP
Power Converter	NT8X99AB		1	05	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 NT8X95AQ is ordered, these items are provided.

SRU-240 COMMON CP FILL

PEC CODE: NT8X95AX

| CPC CODE: B0243101

RATING: Standard.

REPLACES: NT8X95AQ

REPLACED BY: Not Applicable

ABBREVIATION NAME: Not Applicable

ENGINEERING DESCRIPTION: The SRU Common CP fill equips the SRU with circuit packs needed to provide power and control to the ISDN Enhanced Line Concentrating Module (LCME) line drawers.

REFERENCE DOCUMENTATION: MS8X95AB 01 06
SL8X95AX 01 01

MARKETS: Applicable markets:
Europe

ISSUE AUTHOR: Barry Bond Dept. 3471 (PPK)

MAIN CONTACT: Barry Bond Dept. 3471 (PPK)

NT8X95AX EMA2-23-SRU-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
96 03 27	ECM 527 10	Initial release.

The SRU-240 COMMON CP FILL is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
LCMI Digroup Controller CP	NTBX35CA		2	19	19,20	AP
ISDN Enh. LCM Processor CP	NTBX34CB		1	19	21	AP
Power Converter	NT8X99AB		1	19	22	AP
Filler Face Plate	NT0X50AC		1	19	7	AP
LCMI Digroup Controller CP	NTBX35CA		2	05	19,20	AP
ISDN Enh. LCM Processor CP	NTBX34CB		1	05	21	AP
Power Converter	NT8X99AB		1	05	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 NT8X95AX is ordered, these items are provided.

SMALL REMOTE UNIT (SRU)

PEC CODE: NT8X95AB

CPC CODE: B0232431

RATING: Standard

REPLACES: Not applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: SRU

ENGINEERING DESCRIPTION: The SRU is a 240 line ISDN/Centrex DMS-100 remote peripheral module that is made up primarily of standard LCME components packaged in a cabinet. It can be used for customer premise applications and can be provisioned with an internal AC power supply and battery back-up. Up to six (6) PCM-30 host links can be used.

REFERENCE DOCUMENTATION: MS8X95AB 01 06
IS8X95AB 01 09
SL8X95AB 01 10

MARKETS: Applicable markets:
Europe (UK)

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

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

NT8X95AB EMA2-23-000 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
93 03 18	ECM 527 04	Update to issue04 of MS, remove ISDN, DS1, NT6X27AC (replaced by 27BB)
93 04 15	ECM 527 05	ECD 011-17820 - Replace NT6X76AC AILC with NT6X76AD Hayes Supported AILC.
93 09 24	ECM 527 06	ECD 006-17182 - Introduce Single Slot Data Line Card NT6X71BA.
94 11 16	ECM 527 07	Updated Line Cards info, in Note 1.
95 01 20	ECM 527 08	Update to agree with latest Design documentation.
96 03 27	ECM 527 10	EC 011-21651: Replaced NT8X02AB with NT8X02AC. EC 011-21397: Replaced NT8X95AQ with NT8X95AX. Added Designation Label NTB34CB. Misc. Corrected Filler Panel locations.
96 12 16	ECM 527 11	Per EC 024-97508 MD NT4X98BB and replace with NT4X98BC for the SRU 240.

The Small Remote Unit (SRU) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
SRU Cabinet Enclosure	NT8X9570		1			AP
Frame Supervisory Panel	NT8X96AB	FSP	1	32		AP
ARLB Alarm Card	NT6X36AF		1	32	1	AP-01
Service & I/F Unit Shf Assy	NT8X9805	SIU	1	19		AP
Ringing Generators (Aust)	NT6X60EA			19	1, 4	RUL1
Ringing Generators (UK)	NT6X60GA			19	1, 4	RUL1
Metallic Tst Unit-Analog CP	NT4X97AA			19	8	RUL2
# Metallic Tst Unit-Digital CP	NT4X98BB			19	9	RUL2
Metallic Tst Unit-Digital CP	NT4X98BC			19	9	RUL2
Scan Card CP	NT0X10AA			19	10	RUL3
Metallic Test Access CP	NT3X09BA			19	11	RUL4
RMM Controller CP	NT6X74AB			19	12	RUL5
# PCM30 Interface CP	NT6X27AC			19	14, 16, 18	RUL7
PCM30 Interface CP	NT6X27BB			19	14, 16, 18	RUL7
PCM30 Link Control CP	NT6X73BA			19	15, 17	RUL8
Filler Face Plate	NT0X50AC			19	8-13	RUL9
Filler Face Plate	NT0X50AA			19	14-18	RUL9
SRU Control Unit Shelf Assy	NT8X9704	SCU	1	05		AP
SRU Fuse Panel & Cable Assy	NT8X9707		1	05	18	AP-02
Line Drawer	NTBX32BA		1	05	1	AP
Line Drawer PUPS	NTBX71AA			05	1	AP-03
Line Drawer BIC	NTBX36BA			05	1	AP-03
Line Drawer Assembly	NTBX3204			05	1	AP-03
Line Drawer Assembly	NTBX3204		3	05	5, 9, 13	AP
Line Drawer PUPS	NTBX71AA			05	5, 9, 13	RUL10
Line Drawer BIC	NTBX36BA			05	5, 9, 13	RUL10
# SRU Common CP Fill	NT8X95AQ		1	05		RUL11
SRU Common CP Fill	NT8X95AX		1	05		RUL11
Cooling Unit	NT8X9506		1	00		AP
COAX Bulkhead Assembly	NT8X95AC					RUL12

AC Input without Battery Backup Configuration

Rectifier	NT5C06CA-1			00R		RUL13
AC/BCU Pwr Filt Assy plate	NT8X95AN					RUL13
AC Power Wiring List	NT8X95WB					RUL13
AC Material Kit	NT8X9509					RUL13

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
AC Input with Battery Backup Configuration						
Rectifier	NT5C06CA-1			00R		RUL14
Batteries	A0376779					RUL14
Battery Charger Unit	NT8X0301			18R		RUL14
# Battery Charger CP	NT8X02AB			18R	1	RUL14
Battery Charger CP	NT8X02AC			18R	1	RUL14
AC/BCU Pwr Filt Assy plate	NT8X95AN					RUL14
AC/BCU Power Wiring List	NT8X95WA					RUL14
AC/BCU Material Kit	NT8X9508					RUL14
Filler Face Plate	NT0X50AE			18R	3	RUL14
DC Input Configuration						
DC Power Filter Assy Plate	NT8X95AP					RUL15
DC Power Wiring List	NT8X95WC					RUL15
DC Material Kit	NT8X9510					RUL15
Designation Label NT6X60EA	P0732569			19	1, 4	RUL16
Designation Label NT6X74AB	P0663271			19	12	RUL16
Designation Label NT2X59AA	P0643110			19	13	RUL16
Designation Label NT2X59BA	P0678465			19	13	RUL16
Designation Label NT2X59CA	P0677817			19	13	RUL16
Designation Label NT2X59DA	P0677246			19	13	RUL16
Designation Label NT6X27BB	P0739157			19	14, 16, 18	RUL16
Designation Label NT6X73BA	P0667787			19	15, 17	RUL16
Line Drawer (LSG) Labels	P0709652			05	LSG 1-6	RUL17
Frame Design Label (SRU)	P0738226					RUL18
Designation Label NTBX34CB	P0813866			05, 19	21	RUL20
SRU Anchor Kit	NT8X9537					RUL19

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT6X32AA	MD	NT6X32AB
NT6X45AE	MD	NT6X45AF
NT6X27AC	MD	NT6X27BB
NT8X95AQ	A&M	NT8X95AX
NT8X02AB	A&M	NT8X02AC
NT4X98BB	MD	NT4X98BC

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) Two (2) QFF1A 1 1/3 AMP Fuses, twelve (12) QFF1C 3 AMP Fuses, and four (4) QFF1D 5 AMP Fuses are always provided with the NT8X9704 SRU Control Shelf Assembly, and mount on the NT8X9707 SRU Fuse Panel (which is AP with the Shelf Assembly as well).

2) The following line cards can be provided on the LCME Line Drawer on the SRU:

Line Type	Australia	UK	Application
A	#NT6X93EA	#NT6X98AA	POTS
A	NT6X17BA	NT6X17BA	POTS (World Line Card)
B	-	-	
C	NT6X21BC	NT6X21BC	P-Phone
D	-	*NT6X71AB	Data Path
D	-	NT6X71BA	Data Path
	-	\$NT6X76AC	AIM LC
	-	NT6X76AD	AIM LC
ISDN	NTBX26AA	NTBX26AA	T I/F
ISDN	NTBX27AA	NTBX27AA	U I/F

Refer to the host LCM provisioning rules, in EMA14-03-000, for more line card provisioning.

To be rated MD. Replace with NT6X17BA.

\$ A & M. Replaced with NT6X76AD.

* NT6X71BA Single Slot Data Line Card replaces NT6X71AB
for offices with BCS-32 or higher.

RULES:

- AP 1) When PEC NT8X95AB is ordered, these items are provided.
- AP-01 1) These items are always provided in NT8X96AB, and are shown here for clarity.
- AP-02 1) These items are always provided in NT8X9704, and are shown here for clarity.
- AP-03 1) These items are always provided in NTXB32BA, and are shown here for clarity.
- RUL1 1) Provision 0, 1, or 2 Ringing Generator CPs for use with POTS line cards.
- 2) Provision the NT6X60EA for Australian applications; NT6X60GA for U.K. applications.
- 3) If no Ringing Generator CP is required in a slot, leave it open. No Filler Panel is specified by design.
- RUL2 1) Provision one (1) NT4X97AA CP and one (1) NT4X98BC CP for the Metallic Test Unit. These cards are used to perform maintenance test on the subscriber loops or the line cards. These must be provisioned if the AC Input with Battery Backup configuration is being used. They are optional for the other two configurations. Provide one of each circuit pack (per SRU) if Metallic Testing is required.
- 2) Refer to Table A section EMA14-01-000 for more information on the MTU circuit packs.
- RUL3 1) Provision one (1) Miscellaneous Scan Detector Card, NT0X10AA when monitor/scan points are required for alarms.

- 2) Refer to Table A section EMA14-01-000 for more information on the Scan Cards. The Scan Card must be provisioned if the AC Input with Battery Backup configuration is being used. They are optional for the other two configurations.
- RUL4 1) Provision one (1) Metallic Test Access CP NT3X09BA when the NT4X97AA/98BB pair is ordered. This card provides an 8X8 two wire metallic matrix for cross-connection between the test equipment, test card, line, and line cards; and this card drives the BCU. The Metallic Test Access CP must be provisioned if the AC Input with Battery Backup configuration is being used.
- 2) Refer to Table A section EMA14-01-000 for more information on the MTA circuit packs.
- RUL5 1) Provision one (1) RMM Controller CP NT6X74AB if any circuit packs are used in any of slots 07 thru 11.
- RUL6 1) Reserved for future use. This rule did address NT2X59 circuit pack provisioning. These packs are not supported by the current software but may be offered in the future.
- RUL7 1) NT6X27BB replaces NT6X27AC. Provide minimum of two (2), maximum of three (3) NT6X27BB PCM-30 Interface CP per SRU. Each CP provides two (2) PCM30 interfaces between the Host and the SRU. A maximum of six (6) PCM-30 links are required as per traffic requirements.
- RUL8 1) Provide two (2) PCM-30 Link Control CP NT6X73BA per SRU when PCM-30 signaling is used from the SRU to the host.
- RUL9 1) Provision one (1) NT0X50AA Filler Face Plate in shelf position 19, slots 14 - 18 when not equipped with a circuit pack.
- 2) Provision one (1) NT0X50AC Filler Face Plate in shelf position 19, slots 08 - 13 when not equipped with a circuit pack. Slots 07 and 13 will always require this Filler Face Plate as they are reserved for future use, but the filler for slot 07 is provided in the SRU-240 COMMON CP FILL.
- RUL10 1) Provide one (1) PUPS NTB71AA and one (1) BIC NTB36BA for each of the line drawers in SHF POS 05, CP POS 5,9, and 13 if these line drawers are equipped with line cards. The NTB32BA equipped in SHF POS 05 CP POS 04 comes with the Line Drawer Assembly (NTBX3204), the PUPS, and the BIC.
- RUL11 1) Always provide one (1) SRU Common CP Fill NT8X95AX per SRU.

- 2) The NT8X95AX packfill covers packs for shelf positions 05 and 19.
- RUL12 1) Provide one (1) COAX Bulkhead Assembly NT8X95AC for PCM- 30 COAX connections to the SRU.
- RUL13 1) For AC Input without Battery Backup Configuration, provide one (1) Rectifier NT5C06CA-1 per SRU if powered from AC main power. The rectifier is not required if the SRU is powered by -48 V dc. Provide one (1) AC/BCU Power Filter Assembly Plate (NT8X95AN), one (1) AC Power Wiring List (NT8X95WB) and (1) AC Material Kit (NT8X9509) when the NT5C06CA-1 Rectifier is ordered.
- RUL14 1) For AC Input with Battery Backup Configuration, provide one (1) Rectifier NT5C06CA-1 per SRU if powered from AC main power. The rectifier is not required if the SRU is powered by -48 V dc. Provide eight (8) Batteries (A0376779) when battery back-up is required with the AC power option.
- 2) Provide one (1) Battery Charger Unit (BCU-NT8X0301), one (1) Battery Charger Pack (NT8X02AC), one (1) AC/BCU Power Filter Assembly Plate (NT8X95AN), one (1) AC/BCU Power Wiring List (NT8X95WA), and one (1) AC/BCU Material Kit (NT8X9508) when the SRU is ordered with AC power and the Battery Charger Unit (BCU).
- 3) Provide one (1) NT0X50AE Filler Face Plate in shelf position 18R, slot 3, when Battery Charging Unit CP (BCU) is ordered.
- RUL15 1) For DC Input Configuration, provide one (1) DC Power Filter Assy Plate (NT8X95AP), one (1) DC Power Wiring List (NT8X95WC), and one (1) DC Material List (NT8X9510) when the SRU is DC powered.
- RUL16 1) Provision one (1) Designation Label for each corresponding circuit pack provisioned.
- RUL17 1) Always provide one (1) Line Drawer (LSG) Label sheet (P0709652), to label line drawers LSG00-03 on the SRU.
- RUL18 1) Always provide one (1) SRU Frame Designation Label (P0738226).
- RUL19 1) Provide one (1) SRU Anchor Kit (NT8X9537) when the SRU cabinet is to be bolted to the floor.

RUL20 1) Provide one (1) Designation Label for each (P0813866) whenever CP is field upgraded.

SMALL REMOTE UNIT 60 LINE (SRU60)

PEC CODE: NTSX02AA

CPC CODE: B0242944

RATING: Limited

REPLACES: Not applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: SRU60

ENGINEERING DESCRIPTION: The SRU60 is based on the existing SRU240 product but is intended to address smaller line groups in the range of 20-60 lines. It is a duplicated ISDN/Centrex DMS-100 remote peripheral module that is made up primarily of standard SRU240 components packaged in a cabinet with 19" rack mounted equipment.

REFERENCE DOCUMENTATION: ISSX02AA 00 01
MSSX02AA 00 02
SLSX02AA 00 02

MARKETS: Applicable markets:
Europe (UK)

ISSUE AUTHOR: NTI: Barry Bond Dept. 3471 (PPK)

MAIN CONTACT: NTI: Barry Bond Dept. 3471 (PPK)

CONTACT: NTWT: Steve Gilbride Dept. 6542 (MAID)

NTSX02AA EMA2-23-001 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 11 29	ECM 701 01	Initial Release per ECs 002-16461 and 002-16462. (need to add EC number(s) for cleanup of MS and SL when known.

The Small Remote Unit 60 Line (SRU60) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Frame Supervisory Panel	NT7X90AA	FSP	1	02		AP
Ringing Generators	NT7X92AA		2	02	x, x	AP-01
ARLB Alarm Card	NT6X36AF		1	02	1	AP-01
PCM30 Interface CP	NT6X27BB		2	01	1, 3	AP
PCM30 Link Control CP	NT6X73BA		2	01	2, 4	AP
LCMI Digroup Controller CP	NTBX35CA		2	01	5, 7	AP
LCME Processor CP	NTBX34CA		2	01	6, 8	AP
Power Converter	NT7X93AA		2	01	9, 11	AP
Designation Strip	P0818011		1	01		AP
Line Drawer	NTBX32CA	LD	1	00		AP
Line Drawer PUPS	NTBX71AA		1	00	28, 30	AP
Line Drawer BIC	NTBX36BA		1	00	32	AP
World Line Card	NT6X17BA		AR	00	00-31	RUL1
P-Phone Line Card	NT6X21BC		AR	00	00-31	RUL1
ISDN U-loop Line Card	NTBX26AA		AR	00	00-31	RUL2
ISDN S/T Line Card	NTBX27AA		AR	00	00-30 EVEN	RUL3
75-OHM COAX Connection Plate	NT7X9102					RUL4
120-OHM TP Connection Plate	NT7X9103					RUL4
Nortel CPE Cabinet	NTSX03AA					RUL5
Fan Tray Assembly	A0645391					RUL5
Fan Unit Signal Cable	B9923761					RUL5
Fan Unit Cable	B9923764					RUL5
Screw	P9904143					RUL5
Star washer	P9904915					RUL5
Clip	P9907226					RUL5
Rectifier Rack Assembly	A0647800					RUL6
Rectifier	A0645383					RUL6
SRU - Rect. Cable Assembly	NT7X9702					RUL6
AC cord - 30 amp UK	A0645358					RUL6
Battery Rack Assembly	A0645391					RUL6
Battery Rack Cable	B9923763					RUL6
Screw	P9904143					RUL6
Star Washer	P9904915					RUL6
Clip	P9907226					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 two lower rows of line card slots form one LSG and the upper two rows of line card slots form the other LSG. Each LSG has 32 line card slots. Each row within an LSG has 16 line card slots (i.e. each LD has up to 64 line card slots).
- 2) The top LSG of the Line Drawer has the Point of Use Power Supply (PUPS) card assigned to slots 28-30.
- 3) For reliability purposes, distribute line cards over physical ISDN 2B1Q Line drawers.
- 4) Refer Engineering Manual Section EMA14-03-000, TABLE C - Line Drawer Provisionable Cards, for more information on line card provisioning.
- 5) Fuses and breakers on the NT7X90AA.

Designation	Description	Rating (amps)	Part Number
F01	PUPS Battery Supply	3	QFF1C
F02	Ringin Supply to Line Drawer	1.3	QFF1A
F03	Talk Battery	5	QFF1D
F04	PUPS Battery Return	3	QFF1C
F05	15V to Line Cards	5	QFF1D
F06	Power on Lamps	1.3	QFF1A
F07	Frame Fail	1.3	QFF1A
F08	Alarm Control Card	1.3	QFF1A
CB01	POC 0	20	
CB02	RG 0	10	
CB03	TLK	10	
CB04	POC 1	20	
CB05	RB 1	10	

Figure 1. FSP Fuses and Circuit Breakers.

RULES:

- AP 1) When PEC NTSX02AA is ordered, these items are provided.
- AP-01 1) These items are always provided in NT7X90AA, and are shown here for clarity.

- RUL1 1) May be provisioned in any slot EXCEPT LSG1 slots 28,30. These slots are reserved for the NTB71AA (PUPS) card.
- RUL2 1) May be provisioned in any slot EXCEPT LSG1 slots 28,30. These slots are reserved for the NTB71AA (PUPS) card.
- 2) SRU60 is initially deployed as "ISDN hardware ready". ISDN functionality is fully supported from EUR004 on.(e.g. The SRU60 may be shipped equipped with ISDN prior to EUR004.)
- RUL3 1) May be provisioned in any slot EXCEPT LSG1 slots 28,30. These slots are reserved for the NTB71AA (PUPS) card.
- 2) The ISDN S/T Line Card requires two (2) slots, therefore the slot above the lower slot is unavailable for another card.
- 3) SRU60 is initially deployed as "ISDN hardware ready". ISDN functionality is fully supported from EUR004 on.(e.g. The SRU60 may be shipped equipped with ISDN prior to EUR004.)
- RUL4 1) Provision (1) 75-OHM COAX Connection Plate or (1) 120-OHM Twisted Pair Connection Plate as required.
- RUL5 1) Always provision (1) CPE Cabinet, (1) Fan Tray Assembly, (1) Fan Unit Signal Cable, (1) Fan Unit Cable, (4) Screws, (4) Star Washers, and (4) Clips with each SRU60.
- RUL6 1) When Battery Backup is required, provision (1) Rectifier Rack Assembly, (2) Rectifiers, (1) SRU - Rect. Cable Assembly, (1) AC cord - 30 amp UK, (1) Battery Rack Assembly, (1) Battery Rack Cable, (8) Screws, (8) Star Washers, and (8) Clips

CABINETIZED GLOBAL PERIPHERAL PLATFORM (CGPP)

PEC CODE: NTMX90AB

CPC CODE: B0239695

RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: CGPP

ENGINEERING DESCRIPTION: The NTMX90AB CGPP is a host cabinet based on the Compact Peripheral Module (CPM) Shelf and is being introduced to handle a PCM-30 switching requirement for the cable television market in the United Kingdom. A single CGPP can provide terminations for up to 3600 lines. A 120 Ohm version of this product is also available for the Australian market.

REFERENCE DOCUMENTATION: ISMX90AB 01 10
SLMX90AB 01 07
MSMX90AB 01 12

MARKETS: Applicable markets:

Europe
Asia/Pacific

ISSUE AUTHOR: Rena Fisher Dept. 3471 (PPK)

MAIN CONTACT: Rena Fisher Dept. 3471 (PPK)

NTMX90AB EMA2-24-GPP-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 05 13	API 505 01	NTMX90AB Introduction
94 08 08	API 505 02	Revisions per released stocklists.
94 10 21	ECM 568 01	Introduce NTMX90AB in ECM.
94 12 02	ECM 568 02	Correct per latest stocklist.
95 01 20	ECM 568 03	Fix bulkhead information, and update per EC#007-15838.
95 02 02	ECM 568 04	Add cable info per EC#007-15715.
95 03 23	ECM 568 06	Update per EC#007-16125.
95 06 08	ECM 568 07	Update per EC#007-15989.
95 07 28	ECM 568 08	Update per EC#006-23516 and 006-23144. Correct BH infomation.
95 10 14	ECM 568 09	Update per EC#006-23904 to introduce V5.2 Access Protocol feature.
95 12 15	ECM 568 11	Answer ET#78573. Rename cabinet and shelf per EC#006-24680. The GPP cabinet now becomes CGPP and the CPM shelf now becomes GPP. New Des.Labels shown per latest MS documet. This EC applies to all equipment installed or in production.
96 02 19	ECM 568 12	Also general clean up of rules and provisionable quantities Answer SR60283-show NT6X40 CPs prov. on shelf position 47. Answer SR60201-show RUL2 as COAX applications.
96 04 05	ECM 568 13	Upissue per ECD006-25769. Replace NTBX01AC and des. label P0803505 with NTBX01BA and des. label P0713794. Provision: NT6X40FA, NT6X40GA, NT6X40AC and its des. label P0695397, in additional shelf 47.
97 03 27	ECM 568 14	Upissue per ECD 06-28107 which introduces NTMX90ZA,ZB, and ZC, Kits.
97 06 13	ECM 568 15	Upissue per ECD 103-00808 which implements the following pack replacements: NT6X40FB (and label P0834807) replaces NT6X40FA. NTMX76CA (and label P0850394)preferred

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 09 19	ECM 568 16	over NTMX76BA. Upissue per ECD 103-00933 which replaces: NT6X40AC (and label) with NT6X40AD (and label).

The Cabinetized Global Peripheral Platform (CGPP) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Model B C28 Cabinet (See NOTE 4)	NTRX25AA		1			AP
GPP MSP Kit	NTMX9030			61		RUL10
Modular Supervisory Panel	NTRX40AA		1	61		AP02
Alarm Module	NTRX41AA		1	61	5-6	AP02
Fuse Module	NTRX43AA		1	61	7	AP02
Blank Panel	P0734476		1	61	8	AP02
Breaker Module (10A)	NTRX42AA		6	61	9-14	AP02
Blank Panel	P0734474		1	61	15-18	AP02
FMU Power Module Kit	NTRX3255			61		RUL11
FPC (-48V CU Power/Alarm)	NTRX54BA		1	61	19	AP10
FPC Label	P0741680		1	61		AP10
GPP CPM Shelf Kit	NTMX9031		1	05		AP
DS30 Cable Assembly	NTMX9025			05		RUL6
DS60 Cable Assembly	NTMX9061			05		RUL26
CPM Shelf Assembly	NTMX8501	GPP	1	05		AP03
Power Converter	NTMX72AA			05	1, 26	RUL13
Unified Processor	NTMX77AA			05	3, 25	RUL13
Universal Tone Receiver	NT6X92CA			05	6, 7, 21, 22	RUL13
CLASS Modem Resource CP	NT6X78AB			05	5, 23	RUL14
Des.Label (NT6X78AB)	P0731980			05	5, 23	RUL14
EISP CP	NTBX01BA			05	4, 24	RUL13
Des.Label (NTBX01BA)	P0713794			05	4, 24	RUL13
Msg. and CSM CP	NTMX76CA			05	8, 20	RUL13
Des.Label (NTMX76CA)	P0850394			05	8, 20	RUL13
Msg. and CSM CP (non preferred)	NTMX76BA			05	8, 20	RUL13
Enhanced Matrix CP	NTMX75AA			05	10, 18	RUL13
Signaling Processor	NTMX73AB			05	11, 17	RUL13
Quad Carrier	NTMX87AA			05	12, 14, 16	RUL13
Dual PCM-30 Packlet	NTMX82AA			05	12, 14, 16:0-3	RUL13
Filler Face Plate	NT0X50AA			05		RUL13
Fiber Bracket Kit	NTMX9040		2	05		AP03

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
#DS-30 Network Interface	NT6X40AC			05,47	09,19	RUL1
Des.Label (NT6X40AC)	P0695397			05,47,	09,19	RUL1
DS-30 Network Interface	NT6X40AD			05,47	09,19	RUL1
Des.Label (NT6X40AD)	P0834807			05,47	09,19	RUL1
DS-512 Network Interface	NT6X40FB			05,47	09,19	RUL1
Des.Label (NT6X40FB)	P0834807			05,47	09,19	RUL1
DS-512 Network Interface	NT6X40GA			05,47	09,19	RUL1
					(Rear)	
GPP CPM Shelf Kit	NTMX9031			19,33,		RUL1
				47		
DS60 Cable Assembly	NTMX9027			19		RUL6
DS30 Cable Assembly	NTMX9025			19,33,		RUL6
				47		
DS60 BH Cable Assy.	NTMX9028			33		RUL6
DS60 BH to EXT CA Assy	NTMX9053			33		RUL18
DS60 BH (19) to EXT CA Assy	NTMX9059			33		RUL19
#DS-30 Network Interface	NT6X40AC			19,33,	09,19	RUL1
				47		
Des.Label (NT6X40AC)	P0695397			19,33,	09,19	RUL1
				47		
DS-30 Network Interface	NT6X40AD			19,33,	09,19	RUL1
				47		
Des.Label (NT6X40AD)	P0834807			19,33,	09,19	RUL1
				47		
DS-512 Network Interface	NT6X40FB			19,33,	09,19	RUL1
				47		
Des.Label (NT6X40FB)	P0834807			19,33,	09,19	RUL1
				47		
DS-512 Network Interface	NT6X40GA			19,33,	09,19	RUL1
				47	(Rear)	
GPP DS-30 Plate Kit	NTMX9032			05,19,		RUL2
				33,47		
DS-30 Personality Plate Ay.	NTMX9043		1			AP05
GPP PCM-30 Plate Kit	NTMX9033			05,19,		RUL2
				33,47		
PCM-30 Personly. Plate Asy.	NTMX9044		1			AP06

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
GPP DS-60 Plate Kit	NTMX9034			05,19, 33		RUL2
DS-60 Personality Plate Ay.	NTMX9045		1			AP07
GPP DS-60 Remote Plate Kit	NTMX9035			05,19, 33		RUL2
DS-60 Remote Person.Plt.Ay.	NTMX9046		1			AP08
GPP DS-30 Plate Kit 120 Ohm	NTMX9090			05,19, 33		RUL21
GPP DS-30 Plate Kit 120 Ohm	NTMX9062		1			AP16
GPP CPM Personality Plate	P0809202		1			AP11
GPP PCM-30 Plate Kit 120 Ohm	NTMX9091			05,19, 33,47		RUL22
GPP PCM-30 Plate Kit 120 Ohm	NTMX9063		1			AP17
GPP CPM Personality Plate	P0809202		1			AP12
GPP DS-60 Plate Kit 120 Ohm	NTMX9092			05,19, 33		RUL23
GPP DS-60 Plate Kit 120 Ohm	NTMX9064		1			AP18
GPP CPM Personality Plate	P0809202		1			AP13
GPP DS-60 Remote Plt. Kit 120 Ohm	NTMX9093			05,19, 33		RUL24
GPP DS-60 Remote Plt. Kit 120 Ohm	NTMX9065		1			AP19
GPP CPM Personality Plate	P0809202		1			AP14

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
GPP PCM-30 EXT Kit 120 Ohm	NTMX9094			33,47		RUL25
GPP PCM-30 EXT Kit 120 Ohm	NTMX9066		1			AP20
GPP EXT Personality Plate	P0809843		1			AP15
GPP CPM Extension Shelf Kit	NTMX9036	EXT	1	33,47		RUL3
Extension Shelf Assembly	NTMX8601			33,47		AP21
GPP Extension Shelf CP Kit	NTMX9041			33,47		RUL3
CGPP EXT Shelf To Filler Panel PC KIT.	NTMX90ZA			33,47		RUL30
CGPP EXT Shelf (Sh 47) to GPP Shelf PC Kit.	NTMX90ZB			47		RUL31
CGPP EXT Shelf (Sh 33) to GPP Shelf PC Kit.	NTMX90ZC			33		RUL32
DS60 Extender CP	NTMX79AA		4	XX	2,13, 14,25	AP04
Quad Carrier CP	NTMX87AA		6	XX	4,6,8, 19,21,23	AP04
Dual PCM30 Packlet	NTMX82AA		24	XX	4:0-3, 6:0-3, 8:0-3, 19:0-3, 21:0-3, 23:0-3	AP04
Filler Plate	NT0X50AA		16	XX	1,3,5,7, 9-12,15-18, 20,22,24,26	AP04
GPP PCM-30 Ext Kit (96 Pos) PCM-30 EXT Person.Plt.Assy.	NTMX9037 NTMX9047		1	33,47		RUL4 AP09
Cage Filler Panel Assembly	NT0X84AA			19,33		RUL5
Personality Plate Blank	P0715616			19,33, 47		RUL5
GPP Horizontal Power Kit	NTMX90CB					RUL8

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Designation Label	P0737501					RUL8
Designation Label	P0737502					RUL8
GPP Vertical Powering Kit	NTMX9060					RUL12
GPP MSP Pwr&Ctr CA As sh 33	NTMX90ME			47		RUL27
GPP Pwr&Ctr CA Assy sh 47	NTMX90MH			47		RUL28
Cooling Unit Kit, 10"	NTRX92AA	CU		00		RUL10
Cooling Unit, 10"	NTRX91AA	CU	1	00		AP01
C28 English Label Kit	NTRX3541					RUL7
C28 German Label Kit	NTRX3542					RUL7
CGPP Cabinet Label (Blue)	P0821335					RUL9
CGPP Cabinet Label (Green)	P0821336					RUL9
MSP Breaker Des.Label	P0749669					RUL16
Lazer Warning Label	P0814701		1			AP
CGPP Cabinet Des.Label	P0821337					RUL29
GPP Shelf Des.Label	P0821338					RUL29
CGPP Endguard Label	P0821339					RUL29
CGPP CPDC Des.Label	P0821340					RUL29
Cosmetic Endguards/EMI	Note 1					
Cabinet Labels	Note 2					
Power and Grounding	Note 3					
Cabinet Mechanicals	Note 4					

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
N/A NT6X40AC	STD	NT6X40AD

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 NTRX73 Engineering Manual Section for provisioning cosmetic endguards and EMI sidepanels.
- 2) Refer to the latest issue of MS0X60AA for all shelf and cabinet labels.
- 3) Refer to NTZX16CA Engineering Manual Section for System Power and Grounding information.
- 4) Refer to NTRX25AA EMS (or MSRX25AA) for provisioning of cabinet mounting hardware i.e. doors, cable troughs, leveling feet, cover (power filter), frame fail lights and earthquake anchors. NOTE- The filter cover P0741641 is always required when filtered power is provisioned, regardless of the floor mounting arrangement used.
- 5) Items marked AP01 are included with NTRX92AA and are shown for sparing purposes.
- 6) Items marked AP02 are included with NTMX9030 and are shown for sparing purposes.
- 7) Items marked AP03 are included with NTMX9031 and are shown for sparing and modeling purposes.
- 8) Items marked AP04 are included with NTMX9041 and are shown for sparing and modeling purposes.
- 9) Shelf position XX = 47 or 33.
- 10) Items marked AP05 are included with NTMX9032.
- 11) Items marked AP06 are included with NTMX9033.
- 12) Items marked AP07 are included with NTMX9034.
- 13) Items marked AP08 are included with NTMX9035.
- 14) Items marked AP09 are included with NTMX9037.
- 15) Items marked AP10 are included with NTRX3255.

- 16) Items marked AP11 are included with NTMX9062.
- 17) Items marked AP12 are included with NTMX9063.
- 18) Items marked AP13 are included with NTMX9064.
- 19) Items marked AP14 are included with NTMX9065.
- 20) Items marked AP15 are included with NTMX9066.
- 21) Items marked AP16 are included with NTMX9090.
- 22) Items marked AP17 are included with NTMX9091.
- 23) Items marked AP18 are included with NTMX9092.
- 24) Items marked AP19 are included with NTMX9093.
- 25) Items marked AP20 are included with NTMX9094.
- 26) MEL CAS PROTOCOL - The base CGPP consists of a fully equipped GPP Shelf always provided in position 05. Position 19 and/or 33 is provisionable with GPP Shelf, with a maximum of three GPP shelves per cabinet. Position 33 and 47 may be provisioned with an EXT Shelf.
- 27) V5.2 ACCESS PROTOCOL - This configuration of the CGPP consists of a GPP Shelf in position 05 as always provided equipment, and a GPP Shelf provisionable in 47 as standard equipment. Cabinet expansion is to progress with GPP Shelf in position 19, then position 33.
- 26) Items marked AP21 are included with NTMX9036.

RULES:

- AP 1) When PEC NTMX90AB is ordered, these items are provided.
- RUL1 1) One GPP CPM Shelf Kit in position 05 is always provided. Provide additional shelf kits in positions 47, 19, and 33 as needed to support more lines. Refer to Rul13 for the provisionable cps for the GPP Shelf in positions 05,19,33,47. Each GPP Shelf can be provisioned with and supports a maximum of three Quad Carriers. Each Quad Carrier can mount up to four PCM-30 packlets, which contain two PCM-30 interfaces, each of which have 30 available channels. Therefore, a single GPP Shelf can support a maxi-

num of 720 channels/lines (3 Quad Carriers X 4 packlets per carrier X 2 interfaces per packlet X 30 channels per interface = 720).

- 2) The GPP Shelf can be provisioned with the following packs;

Qty	PEC	Slot location	Provisioning Note
2	NTMX72AA	1-2, 26-27	Pack occupies 2 slots
2	NTMX77AA	3, 25	
2	NTBX01BA	4, 24	
A/R	NT0X50AA	A/R	Any slot w/o CP
4	NT6X92CA	6, 7, 21, 22	
2	NTMX76CA	8, 20	
	-OR-		
2	NTMX76BA	8, 20	
2	NTMX75AA	10, 18	
2	NTMX73AB	11, 17	
3	NTMX87AA	12, 14, 16	
12	NTMX82AA	12, 14, 16 : 0-3	
2	NT6X78AB	5, 23	

- 3) Provide either DS-30 or DS-512 Network I/F cps for each GPP Shelf. For DS-30 interface, provide 2 DS-30 Network I/F cps in slots 9 and 19 and 2 designation labels. For DS-512 interface, provide 2 DS-512 Network I/F cps in slots 9 and 19 and 1 DS-512 Network I/F paddleboard cps in slots 9R and 19R.
- 4) Provide two NT6X40AD Packs and two designation labels when the DS-30 Transmission feature is required. For DS-30 applications, provision the NT6X40AD CP only. The NT6X40AD is backward compatible to the NT6X40AC. The 6X40AD is enhanced however and it is not recommended to mix the two packs in the same module. If they are mixed in a module, they must be datafilled as NT6X40AC's in order to pass diagnostics.

- RUL2
- 1) Provide 1 GPP DS-30 Plate Kit for each equipped GPP Shelf when DS-30 transmission to the network is utilized. (COAX applications)
 - 2) Provide 1 GPP PCM-30 Plate Kit for each equipped GPP Shelf when PCM-30 transmission to the network is utilized. (COAX applications)
 - 3) Provide 1 GPP DS-60 Plate Kit for each equipped EXT Shelf that connects to a GPP Shelf that is mounted in an adjacent cabinet (NOT mounted in the same cabinet as the GPP shelf). (COAX applications)
 - 4) Provide 1 GPP DS-60 Remote Plate Kit for each equipped GPP Shelf that is connected to an EXT Shelf that is mounted in an adjacent cabinet (NOT mounted in the same cabinet as the EXT Shelf). (COAX applications)
- RUL3
- 1) Provide 1 GPP CPM Extension Shelf Kit in shelf position 33 or 47 when the additional terminations it provides are required.
 - 2) Provide 1 EXT Shelf CP Kit for each equipped EXT Shelf. The kit includes the following:

Qty	PEC	Slot location
4	NTMX79AA	2,13,14,25
16	NT0X50AA	1,3,5,7,9-12, 15-18,20,22,24, 26
6 24	NTMX87AA NTMX82AA	4,6,8,19,21,23 Above slots:0-3

- 3) One EXT Shelf expands the capacity of two GPP shelves. Each half of the EXT Shelf is dedicated to a GPP Shelf. Each half of the EXT Shelf mounts 3 Quad Carriers with 4 Dual PCM-30 Packlets per carrier. There are 2 PCM-30 interfaces per packlet with 30 channels per interface. Therefore, each half of an EXT Shelf adds 720 channels/lines to its associated GPP (3 Quad Carriers X 4 packlets per carrier X 2 interfaces per packlet X 30 channels per interface = 720 channels).

- RUL4 1) Provide 1 NTMX9037 GPP PCM-30 Ext. Kit 96 Pos. b
(75 OHM transmission) in position 33 or 47 for termination
between the CGPP and MUX.
- RUL5 1) Provide 1 Cage Filler Panel assembly in each shelf position
not equipped with either a GPP or EXT Shelf.
- 2) Provide 1 Personality Plate Blank for the bulkhead of each
shelf position (19,33,47) that is not equipped with either
a GPP or EXT Shelf.
- RUL6 1) Provide 1 DS-60 Cable Assembly NTMX9027 to connect a GPP
Shelf in position 19 to the EXT Shelf in position 47. Pro-
vide 1 cable assembly whenever the GPP in position 19 is
equipped and the EXT Shelf in position 47 is equipped with
packs.
- 2) Provide 1 DS-30 Cable Assembly NTMX9025 per GPP Shelf when
DS-30 termination is required between a GPP Shelf and the
DMS Host Office (JNET).
- 3) Provide 1 DS-60 BH Cable Assembly NTMX9028 when DS-60 ter-
mination between a GPP Shelf in position 33 and an EXT
Shelf in an adjacent cabinet is required (JNET and ENET).
- RUL7 1) Provide 1 English Label Kit per cabinet for applications
requiring labels in English.
- 2) Provide 1 German Label Kit per cabinet for applications re-
quiring labels in German.
- RUL8 1) Provide 1 GPP Horizontal Power Kit for all cabinets that
utilize internal (horizontal) powering. This would normally
include extension of a Model A lineup using the Model B
cabinet. This kit is used for supplying power to the CGPP
from the CPDC.
- 2) Provide 1 P0737501 and 1 P0737502 Designation Labels for
field application. The labels may be needed by installa-
tion for identifying power cables after the cables are
trimmed to proper lengths.
- RUL9 1) Provide 1 CGPP Cabinet Label (blue) per CGPP when grey
equipment is supplied or 1 CGPP Cabinet Label (green) per
CGPP when brown equipment is supplied.
- RUL10 1) Provide 1 MSP Kit per CGPP for all applications. Also pro-
vide 1 Cooling Unit Kit per CGPP for all applications.

- RUL11 1) Provide 1 FMU Power Module Kit for all applications using -48V power.
- RUL12 1) Provide 1 Vertical Powering Kit when filtered power is required.
- RUL13 1) Provide these cps for the GPP Shelf in position 05, and they may also be required for GPP shelves in positions 47,19, or 33 when provisioned.
- 2) Provide 2 Power Converter CPs per GPP Shelf for Power Supply.
- 3) Provide 2 Signaling Processor CPs per GPP Shelf, required for DDL Messaging and Clock Distribution, per customer requirements.
- 4) Provide 2 Enhanced Matrix CPs per GPP Shelf, required for performing Speech Channel Switching function, per customer requirements.
- 5) Provide 2 Msg. and CSM CPs per GPP Shelf, required for Tone Generation and Channel Supervision, Message Collection (CSM). The NTMX76CA is the preferred CP for tone generation and channel supervision message collection. The NTMX76BA should only be ordered if there is a shortage of NTMX76CA. Provide one or the other but not both.
- 6) Provide 2 Unified Processor CPs per GPP Shelf, required for processing signals with service packs, trunks and lines, per customer requirements.
- 7) Always provide 2 UTR CPs NT6X92CA per GPP Shelf, per customer requirements in slots 6 and 22. Additional UTR CPs may be provisioned in slots 7 and 21.
- 8) Provide 2 EISP CPs NTB01BA per GPP Shelf and 2 designation labels, P0713794, when V5.2 Access Protocol feature is required.
- 9) Always provide 1 NT0X50AA Filler Face Plate in any slot that is not equipped with an active CP.
- RUL14 1) Provide 2 CMR cps and 2 designation labels when Calling Number Delivery feature is required. Otherwise, provide 2 Filler Face Plates in these slots.
- RUL15 1) Deleted

RUL16 1) Provide 1 MSP Des.Label per shelf (GPP or EXT) when shelf is installed in the field.

RUL17 1) Deleted

RUL18 1) Provide 1 DS60 BH TO EXT Cable Assy. when DS60 termination between an EXT Shelf (left half) in pos. 33 and a GPP Shelf in pos. 33 in a separate cabinet is required (for JNET and ENET).

Example: Three frames beside each other in a lineup. Frame A has GPP Shelf in pos. 33, Frame B has EXT Shelf in pos. 33, and Frame C has GPP Shelf in pos. 33. In this example, this cable along with the cable in RUL19 is needed.

RUL19 1) Provide 1 DS60 BH(19) TO EXT Cable Assy. when DS60 termination between an EXT Shelf (right half) in pos. 33 and a GPP Shelf in pos. 33 in a separate cabinet is required (for JNET and ENET). See example in RUL18.

RUL20 1) Deleted

RUL21 1) Provide 1 NTMX9090 GPP DS-30 Plate Kit 120 Ohm when DS-30 transmission (JNET) from DMS-100 Host Office (120 Ohm twisted pair wire transmission for DS-30 and no DS-60 transmission) is required.

RUL22 1) Provide 1 NTMX9091 GPP PCM-30 Plate Kit 120 Ohm when PCM-30 transmission (ENET) from DMS-100 Host Office (120 Ohm twisted pair wire transmission for PCM-30 and no DS-60 transmission) is required.

RUL23 1) Provide 1 NTMX9092 GPP DS-60 Plate Kit 120 Ohm when DS-60 transmission between a GPP Shelf and its mating EXT Shelf is located in separate cabinets (JNET) - (120 Ohm twisted pair wire transmission).

2) For an EXT Shelf in position 33, the GPP DS-60 Plate Kit is required in position 05 and 19 in order to route cable assemblies from adjacent frames.

RUL24 1) Provide 1 NTMX9093 GPP DS-60 Remote Plate Kit 120 Ohm for DS-60 transmission between a GPP Shelf and its mating EXT Shelf located in separate cabinets (ENET) - (120 Ohm twisted pair wire transmission).

2) For an EXT Shelf in position 33, the GPP DS-60 Remote Plate Kit required in position 05 and 19 in order to route cable assemblies from adjacent frames.

- RUL25 1) Provide 1 NTMX9094 GPP PCM-30 EXT Kit (96 Pos) for termination between the CGPP and MUX (120 Ohm twisted pair wire transmission).
- RUL26 1) Provide 1 NTMX9061 DS-60 Cable Assembly (SH 05) for termination to EXT Shelf when DS-60 transmission is required.
- RUL27 1) Provide 1 NTMX90ME MSP PWR & CTRL cable assy (SH 33) per MEL CAS Protocol, when EXT Shelf is provisioned in position 47.
- RUL28 1) Provide 1 NTMX90MH PWR & CTRL cable assy (SH 47) per V5.2 Access Protocol, when GPP Shelf is provisioned in position 47.
- RUL29 1) Provide 1 set of each of these labels for each office.
- RUL30 1) Provide one (1) NTMX90ZA CGPP EXT to Filler Panel PC Kit, when the customer requires to replace an extension shelf (NTMX9036) in position 33 or 47 with a filler panel.
- RUL31 1) Provide one (1) NTMX90ZB CGPP EXT (SH 47) to GPP shelf PC KIT, when the customer requires to replace an extension shelf (NTMX9036) in position 47 with a GPP shelf.
- RUL32 1) Provide one (1) NTMX90ZC CGPP EXT (SH 33) to GPP shelf PC KIT, when the customer requires to replace an extension shelf (NTMX9036) in position 33 with a GPP shelf.

CABINETIZED MULTI-VENDOR INTERFACE

PEC CODE: NTMX90BA

CPC CODE: B0241105

RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: CMVI

ENGINEERING DESCRIPTION: The DMS-100 based Multi-Vendor Interface Cabinet is Nortel's product solution to the Bellcore TR-303 requirement for remote multi-vendor interface to a DMS SuperNode host.

REFERENCE DOCUMENTATION: ISMX90BA 00 05
MSMX90BA 00 05
SLMX90BA 00 03

MARKETS: Applicable markets:

US
Canada
CALA

ISSUE AUTHOR: Barbara Berkley Dept. 3471 (PPK)

MAIN CONTACT: Barbara Berkley Dept. 3471 (PPK)

NTMX90BA EMA2-24-MVI-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 05 19	ECM 576 01	NTMX90BA Introduction per EC#024-93454.
95 06 22	ECM 576 02	Update per latest Product Spec.
95 07 20	ECM 576 03	Update EDCH info. per PLM
95 08 30	ECM 576 04	Update per PLM. Add NTZZ03SX BB for common cps on CPM2 shelf.
95 11 07	ECM 576 05	Update per EC#024-95005.
96 01 15	ECM 576 06	Update per EC#028-15468 and 024-95530.
96 03 29	ECM 576 07	Update per EC#024-96835 to change NTMX72AA to NTMX72AB. Introduce the NT6X92EA GTR to CMVI. (EC# TBD)
96 08 02	ECM 576 08	Update per EC#024-96835 to introduce NTMX76CA, NTMX72AB, NT6X40AD/FB to ESMA. Clean-up EMS by removing qty. from rule provided items. (no chg. bars) Add note about MSL100 line up and end panel provisioning.
96 08 19	ECM 576 09	Introduce the NTZZ03SZ BB and rules. Clarify notes concerning NTMX76CA usage per EC#024-96835, MSMX90BA, and Project/Process Spec.
96 10 04	ECM 576 11	Introduce the NTZZ03SF and NTZZ03SG building blocks. Add in NTZZ12UA building block that can be used to provide CMR cps. Add in NTZZ12VC building block that can be used to provide GTR cps.
97 05 23	ECM 576 12	MD NTZZ03SG and NTZZ03SZ BBs (NTMX76BA no longer used in ESMA).
97 10 07	ECM 576 13	MD NTMX77AB per EC 018-51491.

The Cabinetized Multi-Vendor Interface is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Model B C28 Cabinet	NTRX25AA		1			AP
Two Inch Filler Plate	P0684448		1	65		AP
MVI MSP Kit	NTMX9049		1	61		AP
Modular Supervisory Panel	NTRX40AA		1	61		AP01
Alarm Module	NTRX41AA		1	61	5	AP01
Breaker Module (10A)	NTRX42AA		4	61	9-12	AP01
Fuse Module	NTRX43AA		1	61	7	AP01
FPC (-48V CU Power/Alarm)	NTRX54BA			61	19	RUL1
Design. Label (NTRX54BA)	P0741680			61	19	RUL1
MSP Breaker Design. Label	P0806591		1	61		AP01
MSP Fuse Design. Label	P0741924		1	61		AP01
Full Shelf Filler	NT0X84AA		1	47		AP
CPM Main Shelf Kit	NTMX9050		2	XX		AP
CPM Shelf Assembly	NTMX8504	CPM2	1	XX		AP02
Desig. Strip (NTMX8504)	P0819715		1	XX		AP09
# SMA2 Common CP Packfill	NTZZ03SX			XX		RUL9
SMA2 Common CP Packfill	NTZZ03SY			XX		RUL9
# SMA2 Common CP Packfill	NTZZ03SZ			XX		RUL9
SMA2 Common CP Packfill	NTZZ03SF			XX		RUL9
# SMA2 Common CP Packfill	NTZZ03SG			XX		RUL9
# Power Converter	NTMX72AA		2	XX	01, 26	AP12
Power Converter	NTMX72AB		2	XX	01, 26	AP08
# Unified Processor	NTMX77AB		2	XX	03, 25	N/A
Enhanced Processor	NTAX74AA		2	XX	03, 25	AP08, AP12
EISP	NTBX01BA		2	XX	04, 24	AP08, AP12
CLASS Modem Resource	NT6X78AB			XX	05, 23	RUL2
CLASS Modem Resource BB	NTZZ12UA			XX	05	RUL2
# Universal Tone Receiver	NT6X92BC			XX	06, 22,	RUL2

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Global Tone Receiver	NT6X92EA			XX	07, 21 06, 22,	RUL2
Global Tone Receiver BB	NTZZ12VC			XX	07, 21 06, 07	RUL2
# MSG and CSM CP	NTMX76BA		2	XX	08, 20	N/A
MSG and CSM CP	NTMX76CA		2	XX	08, 20	AP08, AP12
Enhanced Matrix CP	NTMX75BA		2	XX	10, 18	AP08, AP12
Signaling Processor	NTMX73BA		2	XX	11, 17	AP08, AP12
Quad Carrier CP (NOTE 15)	NTMX87AA			XX	12, 14, 16	RUL2
Dual DS-1 Packlet	NTMX81AA			XX	12, 14, 16:0-3	RUL2
Filler Packlet	NTMX83AA			XX	12, 14, 16:0-3	RUL2
EDCH CP	NTBX02BA			XX	14, 16	RUL2
DS-30 Network Interface	NT6X40AC			XX	09, 19	RUL2
DS-30 Network Interface	NT6X40AD			XX	09, 19	RUL2
DS-512 Network Interface	NT6X40FA			XX	09, 19	RUL2
DS-512 Network Interface	NT6X40FB			XX	09, 19	RUL2
DS-512 Network I/F Pdlbd	NT6X40GA			XX	09, 19 (Rear)	RUL2
Filler Faceplate	NT0X50AA		2	XX	13, 15	AP08, AP12
Filler Faceplate	NT0X50AA			XX	03-12, 14, 16- 25	RUL2
Filler Faceplate	NT0X50AF			XX	01, 26	RUL2
CPM2 Filler Faceplate Kit	NTZZ12KJ			34	01	RUL2
EXT Shelf Kit	NTMX9051		1	20		AP
EXT Shelf Assembly	NTMX8604	EXT	1	20		AP03
Design. Label (NTMX8604)	P0819717		1	20		AP10
DS60 Extender CP	NTMX79AB			20	02, 13 14, 25	RUL3
Quad Carrier CP (NOTE 15)	NTMX87AA			20	04, 06 08, 19,	RUL3

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Dual DS-1 Packlet	NTMX81AA			20	21, 23 04, 06, 08, 19, 21, 23 :0-3	RUL3
Filler Packlet	NTMX83AA			20	04, 06, 08, 19, 21, 23 :0-3	RUL3
EDCH CP	NTBX02BA			20	3, 5, 7, 11, 9, 10, 12, 8, 24, 22, 20, 16, 18, 17, 15, 19	RUL3
Filler Faceplate	NT0X50AA			20	01, 03- 12, 15- 24, 26	RUL3
Filler Faceplate	NT0X50AC			20	02, 13, 14, 25	RUL3
EXT Sh. Left Filler Kit	NTZZ12WA			20	01	RUL3
EXT Sh. Right Filler Kit	NTZZ12KA			20	14	RUL3
Cooling Unit Kit, 10"	NTRX92AA	CU	1	00		AP
Cooling Unit Assy, 10"	NTRX91AA		1			AP04
MSP/Cooling Unit Pwr/Alm Cable	NTRX4025		1			AP04
MVI Power Harness	NTMX9052		1			AP
Bus Bar Assembly	NTMX9077		1			AP
FG Hardware Kit	NTRX2518		1			AP
EXT Person. Plate Assy (Primary)	NTMX9056		1	19		AP
Personality Plate	P0803377		1			AP05
Blank Personality Plate	P0715616		1	47		AP

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
CPM2 Per.Plt.Assy-JNET	NTMX9075		1	05, 33		AP
Personality Plt (Secondary)	P0803989		1			AP06
DS30 Cover Plate	P0808804			05, 33		RUL8
Screw	P0670923					RUL8
External Power Kit(Vert.)	NTMX9060					RUL5
Internal Power Kit(Horz.)	NTMX90CB					RUL5
DS30 Cable, CPM to BH	NTMX9025			05, 33		RUL4
Desig. Label (NTMX87AA)	P0739811					RUL2, 3
Desig. Label (NTBX02BA)	P0737724					RUL2, 3
Desig. Label (NT6X40AC)	P0695397					RUL2
Desig. Label (NT6X40FA)	P0729895					RUL2
Desig. Label (NT6X92BC)	P0737431					RUL2
Desig. Label (NT6X92EA)	P0835224					RUL2
Desig. Label (NTMX72AB)	P0804792					RUL2
Desig. Label (NTMX76CA)	P0850394					RUL2
Desig. Label (NT6X40AD)	P0834806					RUL2
Desig. Label (NT6X40FB)	P0834807					RUL2
C28 English Label Kit	NTRX3541					AP
Cabinet Des.Label (CMVI)	P0803267					RUL6
CMVI Door Label (Blue)	P0803997					RUL7
CMVI Door Label (Green)	P0803993					RUL7
Cosmetic Endguards/EMI	Note 1					
Cabinet Labels	Note 2					
Power and Grounding	Note 3					
Cabinet Mechanicals	Note 4					

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NTZZ03SX	MD	NTZZ03SY
NTZZ03SG	MD	NTZZ03SF
NTZZ03SZ	MD	NTZZ03SY
NTMX72AA	STD*	NTMX72AB
NT6X92BC	STD*	NT6X92EA
NTMX76BA	STD*	NTMX76CA
NTMX77AB	MD	NTAX74AA

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 NTRX73 Engineering Manual Section for provisioning cosmetic endguards and EMI sidepanels.

NOTE-The non-C28B end panel in MSL100 cabinet will not fit into the CMVI cabinet (when CMVI is in MSL100 cabinet line-up).

- 2) Refer to MS0X60AA for Cabinet Labels.
- 3) Refer to NTZX16CA Engineering Manual Section for System Power and Grounding information.
- 4) Refer to NTRX25AA Engineering Manual Section for doors, anchors, cable troughs, frame fail lights and cabinet mechanical information.
- 5) Items marked APnn are included for sparing and modeling purposes.
- 6) Items marked AP01 included with NTMX9049.

- 7) Items marked AP02 included with NTMX9050.
- 8) Items marked AP03 included with NTMX9051.
- 9) Items marked AP04 included with NTRX92AA.
- 10) Items marked AP05 included with NTMX9056.
- 11) Items marked AP06 included with NTMX9075.
- 12) Shelf positions 06,34 = XX
- 13) Reserved for future use.
- 14) Items marked AP08 included with NTZZ03SY.
- 15) The Quad Carrier CP is an empty card on which up to four Dual DS-1 Packlets may mount.
- 16) Items marked AP09 included with NTMX8504.
- 17) Items marked AP10 included with NTMX8604.
- 18) STD* in flaglist means that the rating of this pec is still standard pending change. Check availability before ordering the replacement pec.
- 19) Reserved for future use.
- 20) Items marked AP12 included with NTZZ03SF.
- 21) Reserved for future use.

RULES:

AP	1) When PEC NTMX90BA is ordered, these items are provided.
RUL1	1) Provide one Fan Power Control Module and one designation label per cabinet.
RUL2	1) The CPM2 Main Shelf Kit in position 06 and 34 is always provided.

- 2) The following CP slots are provisionable on the CPM2 Shelf. The CPs provide functionality for the shelf.

Qty	PEC	Slot location	Provisioning Note
2	NTMX72AA/AB	1-2, 26-27	Pack occupies 2 slots
2	NTAX74AA	3,25	
2	NTBX01BA	4,24	
2	NT6X78AB	5,23	see RUL2 6)
4	NT6X92BC/EA	6,7,21,22	see RUL2 7)
2	NTMX76CA	8,20	Provide for new production. See RUL2 part 8.
2	NTMX75BA	10,18	
2	NTMX73BA	11,17	
2	NT0X50AA	13,15,A/R 3-25	Use as required in slots 12,14,16,7,22, 5, and 23.
2	NT0X50AF	1,26	Use as required

- 3) Provide either DS-30 or DS-512 Network Interface equipment for each CPM2 Shelf. For DS-30 interface, provide two DS-30 Network Interface CPs in slots 9 and 19 and two designation labels. For DS-512 interface, provide two DS-512 Network Interface CPs and labels in slots 9 and 19 and two DS-512 Network Interface Paddleboard CPs in slots 9R and 19R.

For DS-30 Interface, provide the NT6X40AD CP for new production.

For DS-512 Interface, provide the NT6X40FB CP for new production.

- 4) The three CPM2 Shelf P-Side slots (12,14,16) can be used for either three DS-1 slots or one DS-1 slot and two EDCH slots.

| NOTE - Currently the maximum number of EDCH CPs supported per SMA2 module is 10 (as of NA008).

If an EXT Shelf is required at initial installation, it is recommended that slots 14 and 16 on the CPM2 Shelf go unused until all other slots on the EXT Shelf have been utilized by either DS-1 Quad Carrier or EDCH CPs. See RUL3 for DS-1 Quad Carrier CP and EDCH CP provisioning on the EXT Shelf.

The three CPM2 Shelf P-Side slots can be datafilled and provisioned in any order, however, for consistency in provisioning, it is recommended to assign DS-1 ports from 0 to 23 (slots 12,16,14 starting from the top packlet 0 and working downward to packlet 3) and the EDCH CPs assign at slot 14 then 16. Slot 12 is NOT available for EDCH CPs.

The following chart shows DS-1 port assignments in more detail for the CPM2 Shelf.

Port	Slot	Packlet
0-1	12	0
2-3	12	1
4-5	12	2
6-7	12	3
8-9	16	0
10-11	16	1
12-13	16	2
14-15	16	3
16-17	14	0
18-19	14	1
20-21	14	2
22-23	14	3

The following chart shows EDCH port assignments in more detail for the CPM2 Shelf.

Port	Slot
17	14
9	16

- 5) Provide a Filler Faceplate for any slot not provisioned with a CP. Provide a Filler Packlet for any slot not provisioned with a CP in a Quad Carrier. Provide Designation Labels for provisionable CPs if listed, and if labels are not part of a provided building block.

Provide 1 CPM2 Filler Faceplate Kit for shelf 34 if that shelf has no CPs provided.

- 6) Provision two CLASS Modem Resource CP NT6X78AB or one NTZZ12UA per shelf if CLASS Calling Number/ Name Display features are required. If these features are not required, the CMR CP is not needed.
- 7) The CPM2 Shelf 'Unit 00' consists of slots 1-11 and 'Unit 01' consists of slots 17-27. Even though marketing models show only one UTR/GTR CP required PER UNIT, it is recommended that UTR/GTR provisioning be performed using standard methods of calculating the traffic required and deriving the quantity of UTR/GTR CPs from this figure. If only one UTR/GTR is provisioned per unit, assign to slot 6 on Unit 00 and slot 22 on Unit 01.

NOTE-Provide NT6X92EA GTR for all applications when available. This CP replaces the NT6X92BC UTR. Check availability before ordering. DO NOT mix different NT6X92 CPs within a shelf. The building block NTZZ12VC may be ordered to provide two NT6X92EA GTR CPs and labels.

- 8) Provision the NTMX76CA for all new production. The NTMX76BA is no longer available for the ESMA.

RUL3 1) The EXT Shelf Kit in position 20 is always provided.

NOTE - Currently the maximum number of EDCH CPs supported per SMA2 module is 10 (as of NA008).

- 2) The following CP slots are provisionable on the EXT Shelf. The CPs are always required to provide functionality for the shelf.

Qty	PEC	Slot location	
2	NTMX79AB	2,13	1st SMA2 Module
2	NTMX79AB	14,25	2nd SMA2 Module

- 3) One EXT Shelf expands the capacity of two CPM2 Shelves. Each half of the EXT Shelf is dedicated to a CPM2 Shelf. Each half of the EXT Shelf can mount three Quad Carriers, with four Dual DS-1 Packlets per carrier, or eight EDCH CPs.

The DS-1 P-Side slots (4,6,8) in the EXT Shelf (left side) should be provisioned in the following order: 4,6. DO NOT use slot 8 for DS-1 ports unless there is an initial requirement for 48 DS-1 ports.

The following chart shows DS-1 port assignments in more detail for the EXT Shelf, left side.

Port	Slot	Packlet
24-25	04	0
26-27	04	1
28-29	04	2
30-31	04	3
32-33	06	0
34-35	06	1
36-37	06	2
38-39	06	3
40-41	08	0
42-43	08	1
44-45	08	2
46-47	08	3

The DS-1 P-Side slots (23,21,19) in the EXT Shelf (right side) should be provisioned in the following order: 23,21. DO NOT use slot 19 for DS-1 ports unless there is an initial requirement for 48 DS-1 ports.

The following chart shows DS-1 port assignments in more detail for the EXT Shelf, right side.

Port	Slot	Packlet
24-25	23	0
26-27	23	1
28-29	23	2
30-31	23	3
32-33	21	0
34-35	21	1
36-37	21	2
38-39	21	3
40-41	19	0
42-43	19	1
44-45	19	2
46-47	19	3

The EDCH CP slots should be provisioned in the following order: 3,5,7,11,9,10,12,8 (left side). DO NOT use slots 4 or 6 for EDCH CPs.

NOTE - Currently the maximum number of EDCH CPs supported per SMA2 module is 10 (as of NA008).

The following chart shows EDCH port assignments in more detail for the EXT Shelf, left side. Ports shown in () are for the 48 DS-1 port and 4 EDCH CP configuration (See ECM576).

Port	Slot
40(48)	3
41(49)	5
42(51)	7
46(50)	11
44	9
45	10
47	12
43	8

The EDCH CP slots should be provisioned in the following order: 24,22,20,16,18,17,15,19 (right side). DO NOT use slots 21 or 23 for EDCH CPs.

NOTE - Currently the maximum number of EDCH CPs supported per SMA2 module is 10 (as of NA008).

The following chart shows EDCH port assignments in more detail for the EXT Shelf, right side. Ports shown in () are for the 48 DS-1 port and 4 EDCH CP configuration (See ECM576).

Port	Slot
40(48)	24
41(49)	22
42(51)	20
46(50)	16
44	18
45	17
47	15
43	19

- 4) Provide a Filler Faceplate for any slot not provisioned with a CP. Provide a Filler Packlet for any slot not provisioned with a CP in a Quad Carrier. Provide Designation Labels for provisionable CPs if listed.

If an entire half or an entire EXT Shelf requires filler faceplates, provide the Building Block version of the filler faceplates for the left half, the right half, or both.

- RUL4 1) Provide one DS30 Cable per CPM2 Shelf equipped with DS-30 Network Interface CPs.

- RUL5 1) Provide one External or Internal Power Kit per customer requirements. Examples of office type and kit usage follows;

Model B Initial - use External (std) or use Internal
 Model B Extension - use External
 Model A Extension - use Internal

The exact type of office MUST be known to provision the power kit correctly.

- RUL6 1) Provide one Cabinet Designation Label per job for each 44 cabinets.

- RUL7 1) Provide one Blue Door Label per each Grey cabinet, or provide one Green Door Label per each Brown cabinet.

- RUL8 1) Provide two DS30 Cover Plates and eight Screws per Cabinet when ENET interface is used.
- RUL9 1) Provide one SMA2 Common CP Packfill to provide functionality to each CPM2 Shelf. Refer to the Engineering Manual Section for each building block for availability.
- 2) Provide the BB NTZZ03SY for all new production, when available (check RTS in CADES for availability). Until NTZZ03SY is available, provide BB NTZZ03SF.

MULTI-VENDOR INTERFACE EQUIPMENT FRAME

PEC CODE: NTQX90AA

CPC CODE: B0241881

RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: MVIE

ENGINEERING DESCRIPTION: The DMS-100 based Multi-Vendor Interface Equipment Frame is Nortel's product solution to the Bellcore TR-303 requirement for remote multi-vendor interface to a DMS SuperNode host.

REFERENCE DOCUMENTATION: ISQX90AA 00 06
MSQX90AA 00 05
SLQX90AA 00 07

MARKETS: Applicable markets:

US
Canada
CALA

ISSUE AUTHOR: Barbara Berkley Dept. 3471 (PPK)

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NTQX90AA EMA2-24-MVI-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 05 19	ECM 576 01	NTQX90AA Introduction per EC#024-93454.
95 06 22	ECM 576 02	Update per latest Product Spec.
95 07 20	ECM 576 03	Update EDCH info. per PLM
95 08 30	ECM 576 04	Update per PLM. Add NTZZ03SX BB for common cps on CPM2 shelf.
95 11 07	ECM 576 05	Update per EC#024-95005. Introduce new MSP kit.
96 01 15	ECM 576 06	Update per EC#028-15468 and 024-95530.
96 03 29	ECM 576 07	Update per EC#024-96835 to change NTMX72AA to NTMX72AB. Introduce the NT6X92EA GTR to MVIE. (EC# TBD)
96 08 02	ECM 576 08	Update per EC#024-96835 to introduce NTMX76CA, NTMX72AB, NT6X40AD/FB to ESMA. Clean-up EMS by removing qty. from rule provided items. (no chg. bars)
96 08 19	ECM 576 09	Introduce the NTZZ03SZ BB and rules. Clarify notes concerning NTMX76CA usage per EC#024-96835, MSQX90AA, and Product/Process Spec.
96 10 04	ECM 576 11	Introduce the NTZZ03SF and NTZZ03SG building blocks. Add in NTZZ12UA building block that can be used to provide CMR cps. Add in NTZZ12VC building block that can be used to provide GTR cps.
97 05 23	ECM 576 12	MD NTZZ03SG and NTZZ03SZ BBs (NTMX76BA no longer used in ESMA).
97 10 07	ECM 576 13	MD NTMX77AB per EC 018-51491.

The Multi-Vendor Interface Equipment Frame is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Common Framework	NT0X25AH		1			AP
Filler Panel	P0558295		1	75		AP
MVI MSP Kit	NTMX9080		1	71		AP
Modular Supervisory Panel	NTRX40AA		1	71		AP01
Alarm Module	NTRX41AA		1	71	5	AP01
Breaker Module (10A)	NTRX42AA		4	71	9-12	AP01
Fuse Module	NTRX43AA		1	71	7	AP01
FPC (-48V CU Power/Alarm)	NTRX54BA			71	19	RUL1
Design. Label (NTRX54BA)	P0741680			71	19	RUL1
MSP Breaker Design. Label	P0806591		1	71		AP01
MSP Fuse Design. Label	P0741924		1	71		AP01
Full Shelf Filler	NT0X84AA		1	57		AP
CPM Main Shelf Kit	NTMX9050		2	XX		AP
CPM Shelf Assembly	NTMX8504	CPM2	1	XX		AP02
Design. Label (NTMX8504)	P0819715		1	XX		AP07
# SMA2 Common CP Packfill	NTZZ03SX			XX		RUL5
SMA2 Common CP Packfill	NTZZ03SY			XX		RUL5
# SMA2 Common CP Packfill	NTZZ03SZ			XX		RUL5
SMA2 Common CP Packfill	NTZZ03SF			XX		RUL5
# SMA2 Common CP Packfill	NTZZ03SG			XX		RUL5
# Power Converter	NTMX72AA		2	XX	01, 26	AP10
Power Converter	NTMX72AB		2	XX	01, 26	AP06
# Unified Processor	NTMX77AB		2	XX	03, 25	N/A
Enhanced Processor	NTAX74AA		2	XX	03, 25	AP06, AP10,
EISP	NTBX01BA		2	XX	04, 24	AP06, AP10,
CLASS Modem Resource	NT6X78AB			XX	05, 23	RUL2
CLASS Modem Resource BB	NTZZ12UA			XX	05	RUL2
# Universal Tone Receiver	NT6X92BC			XX	06, 22,	RUL2

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Global Tone Receiver	NT6X92EA			XX	07, 21 06, 22, 07, 21	RUL2
Global Tone Receiver BB	NTZZ12VC			XX	06, 07	RUL2
# MSG and CSM CP	NTMX76BA		2	XX	08, 20	N/A
MSG and CSM CP	NTMX76CA		2	XX	08, 20	AP06, AP10
Enhanced Matrix CP	NTMX75BA		2	XX	10, 18	AP06, AP10,
Signaling Processor	NTMX73BA		2	XX	11, 17	AP06, AP10
Quad Carrier CP (NOTE 10)	NTMX87AA			XX	12, 14, 16	RUL2
Dual DS-1 Packlet	NTMX81AA			XX	12, 14, 16:0-3	RUL2
Filler Packlet	NTMX83AA			XX	12, 14, 16:0-3	RUL2
EDCH CP	NTBX02BA			XX	14, 16	RUL2
DS-30 Network Interface	NT6X40AC			XX	09, 19	RUL2
DS-30 Network Interface	NT6X40AD			XX	09, 19	RUL2
DS-512 Network Interface	NT6X40FA			XX	09, 19	RUL2
DS-512 Network Interface	NT6X40FB			XX	09, 19	RUL2
DS-512 Network I/F Pdlbd	NT6X40GA			XX	09, 19 (Rear)	RUL2
Filler Faceplate	NT0X50AA		2	XX	13, 15	AP06, AP10
Filler Faceplate	NT0X50AA			XX	03-12, 14, 16- 25	RUL2
Filler Faceplate	NT0X50AF			XX	01, 26	RUL2
CPM2 Filler Faceplate Kit	NTZZ12KJ			44	01	RUL2
EXT Shelf Kit	NTMX9051		1	30		AP
EXT Shelf Assembly	NTMX8604	EXT	1	30		AP03
Design. Label (NTMX8604)	P0819717		1	30		AP08
DS60 Extender CP	NTMX79AB			30	02, 13 14, 25	RUL3
Quad Carrier CP (NOTE 10)	NTMX87AA			30	04, 06, 08, 19,	RUL3

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Dual DS-1 Packlet	NTMX81AA			30	21, 23 04, 06, 08, 19, 21, 23 :0-3	RUL3
Filler Packlet	NTMX83AA			30	04, 06, 08, 19, 21, 23 :0-3	RUL3
EDCH CP	NTBX02BA			30	3, 5, 7, 11, 9, 10, 12, 8, 24, 22, 20 16, 18, 17, 15, 19	RUL3
Filler Faceplate	NT0X50AA			30	01, 03- 12, 15- 24, 26	RUL3
Filler Faceplate	NT0X50AC			30	02, 13, 14, 25	RUL3
EXT Sh. Left Filler Kit	NTZZ12WA			30	01	RUL3
EXT Sh. Right Filler Kit	NTZZ12KA			30	14	RUL3
Cooling Unit Kit, 10"	NTRX92AA	CU	1	10		AP
Cooling Unit Assy, 10"	NTRX91AA		1			AP04
MSP/Cooling Unit Pwr/Alm Cable	NTRX4025		1			AP04
Four Sided Filler Pnl, 10"	P0808805		1	04		AP
MVI Power Harness	NTMX9052		1			AP
Bus Bar Assembly	NTMX9077		1			AP
Desig. Label (NTMX87AA)	P0739811					RUL2, 3
Desig. Label (NTBX02BA)	P0737724					RUL2, 3
Desig. Label (NT6X40AC)	P0695397					RUL2
Desig. Label (NT6X40FA)	P0729895					RUL2
Desig. Label (NT6X92BC)	P0737431					RUL2

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Desig. Label (NT6X92EA)	P0835224					RUL2
Desig. Label (NTMX72AB)	P0804792					RUL2
Desig. Label (NTMX76CA)	P0850394					RUL2
Desig. Label (NT6X40AD)	P0834806					RUL2
Desig. Label (NT6X40FB)	P0834807					RUL2
Frame Des.Label (MVIE)	P0803990					RUL4
Frame Labels	Note 1					

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NTZZ03SX	MD	NTZZ03SY
NTZZ03SG	MD	NTZZ03SF
NTZZ03SZ	MD	NTZZ03SY
NTMX72AA	STD*	NTMX72AB
NT6X92BC	STD*	NT6X92EA
NTMX76BA	STD*	NTMX76CA
NTMX77AB	MD	NTAX74AA

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 MS0X60AA for Frame Labels.
- 2) Items marked APnn are included for sparing and modeling purposes.

- 3) Items marked AP01 included with NTMX9080.
- 4) Items marked AP02 included with NTMX9050.
- 5) Items marked AP03 included with NTMX9051.
- 6) Items marked AP04 included with NTRX92AA.
- 7) Shelf positions 16,44 = XX.
- 8) Reserved for future use.
- 9) Items marked AP06 included with NTZZ03SY.
- 10) The Quad Carrier CP is an empty card on which up to four Dual DS-1 Packlets may mount.
- 11) Items marked AP07 included with NTMX8504.
- 12) Items marked AP08 included with NTMX8604.
- 13) STD* in flaglist means that the rating of this pec is still standard pending change. Check availability before ordering the replacement pec.
- 14) Reserved for future use.
- 15) Items marked AP10 included with NTZZ03SF.
- 16) Reserved for future use.

RULES:

AP	1) When PEC NTQX90AA is ordered, these items are provided.
RUL1	1) Provide one Fan Power Control Module and one designation label per frame.
RUL2	1) The CPM2 Main Shelf Kit in position 16 and 44 is always provided.

- 2) The following CP slots are provisionable on the CPM2 Shelf. The CPs provide functionality for the shelf.

Qty	PEC	Slot location	Provisioning Note
2	NTMX72AA/AB	1-2, 26-27	Pack occupies 2 slots
2	NTAX74AA	3,25	
2	NTBX01BA	4,24	
2	NT6X78AB	5,23	see RUL2 6)
4	NT6X92BC/EA	6,7,21,22	see RUL2 7)
2	NTMX76CA	8,20	Provide for new production. See RUL2 part 8.
2	NTMX75BA	10,18	
2	NTMX73BA	11,17	
2	NT0X50AA	13,15,A/R 3-25	Use as required in slots 12,14,16,7,22, 5, and 23.
2	NT0X50AF	1,26	Use as required

- 3) Provide either DS-30 or DS-512 Network Interface equipment for each CPM2 Shelf. For DS-30 interface, provide two DS-30 Network Interface CPs in slots 9 and 19 and two designation labels. For DS-512 interface, provide two DS-512 Network Interface CPs and labels in slots 9 and 19 and two DS-512 Network Interface Paddleboard CPs in slots 9R and 19R.

For DS-30 Interface, provide the NT6X40AD CP for new production.

For DS-512 Interface, provide the NT6X40FB CP for new production.

- 4) The three CPM2 Shelf P-Side slots (12,14,16) can be used for either three DS-1 slots or one DS-1 slot and two EDCH slots.

| NOTE - Currently the maximum number of EDCH CPs supported per SMA2 module is 10 (as of NA008).

If an EXT Shelf is required at initial installation, it is recommended that slots 14 and 16 on the CPM2 Shelf go unused until all other slots on the EXT Shelf have been utilized by either DS-1 Quad Carrier or EDCH CPs. See RUL3 for DS-1 Quad Carrier CP and EDCH CP provisioning on the EXT Shelf.

The three CPM2 Shelf P-Side slots can be datafilled and provisioned in any order, however, for consistency in provisioning, it is recommended to assign DS-1 ports from 0 to 23 (slots 12,16,14 starting from the top packlet 0 and working downward to packlet 3) and the EDCH CPs assign at slot 14 then 16. Slot 12 is NOT available for EDCH CPs.

The following chart shows DS-1 port assignments in more detail for the CPM2 Shelf.

Port	Slot	Packlet
0-1	12	0
2-3	12	1
4-5	12	2
6-7	12	3
8-9	16	0
10-11	16	1
12-13	16	2
14-15	16	3
16-17	14	0
18-19	14	1
20-21	14	2
22-23	14	3

The following chart shows EDCH port assignments in more detail for the CPM2 Shelf.

Port	Slot
17	14
9	16

- 5) Provide a Filler Faceplate for any slot not provisioned with a CP. Provide a Filler Packlet for any slot not provisioned with a CP in a Quad Carrier. Provide Designation Labels for provisionable CPs if listed, and if labels are not part of a provided building block.

Provide 1 CPM2 Filler Faceplate Kit for shelf 44 if that shelf has no CPs provided.

- 6) Provision two CLASS Modem Resource CP NT6X78AB or one NTZZ12UA per shelf if CLASS Calling Number/ Name Display features are required. If these features are not required, the CMR CP is not needed.
- 7) The CPM2 Shelf 'Unit 00' consists of slots 1-11 and 'Unit 01' consists of slots 17-27. Even though marketing models show only one UTR/GTR CP required PER UNIT, it is recommended that UTR/GTR provisioning be performed using standard methods of calculating the traffic required and deriving the quantity of UTR/GTR CPs from this figure. If only one UTR/GTR is provisioned per unit, assign to slot 6 on Unit 00 and slot 22 on Unit 01.

NOTE-Provide NT6X92EA GTR for all applications when available. This CP replaces the NT6X92BC UTR. Check availability before ordering. DO NOT mix different NT6X92 CPs within a shelf. The building block NTZZ12VC may be ordered to provide two NT6X92EA GTR CPs and labels.

- 8) Provision the NTMX76CA only for all new production.

RUL3 1) The EXT Shelf Kit in position 30 is always provided.

NOTE - Currently the maximum number of EDCH CPs supported per SMA2 module is 10 (as of NA008).

- 2) The following CP slots are provisionable on the EXT Shelf. The CPs are always required to provide functionality for the shelf.

Qty	PEC	Slot location	
2	NTMX79AB	2,13	1st SMA2 Module
2	NTMX79AB	14,25	2nd SMA2 Module

- 3) One EXT Shelf expands the capacity of two CPM2 Shelves. Each half of the EXT Shelf is dedicated to a CPM2 Shelf. Each half of the EXT Shelf can mount three Quad Carriers, with four Dual DS-1 Packlets per carrier, or eight EDCH CPs.

The DS-1 P-Side slots (4,6,8) in the EXT Shelf (left side) should be provisioned in the following order: 4,6. DO NOT use slot 8 for DS-1 ports unless there is an initial requirement for 48 DS-1 ports.

The following chart shows DS-1 port assignments in more detail for the EXT Shelf, left side.

Port	Slot	Packlet
24-25	04	0
26-27	04	1
28-29	04	2
30-31	04	3
32-33	06	0
34-35	06	1
36-37	06	2
38-39	06	3
40-41	08	0
42-43	08	1
44-45	08	2
46-47	08	3

The DS-1 P-Side slots (23,21,19) in the EXT Shelf (right side) should be provisioned in the following order: 23,21. DO NOT use slot 19 for DS-1 ports unless there is an initial requirement for 48 DS-1 ports.

The following chart shows DS-1 port assignments in more detail for the EXT Shelf, right side.

Port	Slot	Packlet
24-25	23	0
26-27	23	1
28-29	23	2
30-31	23	3
32-33	21	0
34-35	21	1
36-37	21	2
38-39	21	3
40-41	19	0
42-43	19	1
44-45	19	2
46-47	19	3

The EDCH CP slots should be provisioned in the following order: 3,5,7,11,9,10,12,8 (left side). DO NOT use slots 4 or 6 for EDCH CPs.

NOTE - Currently the maximum number of EDCH CPs supported per SMA2 module is 10 (as of NA008).

The following chart shows EDCH port assignments in more detail for the EXT Shelf, left side. Ports shown in () are for the 48 DS-1 port and 4 EDCH CP configuration (See ECM576).

Port	Slot
40(48)	3
41(49)	5
42(51)	7
46(50)	11
44	9
45	10
47	12
43	8

The EDCH CP slots should be provisioned in the following order: 24,22,20,16,18,17,15,19 (right side). DO NOT use slots 21 or 23 for EDCH CPs.

NOTE - Currently the maximum number of EDCH CPs supported per SMA2 module is 10 (as of NA008).

The following chart shows EDCH port assignments in more detail for the EXT Shelf, right side. Ports shown in () are for the 48 DS-1 port and 4 EDCH CP configuration (See ECM576).

Port	Slot
40(48)	24
41(49)	22
42(51)	20
46(50)	16
44	18
45	17
47	15
43	19

- 4) Provide a Filler Faceplate for any slot not provisioned with a CP. Provide a Filler Packlet for any slot not provisioned with a CP in a Quad Carrier. Provide Designation Labels for provisionable CPs if listed.

If an entire half or an entire EXT Shelf requires filler faceplates, provide the Building Block version of the filler faceplates for the left half, the right half, or both.

RUL4 1) Provide one Frame Designation Label per job for each 44 frames.

RUL5 1) Provide one SMA2 Common CP Packfill to provide functionality to each CPM2 Shelf. Refer to the Engineering Manual Section for each building block for availability.

- 2) Provide the BB NTZZ03SY for all new production, when available (check RTS in CADES for availability). Until NTZZ03SY is available, provide BB NTZZ03SF.

REMOTE SWITCHING CENTER EQUIPMENT (RSCE)

PEC CODE: NTMX89GA

CPC CODE: B0243159

RATING: Standard

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: RSCE

ENGINEERING DESCRIPTION: The DMS-100 based Remote Switching Center Equipment frame is an equipment packaging product to expedite the upgrade of an existing RSC office to RSC-S capabilities. The RSCE frame will be used to replace the RCC shelves in the existing RCE frame. The existing RMM(s) will be rehomed to the RCC2 shelf in the RSCE. A single RSCE frame can be equipped to support a dual RSC-S with full extension (i.e. an EXT shelf provided for both RCC2 shelves). The RSCE frame is to be used for upgrade of existing RSC offices and is not currently available for new orders.

REFERENCE DOCUMENTATION: ISMX89GA 00 06
MSMX89GA 00 06

MARKETS: Applicable markets:

US
Canada
CALA

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

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

NTMX89GA EMA2-24-RC2-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 09 01	ECM 586 01	Initial release NTMX89GA RSCE Eng. Manual Section. Changes from API39902: Added RSCE Frame Design. Label P0816853.
95 11 01	ECM 586 02	ET30219 - Correct mounting positions. EC 024-95229 - Modify rules for NT6X69AC/AD provisioning. Remove quantities from prov. items. Other minor changes.
96 03 29	ECM 586 03	EC 024-94829 - A&M NT6X69AC. Introduce NTZZ12VC (NT6X92EA) GTR for NTMX89GA.
96 05 15	ECM 586 04	EC 024-96320 - Introduce new cables: NTMX9081, NTMX9082, and NT0X0010.
97 03 14	ECM 586 06	EC 024-97290 - Introduce the NTMX76AB as a provisionable pack.
97 05 02	ECM 586 07	Per EC#024-97754 show NTZZ12XF as provisionable for XPM08 software releases.
97 10 10	ECM 691 22	Per EC 024-98265 Clarify NTB01 notes when used with NTAX74AA. Clarify the NTAX74AA Provisioning notes.

The REMOTE SWITCHING CENTER EQUIPMENT (RSCE) is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Common Framework	NT0X25AH		1			AP
Filler Panel	P0558295		1	75		AP
MVI MSP Kit	NTMX9080		1	71		AP
Modular Supervisory Panel	NTRX40AA		1	71		AP01
Alarm Module	NTRX41AA		1	71	5	AP01
Breaker Module (10A)	NTRX42AA		4	71	9-12	AP01
Fuse Module	NTRX43AA		1	71	7	AP01
FPC (-48V CU Power/Alarm)	NTRX54BA			71	19	RUL1
Design. Label (NTRX54BA)	P0741680			71	19	RUL1
RSCE Frame Design. Label	P0816853			71		RUL1
MSP Breaker Design. Label	P0806591		1	71		AP01
MSP Fuse Design. Label	P0741924		1	71		AP01
Full Shelf Filler	NT0X84AA		1	57		AP
CPM Main Shelf Kit	NTMX9050		2	16		AP
CPM Shelf Assembly	NTMX8504	CPM2	1	16		AP02
Design. Label (NTMX8504)	P0804791		1	16		AP02
Fiber Bracket Assy.	NT6X0114		2	16		AP02
RCC2 Packfill (w/o EISP)	NTZZ12XB			16		RUL8
RCC2 Packfill	NTZZ12XF			16		RUL8
Enhanced ISP	NTBX01BA			16	4, 24	RUL8
Design label (NTBX01BA)	P0713794			16	4, 24	RUL8
Filler faceplate	NT0X50AA			16	4, 24	RUL8
# Enhanced Messaging CP	NT6X69AC			16	8, 20	RUL8
Design label (NT6X69AC)	P0710476			16	8, 20	RUL8
Enhanced Messaging CP (ADSI)	NT6X69AD			16	8, 20	RUL8
Design label (NT6X69AD)	P0800014			16	8, 20	RUL8
Extended Distance Messaging	NTMX76AA			16	8, 20	RUL8
Design label (NTMX76AA)	P0744109			16	8, 20	RUL8
Extended Distance Messaging	NTMX76AB			16	8, 20	RUL8
Design label (NTMX76AB)	P0857783			16	8, 20	RUL8
Class Modem Resource BB	NTZZ12UA			16	5, 23	RUL5
Peripheral Loader BB	NTZZ02UB			16	5, 23	RUL5
Filler Plate	NT0X50AA			16	5, 23	RUL5
# Universal Tone Rec'vr (UTR)	NTZZ12VB			16	6, 22	RUL6
# Universal Tone Rec'vr (UTR)	NTZZ12VB			16	7, 21	RUL6
Global Tone Rec'vr (GTR)	NTZZ12VC			16	6, 22	RUL6
Global Tone Rec'vr (GTR)	NTZZ12VC			16	7, 21	RUL6
Peripheral Loader BB	NTZZ02UB			16	7, 21	RUL6

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Plate	NT0X50AA			16	7, 21	RUL6
Quad Carrier	NTMX87AA			16	9, 19	RUL4
Dual DS1 Packlet	NTMX81AA			16	9:0-3 19:0-3	RUL4
Filler Face Plate	NTMX83AA			16	9:1-3 19:1-3	RUL4
Enhanced D-Channel Handler	NTZZ17BB			16	12, 14, 16	RUL7
Quad Frame Carrier	NTMX87AA			16	12	RUL7
Dual DS1 Packlet	NTMX81AA			16	12:0-3	RUL7
Filler Face Plate	NTMX83AA			16	12:0-3	RUL7
Quad Frame Carrier	NTMX87AA			16	14	RUL7
Dual DS1 Packlet	NTMX81AA			16	14:0-2	RUL7
Filler Face Plate	NTMX83AA			16	14:0-3	RUL7
Quad Frame Carrier	NTMX87AA			16	16	RUL7
Dual DS1 Packlet	NTMX81AA			16	16:0-3	RUL7
Filler Face Plate	NTMX83AA			16	16:0-3	RUL7
Filler Face Plate	NT0X50AA			16	12, 14, 16	RUL7
Full Shelf Filler	NT0X84AA			29		RUL3
EXT Shelf Kit	NTMX9051			30		RUL3
EXT Shelf Assembly	NTMX8604	EXT	1	30		AP04
Design. Label (NTMX8601)	P0749755		1	30		AP04
# DS60 Cable	NTMX9071			30		RUL3
DS60 Cable	NTMX9082			30		RUL3
# DS60 Cable	NTMX9078			30		RUL3
DS60 Cable	NTMX9081			30		RUL3
Filler Faceplate	NT0X50AA			30	1	RUL3
DS60 Extender CP	NTMX79AA			30	2, 13	RUL3
DS60 Extender CP	NTMX79AA			30	14, 25	RUL3
EXT Filler Kit (Left)	NTZZ12WA			30	1	RUL3
EXT Filler Kit (Right)	NTZZ12KA			30	14	RUL3
Enhanced D-Channel Handler	NTZZ17BB			30	3	RUL7
Enhanced D-Channel Handler	NTZZ17BB			30	4	RUL7
Quad Frame Carrier	NTMX87AA			30	4	RUL7
Dual DS1 Packlet	NTMX81AA			30	4:0-3	RUL7
Filler Face Plate	NTMX83AA			30	4:0-3	RUL7
Enhanced D-Channel Handler	NTZZ17BB			30	5-12	RUL7
Quad Frame Carrier	NTMX87AA			30	6	RUL7
Dual DS1 Packlet	NTMX81AA			30	6:0-3	RUL7
Filler Face Plate	NTMX83AA			30	6:0-3	RUL7

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Quad Frame Carrier	NTMX87AA			30	8	RUL7
Dual DS1 Packlet	NTMX81AA			30	8:0-3	RUL7
Filler Face Plate	NTMX83AA			30	8:0-3	RUL7
Enhanced D-Channel Handler	NTZZ17BB			30	15-19	RUL7
Quad Frame Carrier	NTMX87AA			30	19	RUL7
Dual DS1 Packlet	NTMX81AA			30	19:0-3	RUL7
Filler Face Plate	NTMX83AA			30	19:0-3	RUL7
Enhanced D-Channel Handler	NTZZ17BB			30	20-21	RUL7
Quad Frame Carrier	NTMX87AA			30	21	RUL7
Dual DS1 Packlet	NTMX81AA			30	21:0-3	RUL7
Filler Face Plate	NTMX83AA			30	21:0-3	RUL7
Enhanced D-Channel Handler	NTZZ17BB			30	22-23	RUL7
Quad Frame Carrier	NTMX87AA			30	23	RUL7
Dual DS1 Packlet	NTMX81AA			30	23:0-3	RUL7
Filler Face Plate	NTMX83AA			30	23:0-3	RUL7
Enhanced D-Channel Handler	NTZZ17BB			30	24	RUL7
Filler Plate	NT0X50AA			30	24	RUL7
Filler Panel	NT0X84AA			43		RUL2
CPM Main Shelf Kit	NTMX9050			44		RUL2
CPM Shelf Assembly	NTMX8504	CPM2	1	44		AP02
Design Label (NTMX8504)	P0804791		1	44		AP02
Fiber Bracket Assy.	NT6X0114		2	44		AP02
RCC2 Packfill (w/o EISP)	NTZZ12XB			44		RUL8
RCC2 Packfill	NTZZ12XF			44		RUL8
Enhanced ISP	NTBX01BA			44	4, 24	RUL8
Design label (NTBX01BA)	P0713794			44	4, 24	RUL8
Filler faceplate	NT0X50AA			44	4, 24	RUL8
# Enhanced Messaging CP	NT6X69AC			44	8, 20	RUL8
Design label (NT6X69AC)	P0710476			44	8, 20	RUL8
Enhanced Messaging CP (ADSI)	NT6X69AD			44	8, 20	RUL8
Design label (NT6X69AD)	P0800014			44	8, 20	RUL8
Extended Distance Messaging	NTMX76AA			44	8, 20	RUL8
Design label (NTMX76AA)	P0744109			44	8, 20	RUL8
Extended Distance Messaging	NTMX76AB			44	8, 20	RUL8
Design label (NTMX76AB)	P0857783			44	8, 20	RUL8
Class Modem Resource BB	NTZZ12UA			44	5, 23	RUL5
Peripheral Loader BB	NTZZ02UB			44	5, 23	RUL5
Filler Plate	NT0X50AA			44	5, 23	RUL5
# Universal Tone Rec'vr (UTR)	NTZZ12VB			44	6, 22	RUL6
# Universal Tone Rec'vr (UTR)	NTZZ12VB			44	7, 21	RUL6
Global Tone Rec'vr (GTR)	NTZZ12VC			44	6, 22	RUL6
Global Tone Rec'vr (GTR)	NTZZ12VC			44	7, 21	RUL6

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Peripheral Loader BB	NTZZ02UB			44	7, 21	RUL6
Filler Plate	NT0X50AA			44	7, 21	RUL6
Quad Carrier	NTMX87AA			44	9, 19	RUL4
Dual DS1 Packlet	NTMX81AA			44	9:0-3	RUL4
					19:0-3	
Filler Face Plate	NTMX83AA			44	9:1-3	RUL4
					19:1-3	
Enhanced D-Channel Handler	NTZZ17BB			44	12, 14,	RUL7
					16	
Quad Frame Carrier	NTMX87AA			44	12	RUL7
Dual DS1 Packlet	NTMX81AA			44	12:0-3	RUL7
Filler Face Plate	NTMX83AA			44	12:0-3	RUL7
Quad Frame Carrier	NTMX87AA			44	14	RUL7
Dual DS1 Packlet	NTMX81AA			44	14:0-2	RUL7
Filler Face Plate	NTMX83AA			44	14:0-3	RUL7
Quad Frame Carrier	NTMX87AA			44	16	RUL7
Dual DS1 Packlet	NTMX81AA			44	16:0-3	RUL7
Filler Face Plate	NTMX83AA			44	16:0-3	RUL7
Filler Face Plate	NT0X50AA			44	12, 14,	RUL7
					16	
Cooling Unit Kit, 10"	NTRX92AA	CU	1	10		AP
Cooling Unit Assy, 10"	NTRX91AA		1			AP03
MSP/Cooling Unit Pwr/Alm Cable	NTRX4025		1			AP03
Four Sided Filler Pnl, 10"	P0808805		1	04		AP
Power Harness	NTMX9052		1			AP
Bus Bar Assembly	NTMX9077		1			AP
Cable Braid Assy. 7"	NT0X9501		3			AP
Logic Return Cable Assy.	NT0X0010					RUL9
Frame Labels	Note 1					

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
NT6X69AC NTMX9071 NTMX9078 NTZZ12VB	A&M A&M A&M STD*	NT6X69AD NTMX9082 NTMX9081 NTZZ12VC

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 MS0X60AA for Frame Labels.
- 2) Items marked APnn are included for sparing and modeling purposes.
- 3) Items marked AP01 included with NTMX9080.
- 4) Items marked AP02 included with NTMX9050.
- 5) Items marked AP03 included with NTRX92AA.
- 6) Items marked AP04 included with NTMX9051.
- 7) STD* in flaglist means that the rating of this pec is still standard pending change. Check availability before ordering replacement pec.

RULES:

- AP 1) When PEC NTMX89GA is ordered, these items are provided.
- RUL1 1) Provide one Fan Power Control Module, one NTRX54BA Designation Label, and one RSCE Frame Design. Label per frame.

- RUL2 1) The CPM2 Main Shelf Kit in position 16 is Always Provided. Refer to Rule 4 for provisionable C-side interface equipment and Rules 5-8 for provisionable P-side interface equipment. A second CPM2 Main Shelf Kit is provisionable in position 44 for Dual RCC2 applications. The CPM2 shelf in position 44 should also be equipped per Rules 4-8. When the shelf in position 44 is not required, provide one NT0X84AA Shelf Filler.
- RUL3 1) The EXT Shelf Kit in position 30 is provisionable when needed to support one or two RCC2 shelves. Provide two NTMX79AA, one NTMX9081 cable and one NT0X50AA (slot 1) to equip the Extension shelf to support one RCC2. These circuit packs are 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 RCC2. Provide four NTMX79AA packs, one NTMX9082 cable, one NTMX9081 cable and two NT0X50AAs (slots 1 and 26) when required to extend the capabilities of two RCC2s. Slots 2 and 13 support extension of the first RCC2. Slots 14 and 25 extend the second RCC2. The NTMX9081 DS60 cable is needed when the RCC2 shelf in position 16 is to be extended by the EXT shelf. The NTMX9082 DS60 cable is needed when the RCC2 shelf in position 44 is to be extended by the EXT shelf.
- 2) Provide one NTZZ12WA to provide Filler Face Plates for the left side of the Extension shelf (slots 1-13) when it is not to be equipped. If the Extension shelf is not being equipped, provide one NT0X84AA Filler Panel.
- 3) 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 equipped, provide one NT0X84AA Filler Panel.
- RUL4 1) Provision packlets for C-side interface based on host traffic requirements. Two interfaces are provided per packlet. Provide two NTMX87AA Quad Carriers in slots 9 and 19 for all applications. At least two DS1 packlets are needed for host interface for all applications. These two packlets mount in slots 9:0 and 19:0.
- 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.

- RUL5
- 1) Provide one (1) NTZZ12UA in slots 5 & 23 when the CLASS (CMS) Calling Number Delivery feature is provisioned.
 - 2) Provide one (1) NTZZ02UB in slots 5 & 23 when support of fast recovery from lost load is required and support for Calling Number Delivery is not required. Also refer to Rule 6.
 - 3) If slots 5 and 23 are not equipped, provide two (2) NT0X50AA fillers.
 - 4) The NT7X05AA is not supported by the NTAX74AA prior to XPM 081 software release.

As of XPM081, the NT7X05AA will provide loadfile support for the NTAX74AA in the DMS100 RSCS Applications. Imaging capability is NOT Supported for the NTAX74AA.

- RUL6
- 1) One UTR/GTR Pair and Designation Labels in Slot 6 & 22 is always required.
 - 2) The exact quantity required is based on offered traffic. The following general rule may be used for planning purposes only. If UTR/GTR CCS is 0 to 765, then one pair (6,22) is sufficient. If UTR CCS is 765 to 1600, then provide an additional UTR/GTR BB for slots 7 and 21.

Note: A traffic analysis via REALQUICK or PRTCALC is required for exact provisioning.
 - 3) Provide one (1) NTZZ02UB 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. NTZZ02UB can be provided in either slots 5 and 23 or slots 7 and 21 (whichever pair of slots is available). Provide only one NTZZ02UB per RCC2.
 - 4) If slots 7 and 21 are not equipped, provide two (2) NT0X50AA fillers.
 - 5) Provide NTZZ12VC GTR BB for all new applications when available. This BB contains NT6X92EA CPs and will replace the NTZZ12VB UTR BB (NT6X92BC) for all applications. Check availability before ordering the NTZZ12VC BB. DO NOT mix NT6X92 CP types on the same shelf. Refer to EMS NTZZ12VC for more details.

- RUL7
- 1) When provisioning EDCHs, DS-30As and DS-1 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, the EXT shelf in position 30 must be provided to support this configuration.

- 2) Resistor networks for the EDCH circuit packs are Always Provided as part of the shelf. The label for the EDCH is included in the NTZZ17BB Building Block.
- 3) When neither a EDCH 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.
- 5) DS30A ports are to be assigned beginning with port 53 and then descending.

- RUL8
- 1) Provide one (1) NTZZ12XB RCC2 packfill prior to XPM 08 software release. All earlier software releases must provide the NTMX77AA Processor packs.
 - 2) Provide one (1) NTZZ12XF RCC2 packfill for XPM 08 and later software releases. For previous software releases provide the NTMX77AA Processor packs (NTZZ12XB).

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 capability is NOT Supported for the NTAX74AA.

The Minimum baseline enhanced ISP Pack, required for proper NTAX74AA functionality, is the NTB01BA.

- 3) Provide one NTZZ12XB/XF common CP fill per RCC2. 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) NTB01BA EISP packs and
two (2) P0713794 labels for ISDN support
OR two (2) NT0X50AA fillers for non-ISDN
 2. EITHER two (2) NT6X69AD packs and two (2) P0800014 labels for standard distance capability in XPM03/NA001 and higher applications. The NT6X69AD replaces the NT6X69AC in all new applications. The NT6X69AC should only be ordered for BCS36 and lower applications. The NT6X69AD is required for the ADSI/SCWID feature available in BCS36+.
OR two (2) NTMX76AA packs and two (2) P0744109 labels for extended distance capability. The NTMX76AA does not support the ADSI/SCWID feature.
OR two (2) NTMX76AB packs and two (2) P0857783 labels for extended distance capability and the ADSI/SCWID feature.
 - 4) The HDLC Messaging used in the NTMX76-- pack allows up to 6.5 ms delay (one way) between the line subscriber and the host controller.
- RUL9 1) Provide one (1) NT0X0010 Logic Return Cable Assembly per frame when extending existing offices that are not equipped with enhanced grounding per IS0X00.

REMOTE SWITCHING CENTER-MULTI ACCESS

PEC CODE: NTMX90AC

CPC CODE: B0245623

RATING: Standard

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: RSCM

ENGINEERING DESCRIPTION: The NTMX90AC RSCM is a remote cabinet based on the Common Peripheral Module (CPM) Shelf and is being introduced to handle a PCM-30 switching requirement for the cable television market in the United Kingdom. A single RSCM can provide terminations for up to 3420 lines.

REFERENCE DOCUMENTATION: SLMX90AC 01 01
MSMX90AC 01 02

MARKETS: Applicable markets:
Europe
Asia/Pacific

ISSUE AUTHOR: Rena Fisher Dept. 3471 (PPK)

MAIN CONTACT: Rena Fisher Dept. 3471 (PPK)

NTMX90AC EMA2-24-RSCM-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
96 06 28	ECM 700 01	Introduce RSC-M ECM and NTMX90AC EMS

The Remote Switching Center-Multi Access is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Model B C28 Cabinet (See NOTE 4)	NTRX25AA		1			AP
Cabinet Label (RSC-M) Lime Green	P0834554					RUL1
Cabinet Label (RSC-M) Fiber World Blue	P0834552					RUL1
RC02 Shelf Kit RSC-M	NTMX9120			19, 33, 47		RUL2
CPM Main Shelf	NTMX8501	RC02	1	19, 33, 47		AP08
Designation Strip (RC02)	P0834553			19, 33 47		AP08
RSC-M 75 OHM Plate Kit	NTMX9110			05, 19 33, 47		RUL3
75 OHM Personality Plt. Assembly	NTMX9111			05, 19 33, 47		AP09
75 OHM Personality Plt. CP Assy RSC-M	NTMX91AA			05, 19 33, 47		AP09
RSC-M 120 OHM Plate Kit	NTMX9115			05, 19 33, 47		RUL4
120 OHM Personality Plt. Assembly	NTMX9116			05, 19 33, 47		AP10
120 OHM Personality Plt.	P0835509			05, 19 33, 47		AP10
GPP MSP Kit	NTMX9030			61		RUL5
Modular Supervisory Panel	NTRX40AA		1	61		AP02
Alarm Module	NTRX41AA		1	61	5-6	AP02
Fuse Module	NTRX43AA		1	61	7	AP02
Blank Panel	P0734476		1	61	8	AP02
Breaker Module (10A)	NTRX42AA		6	61	9-14	AP02
Blank Panel	P0734474		1	61	15-18	AP02
FMU Power Module Kit	NTRX3255			61		RUL6
FPC (-48V CU Power/Alarm)	NTRX54BA		1	61	19	AP05
FPC Label	P0741680		1	61		AP05

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Cooling Unit Kit, 10"	NTRX92AA	CU		00		RUL5
Cooling Unit, 10"	NTRX91AA	CU	1	00		AP01
DS60 Cable Assembly	NTMX9061			05		RUL7
GPP Horizontal Power Kit	NTMX90CB					RUL8
Designation Label	P0737501					RUL8
Designation Label	P0737502					RUL8
DS60 Cable Assembly	NTMX9027			19		RUL9
GPP CPM Extension Shelf Kit	NTMX9036			47		RUL10
Extension Shelf Assembly	NTMX8601	EXT	1	47		AP06
GPP Extension Shelf CP Kit	NTMX9041			47		RUL10
DS60 Extender CP	NTMX79AA		4	47	2, 13, 14, 25	AP04
Quad Carrier CP	NTMX87AA		6	47	4, 6, 8, 19, 21, 23	AP04
Dual PCM30 Packlet	NTMX82AA		24	47	4:0-3, 6:0-3, 8:0-3, 19:0-3, 21:0-3, 23:0-3	AP04
GPP PCM-30 Ext Kit (96 Pos)	NTMX9037			33, 47		RUL11
PCM-30 EXT Person.Plt.Assy.	NTMX9047		1	33, 47		AP07
Personality (Extender) CP	NTMX92AA		1	33, 47		AP07
GPP PCM-30 Ext Kit	NTMX9094			47		RUL12
Plate assembly (120 ohms)						
GPP PCM-30 EXT Kit	NTMX9066		1			AP11
120 Ohm						
GPP EXT Personality Plate	P0809843		1			AP11
Power Converter	NTMX72AA			05	1, 26	RUL13
Power Converter	NTMX72AA			19	1, 26	RUL13
Power Converter	NTMX72AA			33	1, 26	RUL13
Power Converter	NTMX72AA			47	1, 26	RUL13
Unified Processor	NTMX77AA			05	3, 25	RUL13
Unified Processor	NTMX77AA			19	3, 25	RUL13
Unified Processor	NTMX77AA			33	3, 25	RUL13
Unified Processor	NTMX77AA			47	3, 25	RUL13

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Universal Tone Receiver	NT6X92CA			05	06, 07, 21, 22	RUL13
Universal Tone Receiver	NT6X92CA			19	06, 07, 21, 22	RUL13
Universal Tone Receiver	NT6X92CA			33	06, 07, 21, 22	RUL13
Universal Tone Receiver	NT6X92CA			47	06, 07, 21, 22	RUL13
Enhanced Matrix CP	NTMX75AA			05	10, 18	RUL13
Enhanced Matrix CP	NTMX75AA			19	10, 18	RUL13
Enhanced Matrix CP	NTMX75AA			33	10, 18	RUL13
Enhanced Matrix CP	NTMX75AA			47	10, 18	RUL13
Signaling Processor	NTMX73AB			05	11, 17	RUL13
Signaling Processor	NTMX73AB			19	11, 17	RUL13
Signaling Processor	NTMX73AB			33	11, 17	RUL13
Signaling Processor	NTMX73AB			47	11, 17	RUL13
MSG & HDL Signal Processor	NTMX76AA			05	08, 20	RUL13
MSG & HDL Signal Processor	NTMX76AA			19	08, 20	RUL13
MSG & HDL Signal Processor	NTMX76AA			33	08, 20	RUL13
MSG & HDL Signal Processor	NTMX76AA			47	08, 20	RUL13
Designation Label NTMX76AA	P0744109			05	08, 20	RUL13
Designation Label NTMX76AA	P0744109			19	08, 20	RUL13
Designation Label NTMX76AA	P0744109			33	08, 20	RUL13
Designation Label NTMX76AA	P0744109			47	08, 20	RUL13
MSG Prot & Tone CP	NT6X69LB			05	08, 20	RUL13
MSG Prot & Tone CP	NT6X69LB			19	08, 20	RUL13
MSG Prot & Tone CP	NT6X69LB			33	08, 20	RUL13
MSG Prot & Tone CP	NT6X69LB			47	08, 20	RUL13
Quad PCM Carrier CP	NTMX87AA			05	09, 12, 14, 16, 19	RUL13
Quad PCM Carrier CP	NTMX87AA			19	09, 12, 14, 16, 19	RUL13
Quad PCM Carrier CP	NTMX87AA			33	09, 12, 14, 16, 19	RUL13
Quad PCM Carrier CP	NTMX87AA			47	09, 12, 14, 16, 19	RUL13

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Filler Plate	NT0X50AA		16	47	1, 3, 5, 7, 9-12, 15-18, 20, 22, 24, 26	RUL13
CLASS Modem Resource CP	NT6X78AB			05	5, 23	RUL14
CLASS Modem Resource CP	NT6X78AB			19	5, 23	RUL14
CLASS Modem Resource CP	NT6X78AB			33	5, 23	RUL14
CLASS Modem Resource CP	NT6X78AB			47	5, 23	RUL14
Designation Label NT6X78AB	P0731980			05	5, 23	RUL14
Designation Label NT6X78AB	P0731980			19	5, 23	RUL14
Designation Label NT6X78AB	P0731980			33	5, 23	RUL14
Designation Label NT6X78AB	P0731980			47	5, 23	RUL14
GPP Vertical Powering Kit	NTMX9060					RUL15
Cage Filler Panel Assembly	NT0X84AA			19, 33		RUL16
Personality Plate Blank	P0715616			19, 33, 47		RUL17
C28 English Label Kit	NTRX3541					RUL18
C28 German Label Kit	NTRX3542					RUL18
MSP Breaker Des.Label	P0749669					RUL19
Cabinet Designation Label	P0834557					RUL20
Shelf Designation Label - RC02	P0834558					RUL20
Endguard Labels RSC-M	P0834559					RUL20
RSC-M CPDC Designation Labels	P0834560					RUL20
DS-30A I/F CP	NTMX74AB			05	13, 15	RUL21
DS-30A I/F CP	NTMX74AB			19	13, 15	RUL21
DS-30A I/F CP	NTMX74AB			33	13, 15	RUL21
DS-30A I/F CP	NTMX74AB			47	13, 15	RUL21
Cosmetic Endguards/EMI	Note 1					
Cabinet Labels	Note 2					
Power and Grounding	Note 3					
Cabinet Mechanicals	Note 4					

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) Refer to NTRX73 Engineering Manual Section for provisioning cosmetic endguards and EMI sidepanels.
- 2) Refer to the latest issue of MS0X60AA for all shelf and cabinet labels.
- 3) Refer to NTZX16CA Engineering Manual Section for System Power and Grounding information.
- 4) Refer to NTRX25AA EMS (or MSRX25AA) for provisioning of cabinet mounting hardware i.e. doors, cable troughs, leveling feet, cover (power filter), frame fail lights and earthquake anchors. NOTE- The filter cover P0741641 is always required when filtered power is provisioned, regardless of the floor mounting arrangement used.
- 5) Items marked AP01 are included with NTRX92AA and are shown for sparing purposes.
- 6) MEL CAS PROTOCOL - THE RSC-M CABINET CONSISTS OF A FULLY EQUIPPED RC02 SHELF (ALWAYS PROVIDED IN POS 05), AND PROVISIONABLE RC02 SHELF IN POSITIONS 19,33 AND 47;FOR A MAXIMUM OF FOUR (4) RC02 SHELVES PER CABINET INCLUDING THE ONE IN POSITION 05.

IF AN RC02 SHELF IS NOT PROVIDED IN POSITION 47 PROVIDE AN EXT SHELF KIT (NTMX9036) FOR INSTALLATION PURPOSES.

NB: ONE (1) EXTENSION SHELF SPANS TWO (2) CPM SHELVES.

(B) NTMX72AA CIRCUIT PACK OCCUPIES 2 SLOTS.

(C) THE NTMX87AA CP (MOTHER BOARD) CAN ACCOMMODATE A MAXIMUM OF FOUR (4) NTMX82AA PACKLETS (DAUGHTER BOARDS) I.E. 0-3.

- 7) THE RSC-M CABINET CAN ACCOMMODATE ONE (1) EXTENSION SHELF IN POS 47. THE EXTENSION SHELF TO BE POPULATED WITH ITS CIRCUIT PACKS PROVIDED BY NTMX9041 CP KIT AS INDICATED BELOW:

QTY	CP PEC	SLOT	QTY	CP PEC	SLOT
16	NT0X50AA	01, 03, 05 07, 09-12 15-18, 20 22, 24, 26	4	NTMX79AA	02, 13, 1 25.
			6	* NTMX87AA	04, 06, 0 19, 21, 2

* -THE NTMX87AA CP (MOTHER BOARD), CAN ACCOMMODATE A MAXIMUM OF FOUR (4) NTMX82AA PACKLETS (DAUGHTER BOARDS) I.E. 0-3.

- 8) P0737501, P0737502 DESIGNATION LABELS MAY BE REQUIRED BY INSTALLATION FOR IDENTIFYING POWER CABLES, AFTER THEY (POWER CABLES) ARE TRIMMED TO THEIR PROPER LENGTHS, PRIOR TO CONNECTING.
- 9) FOLLOWING ARE (4) POSSIBLE CONFIGURATIONS FOR THE RSC-M CABINET:

	1	2	3	4
SHELF 47	EXT	EXT	EXT	RC02
SHELF 33	RC02	-	-	RC02
SHELF 19	RC02	-	RC02	RC02
SHELF 05	RC02	RC02	RC02	RC02

POSITIONS 19 AND 33 NOT EQUIPPED WITH A RC02 SHELF MUST BE EQUIPPED WITH A NT0X84AA CAGE FILLER PANEL ASSEMBLY.

- 10) FILTER COVER P0741641 IS ALWAYS REQUIRED WHEN FILTERED POWER IS PROVISIONED, REGARDLESS OF THE FLOOR MOUNTING ARRANGEMENT USED.
- 11) Items marked AP01 are included with NTRX92AA and are shown for sparing purposes.
- 12) Items marked AP02 are included with NTMX9030 and are shown for sparing purposes.
- 13) Reserved for future use.
- 14) Items marked AP04 are included with NTMX9041 and are shown for sparing and modeling purposes.
- 15) Items marked AP05 are included with NTRX3255.
- 16) Items marked AP06 are included with NTMX9036.
- 17) Items marked AP07 are included with NTMX9037.
- 18) Items marked AP08 are included with NTMX9120.
- 18) Items marked AP09 are included with NTMX9110.
- 19) Items marked AP10 are included with NTMX9115.
- 20) Items marked AP11 are included with NTMX9094.

RULES:

- AP 1) When PEC NTMX90AC is ordered, these items are provided.
- RUL1 1) Provide one (1) P0834554 Cabinet Label (green) per RSCM when brown equipment is supplied or one (1) P0834552 Cabinet Label (blue) per RSCM when grey equipment is supplied.
- RUL2 1) Provide one (1) NTMX9120 RC02 shelf kit RSC-M as per customer requirements. (see notes 6,9). Provide two (2) P097Y579 star washers when the NTMX9120 RC02 shelf kit is provided in shelf position 47.
- RUL3 1) Provide one (1) NTMX9110 RSC-M 75 ohm plate kit in addition to the RC02 shelf kit for 75 ohm operation. These units are for the RC02 shelf in positions 5,19,33, or 47 not the ext shelf in position 47.

- RUL4 1) Provide one (1) NTMX9115 RSC-M 120 ohm plate kit in addition to the RC02 shelf kit for 120 ohm operation. These units are for the RC02 shelf in positions 5,19,33, or 47 not the ext shelf in position 47.
- RUL5 1) Provide 1 (NTMX9030) GPP MSP KIT in position 61 per RSCM cabinet and also provide 1 (NTRX92AA) Cooling Unit Kit in position 00 per RSCM cabinet.
- RUL6 1) Provide 1 (NTRX3255) FMU Power Module Kit -48V operation.
- RUL7 1) Provide 1 NTMX9061 DS-60 Cable Assembly per RC02 shelf (SH 05) when the RSC-M cabinet is equipped with an ext shelf at position 47.
- RUL8 1) Provide (1) NTMX90CB GPP Horizontal Power Cable Kit for supplying power to the RSC-M from the CPDC.
- 2) Provide 1 P0737501 and 1 P0737502 Designation Labels for field application. Note: Filter cover P0741641 is always required when filtered power is provisioned, regardless of the floor mounting arrangement used. The labels may be needed by installation for identifying power cables after the cables are trimmed to proper lengths.
- RUL9 1) Provide 1 DS-60 Cable Assembly NTMX9027 per RC02 Shelf in position 19 when the RSCM cabinet is equipped with an EXT Shelf in position 47.
- RUL10 1) Provide 1 NTMX9036 GPP CPM Extension Shelf Kit in shelf position 47 when the additional terminations it provides are required. (Refer to notes 6,9).
- 2) Provide 1 NTMX9041 GPP EXT Shelf CP Kit for each equipped GPP EXT Shelf. (Refer to note 7). The kit includes the following:

Qty	PEC	Slot location
4	NTMX79AA	2,13,14,25
16	NT0X50AA	1,3,5,7,9-12, 15-18,20,22,24, 26
6 24	NTMX87AA NTMX82AA	4,6,8,19,21,23 Above slots:0-3

- 3) One EXT Shelf expands the capacity of two RC02 shelves. Each half of the EXT Shelf is dedicated to a RC02 Shelf. Each half of the EXT Shelf mounts 3 Quad Carriers with 4 Dual PCM-30 Packlets per carrier. There are 2 PCM-30 interfaces per packlet with 30 channels per interface. Therefore, each half of an EXT Shelf adds 720 channels/lines to its associated RC02 (3 Quad Carriers X 4 packlets per carrier X 2 interfaces per packlet X 30 channels per interface = 720 channels).

RUL11 1) Provide 1 NTMX9037 GPP PCM-30 Ext. Kit 96 Pos. (75 OHM transmission) when the NTMX9036 is provided in position 47.

RUL12 1) Provide one 1 NTMX9094 GPP PCM-30 ext kit for 120 ohm transmission when the NTMX9036 GPP CPM Ext Shelf kit is provided in position 47.

RUL13 1) Provide these circuit packs for the RC02 Shelf in position 05, and they may also be required for RC02 shelves in positions 19,33, or 47 when provisioned.

2) Provide 2 NTMX72AA Power Converter CPs per RC02 Shelf for Power Supply. (see note 6).

3) Provide 2 NTMX73AB Signalling Processor CPs per RC02 Shelf, required for DDL Messaging and Clock Distribution, per customer requirements.

4) Provide 2 NTMX75AA Enhanced Matrix CPs per RC02 Shelf, required for performing Speech Channel Switching function, per customer requirements.

5) Provide two (2) NTMX76AA packs and two (2) P0744109 CP labels per RC02 shelf required for tone generation and channel supervision, message collection (CSM) when the RSC-M is more than 100 miles from the host office.

6) Provide 2 NTMX77AA Unified Processor CPs per RC02 Shelf, required for processing signals with service packs, trunks and lines, per customer requirements.

7) Always provide 2 UTR CPs NT6X92CA per RC02 Shelf, per customer requirements in slots 6 and 22. Additional UTR CPs may be provisioned in slots 7 and 21 if required.

8) Provide NTMX87AA Packs on the RC02 shelf per customer requirement. Slot pos 09 and 19 of the RC02 shelf are for C-side, Slots 12,14 and 16 are for P-side. (see note 6c.)

- 9) Always provide one (1) NT0X50AA filler faceplate in any slot of the RC02 shelf that is not equipped with an active circuit pack.
- 10) Provide two (2) NT6X69LB packs per RC02 shelf, required for tone generation and channel supervision, and message collection (CSM) when the RSC-M cabinet is within the 100 mile limit from the host office.
- RUL14 1) Provide 2 NT6X78AB CMR (Class Modem Resource) circuit packs and two (2) P0731980 designation labels when Calling Number Delivery feature is required. Otherwise, provide 2 Filler Face Plates in these slots.
- RUL15 1) Provide (1) NTMX9060 GPP Vertical Powering Kit when filtered power is required.
- RUL16 1) Provide 1 Cage Filler Panel assembly (NT0X84AA) in positions 19 and 33 when not equipped with RC02 Shelf.
- RUL17 1) Provide 1 (P0715616) Personality Plate Blank for each cage filler panel assembly (NT0X84AA) ordered. These are to be added to the bulkhead.
- RUL18 1) Provide (1) NTRX3541 English Label Kit per cabinet for applications requiring labels in English.
2) Provide (1) NTRX3542 German Label Kit per cabinet for applications requiring labels in German.
- RUL19 1) Provide 1 P0749669 MSP Designation Label per shelf (CPM extension) when shelf is installed in the field.
- RUL20 1) Provide 1 set of each of the following labels for each office: P0834557, P0834558, P0834559, and P0834560.
- RUL21 1) Always provide two (2) NTMX74AB DS-30 packs per RC02 shelf.

C28B MECHANICAL ASSEMBLY

PEC CODE: NTRX25AA

CPC CODE: B0236418

RATING: Standard

REPLACES: Not applicable

REPLACED BY: Not applicable

ABBREVIATION NAME:

ENGINEERING DESCRIPTION: NTRX25AA is the C28 Cabinet Assembly for
Cabinetized DMS Model B.

| REFERENCE DOCUMENTATION: MSRX25AA 00 06

MARKETS: Applicable markets:

US
CALA
Europe
Asia/Pacific

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

MAIN CONTACT: BNR: Julian Lanier Dept. 0H11 (BNRRTP)

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

NTRX25AA EMA2-25-001 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 03 11	ECM 691 01	Initial release
94 03 11	ECM 683 03	EC 024-91276
94 04 08	ECM 683 04	EC 024-91779. Also corrections to Frame Fail lamp provisioning rule and quantities.
94 06 10	ECM 683 06	ET18949 - Correct pec in rule for Top Latch Door Kit.
94 08 04	ECM 683 07	Update to current MS, provide corrections to Frame Fail lamp provisioning rule.
94 09 02	ECM 683 08	ET19609 - Correct CPDC/CRME Cable Trough requirements. ET19689 - Correct pec in rule for Bezel.
95 02 10	ECM 683 14	ET 20579 - Correct rules for unpowered cabinets. Add note on compatibility of Model A and B cable troughs. ET 20829 and ET 20909, clarify, corrections.
95 03 17	ECM 683 15	Added provisioning rules for Blue Boots for the UK market per EC 024-93684.
95 05 04	ECM 691 09	Add RSC-S application for U.K. boots.
95 07 14	ECM 691 11	Add "non-powered" to RUL14 per ET25639
95 09 14	ECM 683 17	Remove frame fail lights and associated rules per EC 018-45801.
95 11 03	ECM 683 19	Replace P0601187 with P0601852 per EC 024-93205. Update Rules 8 and 9 per ET27849.
96 03 08	ECM 683 21	Add GCC Cable Troughs and provisioning rules per EC 024-93936.

The NTRX25AA is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Door Kit (Center Latch) Grey	NTRX2568		1			RUL1
Door Kit (Center Latch) Brown	NTRX2569		1			RUL2
Door Kit (Top Latch) Grey	NTRX2567		1			RUL3
Door Kit (Top Latch) Brown	NTRX2566		1			RUL4
C28 Cable Trough Assy (Grey)	NTRX55BA		1			RUL5
C28 Cable Trough Assy (Brown)	NTRX55BB		1			RUL6
CPDC Cable Trough Assy (Grey)	NTRX55BC		1	TOP		RUL11
CPDC Cable Trough Assy (Brown)	NTRX55BD		1	TOP		RUL12
GCC C28 Cable Trough (Grey)	NT0X3705		1			RUL15
GCC C28 Cable Trough (Brown)	NT0X3706		1			RUL16
Leveling Foot Kit	NTRX2523		1			RUL7
Earthquake Anchor Kit	NTRX2564		1			RUL8
Earthquake Anchor Cover (Filtered Power)	P0601852 P0741641		1			RUL9 RUL10
MSP Connector Extractor 6"	P0746192		2			NOTE2
MSP Connector Extractor 10"	P0747552		2			NOTE2
2 Hole Lug Boot, Blue	P0805282					RUL13
90 Deg Lug Insulating Cover	P0805679					RUL14

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 manufac-
tured and cannot be ordered.

NOTES:

- 1) The terms Model A and Model B used in this document Section, define vintages of Cabinetized DMS base cabinet or weldment as follows:
 - * Model A - Base Cabinet NTNX25EA and earlier; characterized by open sides between rear upright and front upright.
 - * Model B - Base Cabinet NTRX25AA and later, characterized by closed sides, except for a 4" x 6" cable tunnel hole in the lower rear corner on each side.
- 2) Two (2) MSP Connector Extractors, P0747552 and two (2) MSP Connector Extractors, P0746192, are provided per system as part of the system's Miscellaneous Hardware Kit.
- 3) The cabinet is equipped with top hinges, front EMI shield, and rear panel, from the vendor for the center latch style doors. Grey is the standard color door.
- 4) The cabinet is equipped with top hinges, front EMI shield, and rear panel from the vendor when brown center latch style doors are required.
- 5) Grey doors with top latch actuator are offered for Model A cabinet office extensions only. Top hinges, front EMI shield, rear panel, and door latch plates are provided in the kit and must replace the same standard equipped items. Use the existing hardware.
- 6) Brown doors with top latch actuator are offered for Model A cabinet office extensions only. Top hinges, front EMI shield, rear panel, and door latch plates are provided in the kit and must replace the same standard equipped items. Use the existing hardware.
- 7) The Grey Cable Trough is required for overhead cable routing in conjunction with grey colored cabinets. Front and rear grills are included. Model B cable troughs will not mount on Model A cabinets but Model A and Model B cable troughs are compatible for use in the same lineup.
- 8) The Brown Cable Trough is required for overhead cable routing in conjunction with brown colored cabinets. Front and rear grills are included. Model B cable troughs will not mount on Model A cabinets but Model A and Model B cable troughs are compatible for use in the same lineup.

- 9) Levelling feet are used in seismic zone 0 only. One or more anchors may be used with adjustable feet in order to keep the cabinet(s) from shifting out of position or to provide extra protection against tipping. The anchor(s), after being set per the manufacturer's instructions, should be torqued to 10-15 ft-lbs.
- 10) Installation requires that earthquake anchor kits be on job site before cabinet arrival.
- 11) Anchors may be used with levelling feet in order to keep the cabinet(s) from shifting out of position or to provide extra protection against tipping in non-earthquake zones only. The anchors(s), after being set per the manufacturer's instructions, should be torqued to 10- 15 ft-lbs.

RULES:

RUL1	1) Provide one (1) NTRX2568 Door Kit per grey cabinet requiring center door latch actuator. See Note 2.
RUL2	1) Provide one (1) NTRX2569 Door Kit per brown cabinet requiring center door latch actuator. See Note 3.
RUL3	1) Provide one (1) NTRX2567 Door Kit per grey cabinet requiring top latch actuator doors. See Note 4.
RUL4	1) Provide one(1) NTRX2566 Door Kit per brown cabinet requiring top latch actuator doors. See Note 5.
RUL5	1) Provide one (1) NTRX55BA Cable Trough per grey cabinet when specifically requested by the customer, in lieu of grey GCC Cable Trough NT0X3705. Attaching hardware is provided in the kit. See Note 7. For CPDC/CRME Cable Trough requirements, see Rule 11.
RUL6	1) Provide one (1) NTRX55BB Cable Trough per brown cabinet when specifically requested by the customer, in lieu of brown GCC Cable Trough NT0X3706. Attaching hardware is provided in the kit. See Note 8. For CPDC/CRME Cable Trough requirements, see Rule 12.
RUL7	1) Provide one (1) Leveling Foot Kit, NTRX2523, per cabinet. For use in non-earthquake zones. See Note 9.
RUL8	1) Provide one (1) Earthquake Anchor Kit, NTRX2564, per cabinet. The kit contains four (4) Anchor Assemblies which are

required for earthquake zone applications, or on customer request in non-earthquake zones. This Earthquake Anchor Kit is provisioned by the Field Engineer in the 116 specification. See Note 10.

- RUL9 1) A single Earthquake Anchor, P0601852, may be provided upon customer request. This Earthquake Anchor is provisioned by the Field Engineer in the 116 specification. See Note 11.
- RUL10 1) Provide one (1) Cover, P0741641, per C28 Model B Cabinet when vertical power arrangement is required with raised floor installations. Ship the Cover loose, tie wrapped to the cabinet, to be mounted by the installer.
- RUL11 1) Provide one (1) NTRX55BC Cable Trough per grey CPDC/CRME cabinet when specifically requested by the customer, in lieu of grey GCC Cable Trough NT0X3705. Attaching hardware is provided in the kit. See Note 7.
- RUL12 1) Provide one (1) NTRX55BD Cable Trough per brown CPDC/CRME cabinet when specifically requested by the customer, in lieu of brown GCC Cable Trough NT0X3706. Attaching hardware is provided in the kit. See Note 8.
- RUL13 1) For UK applications only. Provide eight (8) Blue, 2 Hole Lug Boots to designate the negative DC voltage conductor for all Model B cabinets equipped for external powering. These boots must be ordered ship loose to replace the white boots that are provided with the standard external power filter kit. The blue boots will be required until the UK is able to procure blue power cable and thus eliminate the need for blue boots. This rule also applies to CRSC and CEXT cabinets.
- RUL14 1) For UK applications only. Provide eight (8) Blue, 90 Degree Lug Insulating Covers on the CPDC cabinet to designate the negative DC voltage conductor for all Model B cabinets equipped for external powering. These boots must be ordered ship loose to replace the white boots that are provided with the standard external power filter kit. The blue boots will be required until the UK is able to procure blue power cable and thus eliminate the need for blue boots.
- RUL15 1) Provide one (1) NT0X3705 GCC C28 Cable Trough Grey per C28 grey cabinet unless one of NTRX55BA/BC Model B troughs is specifically requested by the Customer instead, for aesthetic or other reasons.

- RUL16 1) Provide one (1) NT0X3706 GCC C28 Cable Trough Brown per C28 brown cabinet unless one of NTRX55BB/BD Model B troughs is specifically requested by the Customer instead, for aesthetic or other reasons.

SUPERNODE DATA MANAGER CABINET

PEC CODE: NTRX50BA

CPC CODE: B0240936

RATING: LTD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: SDM

ENGINEERING DESCRIPTION: The SuperNode Data Manager is a high performance UNIX computing platform and software applications package that is integrated with the DMS SuperNode for support of operations, maintenance and administration. It is available in both a CO-compliant cabinetized simplex version and a standalone simplex system.

REFERENCE DOCUMENTATION: ISRX50BA 01 03

MARKETS: Applicable markets:

US
Canada
CALA

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

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

NTRX50BA EMA2-26-SDM-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 08 02	API 331 01	NTRX50BA Introduction
94 09 23	ECM 563 01	NTRX50BA Introduction into ECM
94 11 07	ECM 563 02	Answer ET#19969.
94 12 02	ECM 563 03	Clarify cabinet mechanical information
95 03 13	ECM 563 04	Add Spares Kit information, clarify RUL4, add AP items per V0 group. Spares Kit done per EC#006-22313.
95 05 02	ECM 563 05	Explode Spares Kit for NTACCESS.
95 08 22	ECM 563 06	Change status to LTD per PLM.
97 08 28	ECM 563 08	Remove MD'ed NT0X24CN from eq. list per EC 018-51456.

The SuperNode Data Manager Cabinet is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Model B SDM Cabinet Kit	NTRX50BB		1			AP
Model B C28 Cabinet	NTRX25AA		1			AP01
--(see NOTE FOUR)--						
MSP Kit	NTRX50BC		1	61		AP01
Modular Supervisory Panel	NTRX40AA		1	61		AP02
Alarm Module	NTRX41AA		1	61	5	AP02
Fuse Module	NTRX43AA		1	61	7	AP02
Breaker Module (15A)	NTRX42BA		1	61	9	AP02
-48V E25 Server Kit	NTRX50BD		1	04		AP
E25 Processor card	NTRX50HG		1			AP03
Multifunction card	NTRX50HK		1			AP03
X25 with RS232 card	NTRX50HP		1			AP03
LAN Interface card	NTRX50HF		1			AP03
1 GByte Disk Drive	NTRX50HA		1			AP03
2 GB DAT Drive	NTRX50HB		1			AP03
-48V Power Supply Tray	NTRX87AA		1			AP03
8M RAM card	NTRX50HH		4			AP03
Multifunction ADP Panel	NTRX88AB		1		10R	AP03
Media Access Unit	A0383333		1			AP03
HP 19" Rackmount Kit	NTRX50BL		1			AP03
HP Mini MAU (EIU)	A0383333		1			RUL1
HP Mini MAU (AUI)	A0383333		1			RUL1
MDP Loopback cable	NTRX50HN		1			AP
X.25 Circuit pack	NTRX50HP		1	04	10	RUL3
1 GByte Disk Drive	NTRX50HA		1			RUL4
32 MByte RAM Expansion	NTRX50HH		4			RUL5
Center latch door (left)	NTRX5036		2			AP01
Center latch door (right)	NTRX5037		2			AP01
SDM02 Door Label	P0724227		1			AP01
C28 English Label Kit	NTRX3541		1			AP01
Frame Fail Light	P0699441		1			AP01
Diode Light Bar (LED Red)	A0328413		1			AP01
Tapping Screw	P097Y566		2			AP01
Cabinetized Spares Kit	NTRX50KB		1			RUL2
E25 Processor card	NTRX50HG		1			AP04
Multifunction card	NTRX50HK		1			AP04
LAN Interface card	NTRX50HF		1			AP04
2 GB DAT Drive	NTRX50HB		1			AP04
Multifunction ADP Panel	NTRX88AB		1			AP04

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 switch on the SPU circuit pack, which is included with the HP computing equipment, should be set to "SERVICE".
- 2) Refer to MS0X60AA for cabinet labels.
- 3) Refer to NTZX16CA Engineering Manual Section for System Power and Grounding information.
- 4) Items marked AP01 are included as part of NTRX50BB and are shown for completeness and for sparing.

Although the NTRX25AA is AP with the NTRX50BB, some items are also provisionable depending on color and cable troughs needed, etc. Refer to NTRX25AA Engineering Manual Section for doors, anchors, cable troughs, frame fail lights and cabinet mechanical information.

- 5) Items marked AP02 are included as part of NTRX50BC and are shown for completeness and for sparing.
- 6) Items marked AP03 are included as part of NTRX50BD and are shown for completeness and for sparing.
- 7) Refer to NTRX73 Engineering Manual Section for provisioning cosmetic endguards and EMI sidepanels.
- 8) Items marked AP04 are included as part of NTRX50KB and are shown for completeness and for sparing.

RULES:

- AP 1) When PEC NTRX50BA is ordered, these items are provided.
- RUL1 1) Provide one A0383333 Mini Mau for the interface between the SuperNode (EIU in LPP/FLIS) and the SuperNode Data Manager. This MAU is required for both cabinetized and standalone systems.
- 2) The NTRX50HF LAN Interface card is an Always Provided part of the SDM computing equipment and is mounted in I/O slot 9. The initial release of SuperNode Data Manager (SDM02) does not support Thin LAN and the LAN card must be configured to select an external AUI connector. Provide one A0383333 Mini Mau for the AUI connector to provide 10BaseT connectivity.
- RUL2 1) Provide one Cabinetized Spares Kit per customer requirements.
- RUL3 1) Provide one NTRX50HP X.25 pack if support for devices using X.25 protocol is required. Mount this circuit pack in I/O slot 10.
- 2) The X.25 circuit pack may be supplied either as part of the initial order or for field upgrade and is applicable to both cabinetized and standalone systems.
- RUL4 1) One 1GB Disk drive is included with the HP computer equipment. Provide one additional NTRX50HA 1GB Disk drive per customer requirement. Mount this disk drive in the upper 3.5" peripheral slot. If this disk is to be used for disk mirroring, LVM Disk Mirroring software is also required. This second 1GB Disk can be used for one of two purposes. It can be used in conjunction with the disk mirroring software option to provide disk mirroring functionality on the SDM (for a total of 1G mirrored data), or it can be used to augment the existing data storage to a total of 2G of storage.
- 2) The additional disk may be supplied either as part of the initial order or for field upgrade and is applicable to both cabinetized and standalone systems.
- RUL5 1) Provide four NTRX50HH memory packs to provide an additional 32 MBytes of RAM. The SDM includes 32 MBytes of RAM as Always Provided equipment. The additional 32 MBytes is provided per customer requirement. Mount the additional memory on the SPU card.

- 2) The additional RAM may be supplied either as part of the initial order or for field upgrade and is applicable to both cabinetized and standalone systems.

SUPERNODE DATA MANAGER
STANDALONE SYSTEM

PEC CODE: NTRX50CA

CPC CODE: B0224955

| RATING: LTD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: SDM

ENGINEERING DESCRIPTION: The SuperNode Data Manager is a high performance UNIX computing platform and software applications package that is integrated with the DMS SuperNode for support of operations, maintenance and administration. It is available in both a CO-compliant cabinetized simplex version (NTRX50BA) and a standalone simplex system (NTRX50CA).

REFERENCE DOCUMENTATION: ISRX50CA 01 01

MARKETS: Applicable markets:

US
Canada
CALA

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

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

NTRX50CA EMA2-26-SDM-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 08 02	API 331 01	NTRX50CA Introduction
94 09 23	ECM 563 01	NTRX50CA Introduction in ECM
95 03 13	ECM 563 04	Add Spares Kit information, clarify RUL4, add Standalone to Cabinet Kit. Spares Kit done per EC#006-22313.
95 05 02	ECM 563 05	Explode Spares Kit for NTACCESS.
95 08 22	ECM 563 06	Change status to LTD per PLM.

The SuperNode Data Manager Standalone System is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
120 VAC E25 Server	NTRX50CD		1			AP
E25 Processor card	NTRX50HG		1			AP01
Multifunction card	NTRX50HK		1			AP01
X25 with RS232 card	NTRX50HP		1			AP01
LAN Interface card	NTRX50HF		1			AP01
1 GByte Disk Drive	NTRX50HA		1			AP01
2 GB DAT Drive	NTRX50HB		1			AP01
8M RAM card	NTRX50HH		4			AP01
Multifunction ADP Panel	NTRX88AB		1			AP01
Media Access Unit	A0383333		1			AP01
120V Power Supply	NTRX50CE		1			AP01
HP Mini MAU (EIU)	A0383333		1			RUL1
HP Mini MAU (AUI)	A0383333		1			RUL1
MDP Loopback cable	NTRX50HN		1			AP
X.25 Circuit pack	NTRX50HP		1			RUL3
1 GByte Disk Drive	NTRX50HA		1			RUL4
32 MByte RAM Expansion	NTRX50HH		4			RUL5
Standalone Spares Kit	NTRX50KA		1			RUL6
E25 Processor card	NTRX50HG		1			AP03
Multifunction card	NTRX50HK		1			AP03
2 GB DAT Drive	NTRX50HB		1			AP03
120V Power Supply	NTRX50CE		1			AP03
Multifunction ADP Panel	NTRX88AB		1			AP03
Standalone to Cabinet Kit	NTRX5082		1			RUL2
Model B SDM Cabinet Kit	NTRX50BB		1			AP02

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 switch on the SPU circuit pack, which is included with the HP computing equipment, should be set to "SERVICE".
- 2) Items marked AP01 are included with the NTRX50CD HP server and are shown for completeness and for sparing.
- 3) Items marked AP02 are included with the NTRX5082 Standalone to Cabinet Kit and are shown for completeness and for sparing.
- 4) Items marked AP03 are included with the NTRX50KA Standalone SDM Spares Kit and are shown for completeness and for sparing.

RULES:

- AP 1) When PEC NTRX50CA is ordered, these items are provided.
- RUL1 1) Provide one A0383333 Mini Mau for the interface between the SuperNode (EIU in LPP/FLIS) and the SuperNode Data Manager. This MAU is required for both cabinetized and standalone systems.
- 2) The NTRX50HF LAN Interface card is an Always Provided part of the SDM computing equipment and is mounted in I/O slot 9. The initial release of SuperNode Data Manager (SDM02) does not support Thin LAN and the LAN card must be configured to select an external AUI connector. Provide one A0383333 Mini Mau for the AUI connector to provide 10BaseT connectivity.
- RUL2 1) Provide one Standalone to Cabinetized SDM02 Kit to upgrade a Standalone SDM to a Cabinetized version SDM. Refer to the Engineering Manual Section for the Kit for more detailed information.
- RUL3 1) Provide one NTRX50HP X.25 pack if support for devices using X.25 protocol is required. Mount this circuit pack in I/O slot 10.

- 2) The X.25 circuit pack may be supplied either as part of the initial order or for field upgrade and is applicable to both cabinetized and standalone systems.
- RUL4 1) One 1GB Disk drive is included with the HP computer equipment. Provide one additional NTRX50HA 1GB Disk drive per customer requirement. Mount this disk drive in the upper 3.5" peripheral slot. If this disk is to be used for disk mirroring, LVM Disk Mirroring software is also required. This second 1GB Disk can be used for one of two purposes. It can be used in conjunction with the disk mirroring software option to provide disk mirroring functionality on the SDM (for a total of 1G mirrored data), or it can be used to augment the existing data storage to a total of 2G of storage.
- 2) The additional disk may be supplied either as part of the initial order or for field upgrade and is applicable to both cabinetized and standalone systems.
- RUL5 1) Provide four NTRX50HH memory packs to provide an additional 32 MBytes of RAM. The SDM includes 32 MBytes of RAM as Always Provided equipment. The additional 32 MBytes is provided per customer requirement. Mount the additional memory on the SPU card.
- 2) The additional RAM may be supplied either as part of the initial order or for field upgrade and is applicable to both cabinetized and standalone systems.
- RUL6 1) Provide one Standalone Spares Kit per customer requirements.

STANDALONE TO CABINETIZED
SDM02 KIT

PEC CODE: NTRX5082

CPC CODE: B0224951

RATING: LTD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: None

ENGINEERING DESCRIPTION: The Standalone to Cabinetized SDM02 Kit contains equipment to convert a standalone Supernode Data Manager into a cabinet configuration.

REFERENCE DOCUMENTATION: SLRX5082 01 01

MARKETS: Applicable markets:

US
Canada
CALA

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

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

NTRX5082 EMA2-26-SDM-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 03 13	ECM 563 04	Introduce Upgrade Kit per EC#006-20204
95 08 22	ECM 563 06	Change status to LTD per PLM.
97 08 28	ECM 563 08	Remove MD'ed NT0X24CN from eq. list per EC 018-51456.

The Standalone to Cabinetized SDM02 Kit is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Model B SDM Cabinet Kit	NTRX50BB		1			AP
HP 19 Inch Rackmount Kit	NTRX50BL		1			AP
Cabinet Assy.	NTRX25AA		1			AP01
SDM02 MSP Kit	NTRX50BC		1			AP01
C28 English Label Kit	NTRX3541		1			AP01
Left Vented Door	NTRX5036		2			AP01
Right Vented Door	NTRX5037		2			AP01
SDM02 Door Label	P0724227		1			AP01
Frame Fail Light	P0699441		1			AP01
Diode Light Bar (LED Red)	A0328413		1			AP01
Tapping Screw	P097Y566		2			AP01

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) Items marked AP01 are included with the NTRX50BB and are shown here for completeness and for sparing.

RULES:

- AP 1) When PEC NTRX5082 is ordered, these items are provided.

- RUL1 1) Provide one Standalone to Cabinetized SDM02 Kit to convert a standalone SDM to a cabinet version.

VME SUPERNODE DATA MANAGER

PEC CODE: NTRX50DA

CPC CODE: B0243487

| RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: SDM

ENGINEERING DESCRIPTION: The SuperNode Data Manager (SDM) is a high performance computing platform that provides nodal OAM&P services to DMS platforms. It is a complete hardware/software server platform that is designed to conform to industry standards (NEBS,UNIX,etc.).

| The NTRX50DA mounts in the NT0X02AB MIS Frame.

REFERENCE DOCUMENTATION: SLRX50DA 01 01
| ISRX50DA 01 01
MS0X02AB 01 37

MARKETS: Applicable markets:

US
Canada
CALA

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

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

NTRX50DA EMA2-26-SDM-4 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 10 23	ECM 588 01	NTRX50DA Introduction
96 06 06	ECM 588 04	Update for V0 requirements
96 07 03	ECM 588 05	Update RUL1 and RUL2 per EC#018-46899 and make changes per MS0X02AB issue 37. Update slot locations per ADRX50DA.

The VME SuperNode Data Manager is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
SDM06 VME Chassis	NTRX50JA		1			AP
3-Slot VME Chassis	NTRX50JB		1			AP01
-48V DC Power Supply	NTRX50JC		1			AP01
Fan Unit	NTRX50JD		1			AP01
Alarm Transition Module	NTRX50JE		1		SB	AP01
SCSI Transition Module	NTRX50JF		1		SA	AP01
SCSI Terminator	NTRX50JX		1			AP01
Proc. Transition Module 1	NTRX50JG		1		S1	AP01
Proc. Transition Module 2	NTRX50JH		1		S0	AP01
4MM SCSI DAT Drive	NTRX50JJ		1			AP01
SCSI Cable	A0689817		1			AP01
RJ-45 Alarm Cable	A0689818		1			AP01
VME Proc. Card 32Mb	NTRX50JP				1	RUL1
VME Proc. Card 64Mb	NTRX50JQ				1	RUL1
VME Proc. Card 96Mb	NTRX50JR				1	RUL1
VME Proc. Card 128Mb	NTRX50JS				1	RUL1
1Gb SCSI-II Disk Drive	NTRX50JT					RUL2
2Gb SCSI-II Disk Drive	NTRX50JU					RUL2
VME Ethernet Cntr. Card	NTRX50JV				2	RUL3
Ethernet Transition Module	NTRX50JW				S2	RUL3
Shoulder Bushing (Iso)	P0698431		4			AP
Power and Alarm Cable	NTRX50JY		1			AP
Logic return cable	NTRX50JZ		1			AP
Baffle (See Note 5)	NT6X1402					RUL4
Screw	P097F813					RUL4
Washer	P0284154					RUL4
Lock Washer	P0183220					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) CADES/EAE - the rear CP slots on the VME chassis are numbered SB,SA,S0,S1,S2, and these relate to CADES mounting positions 0R,1R,2R,3R,4R. So, a rear CP that mounts in VME chassis slot S2 is really CADES mounting slot 4R for the CADES assignment commands.
- 2) Items marked AP01 are included as part of NTRX50JA and are shown for completeness and for sparing.
- 3) Refer to the EMS NT0X02AB for MIS Frame mounting locations and rules.
- 4) All NA005.1 V0 sites will be engineered with this SDM06 product. At CI, provision the following items with the NTRX50DA VME Supernode Data Manager:

NTRX50JQ qty 1
NTRX50JU qty 1
NTRX50JV qty 1
NTRX50JW qty 1
other associated HW and SW order code SDMN0006.

If the CI has been captured equipment changes will be added via a Class D JIM.

At V0 sites currently equipped with the NTRX50DA, a CI update to remove the NTRX50JP and add NTRX50JQ should be made.

- 5) The NTRX50DA can only be provisioned on NT0X02AB MIS Frames equipped with NT0X88AE or NT0X88AF FSPs. When NT0X71CA doors (China) are to be provisioned the NT0X88AF is the only FSP that can be specified in conjunction with the NTRX50DA. See the following table for mounting positions. These positions refer to the frame mounting position of the lowest screw holding the NTRX50DA mounting brackets to the frame. For new production specify frame mounting position 03 for NTRX50DA. The NT6X1402 Baffle is not required when the NTRX50DA mounts in position 03. CB1 or CB2 on NT0X88AB/AF FSP and alarm connections to FSP TS1 pins 14,15 must be assigned to NTRX50DA.

Mounting Positions allowed in MIS Frame w/Doors

NTRX50DA Pos.	Baffle Mounting Position (below SDM)
03	Not Required
04-17	Required if any equipment mounted below SDM. Baffle position is SDM position minus 4. (Baffle occupied 4 inches, SDM occupies 6 inches.)
34	30
52	48
68	64

Mounting Positions allowed in MIS Frame w/o Doors

NTRX50DA Pos.	Baffle Mounting Position (below SDM)
03	Not Required
All Other	Required if any equipment is or may be installed below SDM. Baffle position is SDM position minus 4.

RULES:

- AP 1) When PEC NTRX50DA is ordered, these items are provided.
- RUL1 1) Always provide one Processor CP depending upon amount of DRAM Memory needed per customer requirements. For systems running with NA0005A.1 load, the minimum requirement is 64MB DRAM.

2) When the 128MB Processor CP NTRX50JS is required, always provide the 2GB Disk Drive NTRX50JU.

RUL2 1) Always provide one 1Gb Disk Drive or one 2GB Disk Drive per customer requirements. For systems running with NA0005A.1 load provide one 2GB disk drive.

2) Refer to RUL1 for other requirements.

RUL3 1) Provide one VME Ethernet Controller Card in VME chassis slot 2 and one Ethernet Transition Module card in transition slot 2 rear if customer requires a second Ethernet port to connect the SDM to the Telco LAN. See Note 1.

RUL4 1) Provide one (1) Baffle, four (4) Screws, one (1) Washer, one (1) Lock Washer for each NTFX50DA not mounted in MIS Frame position 03. See Note 5.

CABINETIZED SUPERNODE DATA MANAGER
FAULT TOLERANT

PEC CODE: NTRX50FA

CPC CODE: B0245225

RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: CSDM

ENGINEERING DESCRIPTION: The SDM-FT is a dedicated, high performance, multi-application computing platform providing nodal OAM&P services for the DMS product family. The SDM-FT is a complete hardware and software platform that is designed to conform to industry standards. The SDM-FT is fully integrated into the DMS architecture from a physical packaging, maintenance, and alarming perspective.

REFERENCE DOCUMENTATION: SLRX50EB 01 01
SLRX50EC 01 01
SLRX50ED 01 03
SLRX50FA 01 03
MSRX50FA 01 02

MARKETS: Applicable markets:

Europe
Asia/Pacific
US
CALA
Canada

ISSUE AUTHOR: Steve Martin Dept. 3471 (PPK)

MAIN CONTACT: Steve Martin Dept. 3471 (PPK)

NTRX50FA EMA2-26-SDM-5 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 05 12	ECM 715 01	NTRX50FA Introduction per EC006-26326 and EC006-30009.
97 06 23	ECM 715 02	Correct typo in RUL1. Add spec note per EPSA review.
97 08 08	ECM 715 03	Update per EC 018-51423 with new CPs NTRX50GN and NTRX50GP.
97 10 01	ECM 715 04	Correct Note 2.

The Cabinetized SuperNode Data Manager Fault Tolerant is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Model B C28 Cabinet (See NOTE 4)	NTRX25AA		1			AP
SDM-FT External Power Flt.	NTRX50DZ		1			AP
Power and Alarm Cable	NTRX5085		1			AP
Harness 0 Pow and Alm Cbl.	NTRX5095		1			AP
SDMM Frame Ground Cable	NTRX5105		1			AP
Des. Strip SDMM (Front)	P0837379		1			AP
Des. Strip SDMM (Rear Bot)	P0837381		1			AP
Fiberworld Blue Door Label	P0809981					RUL2
Lime Green Door Label	P0809979					RUL2
SDM-FT MSP Kit	NTRX50ED		1	61		AP
Modular Supervisory Panel	NTRX40BA		1	61		AP01
Fuse Module	NTRX43AA		1	61	9	AP01
Alarm Module	NTRX41AA		1	61	7	AP01
Breaker Module (15A)	NTRX42BA		2	61	10, 12	AP01
FPC (-48V CU Power/Alarm)	NTRX54BA			61	19	RUL4
FPC (-60V CU Power/Alarm)	NTRX54AA			61	19	RUL4
Desig. Label NTRX54AA	P0741735			61	19	RUL4
Fuse Dummy	A0205210		4	61		AP01
Fuse 3/4 Amp Brown	A0205209		4	61		AP01
Terminal Block(4X4)	P0737326		2	61	4, 14	AP01
Terminal Block(3X6)	P0737547		1	61	2	AP01
MSP Filler Panel	P0734474		3	61	3, 15, 15R	AP01
MSP Filler Panel	P0734475		2	61	1, 5	AP01
MSP Filler Panel	P0734476		7	61	11, 13, 14, 1R, 3R, 10R, 12R	AP01
MSP Card Des. Label	P0833203		1	61		AP01
MSP Cable Assy.	NTRX4050		1	61		AP01
MSP Cable Assy.	NTRX4052		1	61		AP01
MSP Cable Assy.	NTRX4053		1	61		AP01
MSP Cable Assy.	NTRX4054		2	61		AP01
MSP Designation Label	P0835559		1	61		AP01

Active Equipment
Cabinetized SuperNode Data Manager
Fault Tolerant

NTRX50FA
EMA2-26-SDM-5
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EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Fuse Designation Label	P0838254		1	61		AP01
MFSP Cover Label	P0736887		1	61		AP01
Interlock Cover	P0736771		2	61		AP01
Contact Cover	P0737433		15	61		AP01
I/O Expansion Chassis	NTRX50EC	SDME		28		RUL5
Des. Strip SDME (Front)	P0837380		1			AP02
Des. Strip SDME (Rear Bot)	P0837383		1			AP02
SDME Frame Ground Cable	NTRX5106		1			AP02
MFIO w/two 2GB DD/Ethern.	NTRX50FU			28	1F, 9F	RUL1
Design Label NTRX50FU	P0842607			28	1F, 9F	RUL1
LANPM	NTRX50FS			28	1R, 9R	RUL1
Front Filler Module	NTRX50GJ			07, 28	A/R	RUL3
Design Label NTRX50GJ	P0842610			07, 28	A/R	RUL3
Rear Filler Module	NTRX50GK			07, 28	A/R	RUL3
Design Label NTRX50GK	P0842611			07, 28	A/R	RUL3
Main Chassis	NTRX50EB	SDMM	1	07		AP
CPUset w/128MB DRAM	NTRX50FK			07	6F, 10F	RUL1
Design Label NTRX50FK	P0837463			07	6F, 10F	RUL1
CPUset w/256MB DRAM	NTRX50FL			07	6F, 10F	RUL1
Design Label NTRX50FL	P0837464			07	6F, 10F	RUL1
CPUset w/512MB DRAM	NTRX50FM			07	6F, 10F	RUL1
Design Label NTRX50FM	P0837465			07	6F, 10F	RUL1
MFIO w/2GB DD/DAT/Ethern.	NTRX50FQ			07	2F, 13F	RUL1

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
MFIO w/4MM DAT & 4GB DD	NTRX50GN			07	2F, 13F	RUL1
Design Label NTRX50GN	P0873342			07	2F, 13F	RUL1
LANPM	NTRX50FS			07	2R, 13R, 4R, 15R	RUL1
MFIO w/two 2GB DD/Ethern.	NTRX50FU			07	4F, 15F	RUL1
Design Label NTRX50FU	P0842607			07	4F, 15F	RUL1
MFIO w/2 4GB DD	NTRX50GP			07	4F, 15F	RUL1
Design Label NTRX50GP	P0873343			07	4F, 15F	RUL1
DS512 Interface Module	NTRX50GA			07	1F, 12F	RUL1
DS512 Personality Module	NTRX50GH			07	1R, 12R	RUL1
Cooling Unit Kit	NTRX92AA	CU	1	00		AP
Fan Finger Guard	A0293263		3	00		AP
C28 English Label Kit	NTRX3541					RUL2
C28 German Label Kit	NTRX3542					RUL2
Cosmetic Endguards/EMI	Note 1					
Cabinet Labels	Note 2					
Power and Grounding	Note 3					
Cabinet Mechanicals	Note 4					
SDM-FT Terminal Cable	NTRX5094	SEE NOTE 9				
SDM-FT Modem Cable	NTRX5093	SEE NOTE 9				
DS-6 Modem Shelf	A0380973	SEE NOTE 9				
Modem Card	A0620448	SEE NOTE 9				

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 NTRX73 Engineering Manual Section for provisioning cosmetic endguards and EMI panels.
- 2) Refer to MS0X60BA for Made In and Regulatory labels and MS0X60AA for end of aisle labels.
- 3) Refer to NTZX16CA Engineering Manual Section for system power and grounding information.
- 4) Refer to NTRX25AA EMS (or MSRX25AA) for provisioning of cabinet mounting hardware i.e. doors, cable trough, leveling feet, cover (power filter), frame fail lights and earthquake anchors. NOTE- The filter cover P0741641 is always required when filtered power is provisioned, regardless of the floor mounting arrangement used.
- 5) Items marked AP01 are included with NTRX50ED and are shown for sparing purposes.
- 6) Items marked AP02 are included with NTRX50EC and are shown for sparing purposes.
- 7) The OEM vendor will populate all unused slots with NTRX50GJ Filler Panel for front slots and NTRX50GK Filler Panel for the rear slots. This is part of the NTRX50EB and NTRX50EC chassis.

- 8) SDMM slots 1-5 belong to domain 0 and slots 12-16 belong to domain 1.

Slots 6-11 in SDMM are dedicated for CPU modules and I/O modules (MFIO) do not use these slots. SDME, when provisioned, provides extension to domain 0 and 1. Slots 1-8 in SDME belong to domain 0 and slots 9-16 belong to domain 1.

All I/O modules must be provisioned in pairs unless otherwise stated.

The CPU module pairs must have equal memory size.

Redundant I/O module (MFIO) pairs must be deployed in corresponding slots in domain 0 and domain 1. The personality modules must occupy rear slots directly behind the front modules, where front slot 1 corresponds to rear slot 1 and so on. Provisioned I/O modules must use available slots in SDMM first. If slots are not available in SDMM, then SDME must be provisioned. Non-redundant I/O modules must use first available domain 0 slot. The corresponding domain 1 slot must not be used.

MFIOs deployed in corresponding slots (i.e. mirrored pairs across two I/O domains) must have the same PEC.

- 9) Provision one (1) A0380973 DS-6 Modem Shelf, IF REQUIRED, and always provision one (1) A0620448 Modem Card. Provision one (1) NTRX5093 Modem Cable to connect the NTRX50FD (Port SP-0) on the SDM-FT to the modem card in a MIS/CMIS mounted DS-6 Modem Shelf. Provision one (1) NTRX5094 Cable with each SDM-FT to connect the console port to a VT100 terminal. Modem and cables required for console access by TAS for emergency support.
- 10) The fiber cable NT0X97AE is used to connect the DS-512 packs on the SDMM Shelf of the SDM-FT to the DPCC or SNSE Cabinet shelves MS0 and MS1 CPs NT9X62XX. (See CA0X06)
- 11) The following terminal lugs are required when powering the CSDM in a frame office:

6 AWG - A0614959 - (Qty. 5) or
8 AWG - A0614961 - (Qty. 5) or
10 AWG - A0386311 - (Qty. 5)

Two battery and two return runs are provided for each CSDM per office. Provide five (one per batt/rtn run, plus one

spare) of the gauge lug required in the 466 spec to enable the proper connection from the CSDM to PDC.

RULES:

- AP 1) When PEC NTRX50FA is ordered, these items are provided.
- RUL1 1) ALWAYS provide either two (2) NTRX50FK, or two (2) NTRX50FL, or two (2) NTRX50FM CPUset per SDMM Chassis application. These CPs occupy two slot positions. Provision labels as required.
- 2) ALWAYS provide two (2) NTRX50FQ or two (2) NTRX50GN per SDMM chassis application. These CPs are selected according to customer requirement of root volume group storage capacity. As a minimum, two (2) NTRX50FQ must be provisioned to provide 2GB mirrored storage. Optionally the storage capacity can be increased to 4GB by provisioning two (2) NTRX50GN instead. These CPs occupy two slots. Provide one (1) NTRX50FS for every NTRX50FQ or NTRX50GN provisioned. Provision labels as required. See Note 8.
- 3) Provide two (2) NTRX50FU or two (2) NTRX50GP to provide 4GB or 8GB mirrored disk storage for data volume group respectively. The data volume group mirrored storage capacity can be extended in steps of either 4GB or 8GB. Both the NTRX50FU and NTRX50GP must be provisioned in pairs and occupy corresponding slots in the Main or Expansion chassis. These CPs occupy two slots. Provision labels as required. See Note 8. Provide one (1) NTRX50FS for every NTRX50FU or NTRX50GP provisioned.
- 4) Provide two (2) NTRX50GA per SDMM.
- 5) Provide two (2) NTRX50GH per SDMM.
- RUL2 1) Provide one (1) P0809981 Fiberworld Blue Door Label per cabinet for grey doors in a C28 office.
- 2) Provide one (1) P0809979 Lime Green Door Label per cabinet for brown doors in a DMS100 office.
- 3) Provide either one (1) NTRX3541 C28 English Label Kit, when cabinet is required for customer in an English speaking environment or one (1) NTRX3542 C28 German Label Kit, when cabinet is required for customer in a German speaking environment.

- RUL3 1) Provide one (1) NTRX50GJ and designation label for slots 1F-16F, and provide one (1) NTRX50GK and designation label for slots 1R-5R and 12R-16R of Main Chassis as required for all empty slots.
- 2) Provide one (1) NTRX50GJ and designation label for slots 1F-16F, and provide one (1) NTRX50GK and designation label for slots 1R-16R of Expansion Chassis as required for all empty slots.
- RUL4 1) Provide either one (1) NTRX54BA Fan Management Unit when -48V is required, or provide one (1) NTRX54AA Fan Management Unit when -60V is required to the MSP (NTRX40BA) Unit.
- 2) Provide one (1) P0741735 Desig. Label when NTRX54AA CP is required.
- RUL5 1) Provide one (1) NTRX50EC SDME Shelf when expansion of the SDMM Shelf is necessary. Also see Note 8.

SPECTRUM PERIPHERAL MODULE

PEC CODE: NTLX50AA

CPC CODE: B0243490

RATING: Standard.

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: SPM

ENGINEERING DESCRIPTION: The Spectrum Peripheral Module is a trunking peripheral with OC-3 optical interface and improved signal processing capacity. The first SPM application replaces DTC7 trunking applications for agencies that use CCS7 signalling.

REFERENCE DOCUMENTATION: MSLX50AA 00 00

MARKETS: Applicable markets:

US
Carrier

ISSUE AUTHOR: David Cheek Dept. 6455 (RCH)

MAIN CONTACT: David Cheek Dept. 6455 (RCH)

NTLX50AA EMA2-27-SPM CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-----	-----	Previous history not available
96 04 10	ECM 597 01	Initial release
96 04 19	ECM 597 02	Shelf postions corrected.
96 06 05	ECM 597 03	Shelf, CEM pos corrected, DSPR to DSP
96 06 25	ECM 597 04	Shelf 58 and 2 corrected, DSP/VSP spare note

The Spectrum Peripheral Module is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Universal Framework	NT0X25AH		1			AP
Power Cabling Interface Unit	NTLX57AA		1	74		AP
Cooling unit assembly	NTLX55AA		1	73		AP
SPM Double height shelf	NTLX51AA		1	43		AP
Shelf Interface Module	NTLX61AA		2	43, 59	15, 15	RUL1
Common Equipment Module	NTLX63AA		2	43	7, 8	RUL1
OC-3 Module	NTLX71AA			43	9, 10	RUL3
DSP Module	NTLX65AA			43	1-6,	RUL4
				43	11-14,	
				59	1-15	
VSP Module	NTLX66AA			43	1-6,	RUL5
				43	11-14,	
				59	1-15	
Filler Module Assembly	NTLX60AA			43, 59	1-15	RUL6
Upper Grill assembly	NTLX5010		1	36		AP
Cooling unit assembly	NTLX55AA		1	35		AP
SPM Double height shelf	NTLX51AA		1	6		AP
Shelf Interface Module	NTLX61AA		2	6, 21	15, 15	RUL1
Common Equipment Module	NTLX63AA		2		7, 8	RUL1
OC-3 Module	NTLX71AA				9, 10	RUL3
DSP Module	NTLX65AA			6	1-6,	RUL4
				6	11-14,	
				21	1-15	
					15-28	
VSP Module	NTLX66AA			6	1-6,	RUL5
				6	11-14	
				21	1-15	
Filler Module Assembly	NTLX60AA			6, 21,	1-15	RUL6
				43, 59		
Lower Grill assembly	NTLX5011		1	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) The CE, SIM and OC-3 modules must be placed in specific positions in the SPM shelf as shown.
- 2) The DSP and VSP modules can be placed in any module position not occupied.
- 3) The mounting positions are referenced to the holes on the NT0X25AH. Because these positions are in inches and the mounting bracket is drilled with a 25 millimeter spacing, some mounting holes fall between positions on the NT0X25AH. These mid-alignments are truncated to the lower value in inches.

RULES:

- AP 1) When PEC NTLX50AA is ordered, these items are provided.
- RUL1 1) The Shelf Interface Module (SIM) and Common Equipment (CE) modules are always required in the quantities and locations shown.
- RUL2 1) If only one SPM is to be provisioned in a frame then the lower double height shelf assembly is provisioned first.
- 2) The upper double height shelf assembly will be completely provisioned with filler modules.

- RUL3 1) Provide the OC-3 module in the location shown, when the customer requires a TR-782 compliant OC-3 interface.
- 2) A second OC-3 module may be provided when the customer requires sparing on the OC-3 interface.
- RUL4 1) Provide the DSP module in the quantity required by the customer traffic. This module provides tone generation and detection.
- RUL5 1) Provide the VSP module in the quantity required by the customer for echo cancelling.
- RUL6 1) Provide the SPM filler module assembly as required in all module positions that are not equipped.

SERIES I PERIPHERAL CHANGE KIT FOR ENET

PEC CODE: NT2X31AS

CPC CODE: B0230674

| RATING: STD

REPLACES: Not Applicable

| REPLACED BY: Not Applicable

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides hardware modification to all existing DCM (NT2X31AA/AB/AC/AH/AJ/AK/AL), DES (NT2X12AA/AB/AD), and LMC (NT2X14AA/AC/AG/AE) equipment that will interface with ENET.

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)

NT2X31AS EMA2-96-AS CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
----- 97 04 22	----- ECM 288 07	Previous history not available MD NT2X31AS per EC024-96214. MD and Retire EMS. UN-MD NT2X31AS per EC018-51459.
97 09 09	ECM 288 08	

The Series I Peripheral Change Kit for ENET is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Message Circuit Pack NT2X33AA/AB			1	XX	Y	
ADD	Message Circuit Pack NT2X33AE			1	XX	Y	AP
ADD	Des Label (NT2X33AE) P0707678			1	XX	Y	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" can be one of 18, 32, 51, 65 for DCM/DES and 65 for LMC.
- 2) "Y" is position 13 for DCM/DES and position 09 for LMC.
- 3) Provide one (1) NT2X31AS Kit per existing DCM, LMC, DES shelf containing the NT2X33AA/AB CP when interfacing with ENET.
- 4) The NT2X31AS kit is used for field upgrade of existing circuit packs ONLY.

RULES:

AP 1) When PEC NT2X31AS is ordered, these items are provided.

LCM PROCESSOR CP CHANGE KIT

PEC CODE: NT6X04ZY

CPC CODE: B0240612

RATING: Standard

| REPLACES: NT6X04ZZ

REPLACED BY: Not Applicable

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides hardware modification to the LCE frame when converting a LCM module equipped with NT6X51AA/NT6X51AB LCM Processor CP to a LCM module equipped with NT6X51AC LCM Processor CP. This retrofit increases processor memory from 64KB to 256KB, and also increases 'on-board' diagnostics. The NT6X51AC is an upgrade of the NT6X51AB which provides indicator lights that indicate in-service /out of service status.

REFERENCE DOCUMENTATION: SL6X04ZY 00 01

MARKETS: Applicable markets:

US
CALA
Asia/Pacific
Canada
Europe

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

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

NT6X04ZY EMA2-97-LCM-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 12 09	ECM 683 13	Initial release, EC 11-20036
95 03 17	ECM 683 15	Correct PEC per ET 21249.
95 09 15	ECM 619 34	Correct Note 1 per ET 28389.
97 03 21	ECM 619 43	Replaces NT6X04ZZ per EC 024-96698.

The LCM Processor CP Change Kit is comprised of the following:

ACTION	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
REMOVE	LCM Processor	NT6X51AB		2	04,21 or 38,55	04	AP
REMOVE	Des Label (NT6X51AB)	P0701604		2	04,21 or 38,55	04	AP
ADD	Ext. LCM Processor	NT6X51AC		2	04,21 or 38,55	04	AP
ADD	Des Label (NT6X51AC)	P0802359		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) NT6X04ZY Extended LCM Processor Kit per frame when converting a NT6X04AA/AB/AC LCM Module to a NT6X04AD LCM Module. One

NT6X04ZY kit is required for each LCM module to be up-graded.

RULES:

AP 1) When PEC NT6X04ZY is ordered, these items are provided.

LCM PROCESSOR CP CHANGE KIT

PEC CODE: NT6X04ZX

CPC CODE: B0248269

| RATING: Standard

REPLACES: N/A

REPLACED BY: Not Applicable

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides hardware modification to the remote equipment when converting a LCM module equipped with NT6X51AA/AB/AC LCM Processor CP to a LCM module equipped with NT6X51DA LCM Processor CP. This upgrade allows ISDN capability when used with the NT6X05DA ISDN Line Drawer.

REFERENCE DOCUMENTATION: SL6X04ZX 00 01

MARKETS: Applicable markets:

US
Canada

ISSUE AUTHOR: NTI: Mark Sorrell Dept. 3471 (PPK)

MAIN CONTACT: NTI: Mark Sorrell Dept.3471 (PPK)

NT6X04ZX EMA2-97-LCM-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 05 05	ECM 514 17	Initial release, EC 024-97291

The LCM Processor CP Change Kit is comprised of the following:

ACTION	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
REMOVE	LCM Processor	NT6X51AB		2	04, 21 or 38, 55	04	AP
REMOVE	Des Label (NT6X51AB)	P0701604		2	04, 21 or 38, 55	04	AP
REMOVE	LCM Processor	NT6X51AC		2	04, 21 or 38, 55	04	AP
REMOVE	Des Label (NT6X51AC)	P0802359		2	04, 21 or 38, 55	04	AP
ADD	ISDN LCM Processor	NT6X51DA		2	04, 21 or 38, 55	04	AP
ADD	Des Label (NT6X51DA)	B0248269		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) NT6X04ZX ISDN LCM Processor Kit per frame when converting a NT6X04AA/AB/AC/AD LCM Module to a NT6X04AE LCM Module. One NT6X04ZX kit is required for each LCM module to be upgraded.

RULES:

- AP 1) When PEC NT6X04ZX is ordered, these items are provided.

ISDN LCMI TO LCME UPGRADE KIT

PEC CODE: NTB30BC

CPC CODE: B0245445

RATING: Standard.

REPLACES: NTB30BB

REPLACED BY: Not Applicable

ABBREVIATION NAME: Not Applicable

ENGINEERING DESCRIPTION: This change kit provides hardware modification to the LCEI frame (NTB30AB) when converting an AMI LCMI module equipped with NTB31AA/AC common circuit pack fill to a 2B1Q LCME module equipped with NTB31BC.

REFERENCE DOCUMENTATION: MSB30BC 01 04

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)

NTBX30BC EMA2-97-LCME-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
96 02 09	ECM 685 10	Introduce NTBX30BC LCME Upgrade Kit per EC 011-21510. Replaces NTBX30BB.

The ISDN LCMI TO LCME UPGRADE KIT is comprised of the following:

	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	NTBX34CB		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)	P0832020		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

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) NTB30BC ISDN LCMI to LCME Upgrade Kit per frame when converting an AMI LCMI equipped with NTB31AA/AC Common Circuit Pack Fill to a 2B1Q LCME equipped with NTB31BC 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) NTB35AA LCMI Digroup Group Controller CPs with the NTB30BC Kit.

LCMI PROCESSOR MEMORY UPGRADE KIT

PEC CODE: NTB31AD

| CPC CODE: B0229875

| RATING: Manufacture Discontinued (MD).

| REPLACES: Not Applicable

| REPLACED BY: No Direct Replacement.

| ABBREVIATION NAME: LD

ENGINEERING DESCRIPTION: This change kit provides hardware modification to upgrade from NTB31AA to NTB31AC LCMI Common CP. This upgrades the LCMI Processor CP.

REFERENCE DOCUMENTATION: N/A

| MARKETS: Applicable markets:

| US
| Canada
| Europe
| Asia/Pacific
| CALA

| ISSUE AUTHOR: NTI: Merdia Drummer Dept. 3471 (PPK)

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

NTBX31AD EMA2-97-LCMI-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
----- 93 07 12	----- ECM 616 12	Previous history not available Incorporate the following changes: - EC018-40820 - Add the NT6X30CA North American ring generator to the NTRX30BA CLMI and reflect NTBX32AA, NTBX31AA, AC, and NTBX31AD as MD

The LCMI Processor Memory Upgrade Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	LCMI Processor CP	NTBX34AA		1	X+14	21	AP
REMOVE	LCMI Processor CP	NTBX34AA		1	X	21	AP
ADD	LCMI Processor CP	NTBX34AB		1	X+14	21	AP
ADD	Desig Label (BX34AB)	P0697031		1	X+14	21	AP
ADD	LCMI Processor CP	NTBX34AB		1	X	21	AP
ADD	Desig Label (BX34AB)	P0697031		1	X	21	AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
Not Applicable		

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 designates shelf 05 or 40
- 2) Provide one (1) NTBX31AD LCMI Processor Memory Upgrade Kit in an existing office per each equipped LCMI for BCS27 (Canadian V.O. applications only, or U.S. general applications), or higher BCS (all applications). This kit converts NTBX31AA LCMI Common CP to NTBX31AC. If both LCMI's are equipped in an LCEI then both must be upgraded at the same time.

- 3) For field application only. Office records shall be changed and maintained to agree with the Common CP and not the Upgrade Kit.
- 4) The order in which the equipment items appear above is not necessarily the order in which they are to be removed from or added to the LCMI module.

RULES:

- AP 1) When PEC NTB31AD is ordered, these items are provided.

2P/3P XPM+ ECHO CANCELLER UPGRADE KIT

PEC CODE: NT6X01XG

CPC CODE: B0239502

RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: None

ENGINEERING DESCRIPTION: The NT6X01XG provides materials and instructions to upgrade one existing DTC/LGC module for ECHO CANCELLER functionality for (2) and (3) processor backplanes with XPM PLUS. The PC6X01XG drawing describes installation and required backplane modifications.

REFERENCE DOCUMENTATION: SL6X01XG 00 01

MARKETS: Applicable markets:

US
Canada
CALA
Asia/Pacific
Europe

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

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

NT6X01XG EMA2-99-ECC-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 11 10	ECM 659 12	Introduce NT6X01XG upgrade kit.
95 04 24	ECM 644 18	Introduce NT6X01XG upgrade kit to the NT6X01BA frame.
96 11 08	ECM 693 21	Show used on 2 or 3 processor BP. Clarify note on paddleboard insertion guides.

The 2P/3P XPM+ ECHO CANCELLER UPGRADE KIT is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Terminator Card	NTMX71AA		2	X,X+14	19R	RUL1
RELOC	Terminator Card	NTMX71AA		2	X,X+14	20R	RUL1
ADD	Insertion Guide	P0749586		4	X,X+14	19R	RUL2
ADD	ECHO PADDLECARD	NTCX50AB		2	X,X+14	19R	AP
ADD	ECHO CONTROL CP	NT6X28AC		2	X,X+14	19	AP
ADD	NT6X28AC LABEL	P0725257		2	X,X+14	19	AP
ADD	ECHO INT. CA ASSY	NTNX3390		1	X,X+14	19R	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) 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 NT6X01XG is ordered, these items are provided.
- RUL1 1) Remove NTMX71AA XPM+ paddleboard on (2 processor B/P) from position 19 rear, and mount it on position 20 rear. This is to allow the echo canceller paddlecard NTCX50AB to mount in position 19 rear. IN the 3 processor B/P, the NTMX71AA paddlecard is already in position 20.
- RUL2 1) The two extra insertion guides are provided for when the NTMX71AA XPM+ paddleboard is moved from 19 rear to 20 rear, so the echo canceller paddlecard (NTCX50AB) can be mounted in position 19 rear. Positions 19 and 20 on 2 shelves = 4 insertion guides.

ECC UPGRADE KIT FOR FRAME (NO CABLE FILTER)

PEC CODE: NT6X01XK

CPC CODE: B0244020

| RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: None

ENGINEERING DESCRIPTION: The NT6X01XK provides materials and instructions to upgrade one existing DTC/LGC module for ECHO CANCELLER functionality for (2) and (3) processor backplanes with XPM PLUS. The PC6X01XK drawing describes installation and required backplane modifications.

REFERENCE DOCUMENTATION: SL6X01XK 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)

NT6X01XK EMA2-99-ECC-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 12 11	ECM 643 18	Introduce NT6X01XK upgrade kit per ECD 024-94920.

The ECC UPGRADE KIT for Frame (No Cable Filter) is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Terminator Card	NTMX71AA		2	X,X+14	19R	RUL1
RELOC	Terminator Card	NTMX71AA		2	X,X+14	20R	RUL1
ADD	Insertion Guide	P0749586		4	X,X+14	19R	RUL2
ADD	ECHO PADDLECARD	NTCX50AB		2	X,X+14	19R	AP
ADD	ECHO CONTROL CP	NT6X28AC		2	X,X+14	19	AP
ADD	NT6X28AC LABEL	P0725257		2	X,X+14	19	AP
ADD	ECC Control Cable	NTNX3601		1	X,X+14	19R	AP
ADD	ECC Cable Bracket	P0818958		1	X,X+14	19R	AP
ADD	Screws	P097F813		2	X,X+14	19R	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) 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 NT6X01XK is ordered, these items are provided.
- RUL1 1) Remove NTMX71AA XPM+ paddleboard on (2 processor B/P) from position 19 rear, and mount it on position 20 rear. This is to allow the echo canceller paddlecard NTCX50AB to mount in position 19 rear. IN the 3 processor B/P, the NTMX71AA paddlecard is already in position 20.
- RUL2 1) The two extra insertion guides are provided for when the NTMX71AA XPM+ paddleboard is moved from 19 rear to 20 rear, so the echo canceller paddlecard can be mounted in position 19 rear.

ECC CABLE SUPPORT BRACKET KIT (FRAMES)

PEC CODE: NT6X01XJ

CPC CODE: B0244019

| RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: None

ENGINEERING DESCRIPTION: The NT6X01XJ provides materials and instructions to replace the NTN3390 when the customer requires the ECC cable assembly to be mounted to the frame.

REFERENCE DOCUMENTATION: SL6X01XJ 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)

NT6X01XJ EMA2-99-ECC-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
95 12 11	ECM 643 18	Introduce NT6X01XJ upgrade kit per ECD 024-94920.

The ECC Cable Support Bracket Kit (FRAMES) is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
ADD	ECC Cable Bracket	P0818958		1	X,X+14	19R	AP
ADD	Screws	P097F813		2	X,X+14	19R	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) 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 NT6X01XJ is ordered, these items are provided.

RUL1 1) Provide 1 ECC Cable Assembly, NTNX3601, and 1 ECC cable support bracket kit, to replace the NTNX3390 cable when the customer requires the ECC cable assembly to be mounted to the frame.

IAE SP MEMORY UPGRADE KIT

NTBX40BD

RATING: Check Application Date

ENGINEERING DESCRIPTION: This change kit provides hardware modification to the Integrated Access Controller (IAC) Common Circuit Pack Fills to upgrade from NT6X46AB to NT6X46BA SP Memory.

REFERENCE DOCUMENTATION: N/A

The IAE SP Memory Upgrade Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	SP Memory Plus CP	NT6X46AB		2	18,32	11	
REMOVE	CPC BP Paddleboard	NT6X1205		2	18,32	11R	
ADD	SP Memory Plus CP	NT6X46BA		2	18,32	11	AP
ADD	Desig. Label 6X46BA	P0698315		2	18,32	11	AP

NOTE:

- 1) Provide one (1) NTB40BD IAE SP Memory Upgrade Kit to convert NTB40BA or NTB40BB IAC Common CP Fill to NTB40BC IAC Common CP Fill. This upgrade is required for all applications going to BCS-27 from a lower BCS.
- 2) For field application only. Office records shall be changed and maintained to agree with the Common CP and not the Upgrade Kit.
- 3) The order in which the equipment items appear above is not necessarily the order in which they are to be removed from or added to the IAC module.

RULE:

- AP 1) When PEC NTB40BD is ordered, these items are provided.

PRODUCT CHANGE KIT
NT6X01AA EQUIPPED FOR DWS

NT6X02YS

RATING: Standard

ABBREVIATION NAME: CPCI

ENGINEERING DESCRIPTION: The NT6X02YS Change Kit provides the circuit packs and the raw cable to modify and equip the NT6X01AA for DWS.

REFERENCE DOCUMENTATION: SL6X02YS 00 01
NT6X02YS REL 01

MARKETS: Applicable markets:

Canada
US

NT6X02YS EMA2-99-ISDN-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
-----	-----	Previous history not available
92 08 20	API 422 01	Introduced in API422 Issue 01 which introduced Dialable Wideband Services to modify and equipment the NT6X01AA to allow use of the NTAX78AA ETS.
93 02 25	ECM 673 01	Introduction of DWS in ECM 673.

The PRODUCT CHANGE KIT NT6X01AA equipped for DWS is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Time Switch CP	NT6X44AA		2	XX + 14	14	
REMOVE	Des Label (NT6X44AA)	P0698316		2	XX + 14	14	
ADD	Enhanced Time Switch	NTAX78AA		2	XX + 14	14	AP
ADD	Des Label (NTAX78AA)	P0737140		2	XX + 14	14	AP
ADD	26 Gauge Wire (Green)	R0109836		1	XX		AP

NOTES:

- 1) XX = Shelf Pos 18 or 51
- 2) Wire used for adding straps which allow use of NTAX78AA
- 3) Makes card slot 14 provisionable.

RULES:

- AP 1) When PEC NT6X02YS is ordered, these items are provided.

LGC/LTC/DTC COMMON CIRCUIT PACK CHANGE KIT

NT6X02ZP

RATING: Check application date for NT6X02ZP.

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides hardware modification to the LGE/LTE/DTE frame when converting an LGC/DTC/DTC equipped with NT6X02AA to LGC/LTC/DTC NT6X02AC.

REFERENCE DOCUMENTATION: N/A

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Power Converter	NT2X70AB		2	18,32 or 51,65	25	
REMOVE	Des Strip (NT6X02AA)	P0626885		2	18,32 or 51,65	1	
ADD	Power Converter	NT2X70AD		2	18,32 or 51,65	25	
ADD	Des Strip (NT6X02AC)	P0660560		2	18,32 or 51,65	1	

NOTE:

- 1) Provide minimum one (1) maximum two (2) NT6X02ZP Common Circuit Pack Kit per frame when converting an LGC/LTC/DTC module equipped with NT6X02AA pack fill to NT6X02AC 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-PIN STUBLESS PROTECTOR BLOCK ASSEMBLY
LINE UPGRADE

PEC CODE: NT8X09AB

CPC CODE: B0231049

RATING: Standard

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME:

ENGINEERING DESCRIPTION: This kit contains the LCA shelf, 4-Pin protector blocks, Bix Connectors and retainers required to terminate 5-Line Drawer on the OPM Left Hand Column (LHC).

Provision this Kit per Telco specifications for a 320-Line Upgrade equipped with 4-Pin protector block assembly.

REFERENCE DOCUMENTATION: SL8X09AC 00 04

MARKETS: Applicable markets:

US
Canada
Cala

ISSUE AUTHOR: NTI: Mark Sorrell Dept. 3471 (PPK)

MAIN CONTACT: NTI: Mark Sorrell Dept. 3471 (PPK)

NT8X09AB EMA2-99-OPM-1 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 07 03	ECM 514 18	Update to reflect Stocklist.

The 4-Pin Stubless Protector Block Assembly Line Upgrade is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Retainer	A0330377		12			AP
LCM Drawer	NT6X05AA		5			AP
Protector Block Assy	NT8X08AA		3			AP
LCM Common LCD	NT8X04BB		1			AP
Line Con. Array Shelf	NT8X0403		1			AP
Lockwasher	P0183220		1			AP
Flatwasher	P0284154		1			AP
Nut	P049C307		6			AP
Scr Cphm .164-32X.250	P0622249		6			AP
Label	P0631765		1			AP
Cable Tie	P0633701		100			AP
Retainer	P0652911		1			AP
Nameplate	P0708739		1			AP
SCREW HHT .216-24X.500	P097F813		10			AP
Tapping Screw	P097F839		2			AP
Cable Tie Bracket	P0558618		1			AP
Cable Tie 15 In.	P0590550		20			AP
Card Design BP NO.1-600	P0613827		1			AP
Card Design BP NO.601-120	P0613828		1			AP
WS Lock Ext .164-.381X.02	P099Q899		6			AP
Lock Ext .190-.410X.02	P099Q900		6			AP
# CABLE BRACKET	P0628371		6			AP
# LABEL	P0664807		1			AP
# INSULATOR BLK	R0076525		0.15M			AP

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
	MD	

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 # denotes that parts are no longer part of the upgrade kit. These parts are not MDed and are shown for previous history information.

RULES:

5-PIN PROTECTOR BLOCK ASSEMBLY
WITH 50 FT. STUB LINE UPGRADE

PEC CODE: NT8X09AC

CPC CODE: B0231504

RATING: Standard

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME:

ENGINEERING DESCRIPTION: This kit contains the LCA shelf, 5-Pin protector blocks and a Cable Stub Option. Configured to terminate 5-Line Drawer in a termination external to the OPM.

Provision this Kit per Telco specifications for a 320-Line Upgrade equipped with 5-Pin protector block assembly and a 50 ft. cable stub option.

REFERENCE DOCUMENTATION: SL8X09AC 00 04

MARKETS: Applicable markets:

US
Canada
Cala

ISSUE AUTHOR: NTI: Mark Sorrell Dept. 3471 (PPK)

MAIN CONTACT: NTI: Mark Sorrell Dept. 3471 (PPK)

NT8X09AC EMA2-99-OPM-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 07 03	ECM 514 18	Update to reflect Stocklist.

The 5-Pin Protector Block Assembly With 50 Ft. Stub Line Upgrade is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Line Concent Array Sh. Assy.	NT8X0403		1	19		AP
LCM Drawer	NT6X05AA		5			AP
Cable Assembly	NT8W0119		9			AP
Lockwasher	P0183220		8			AP
Washer	P0284154		8			AP
Cable Tie Bracket	P0558618		2			AP
Cable Tie	P0590550		12			AP
Rivet	P0592343		24			AP
Label	P0631765		1			AP
Cable Tie	P0633701		100			AP
Cable Tie Mount. Base	P0633735		6			AP
Ferrite	P0654339		12			AP
Pan Head Screw	P0678321		12			AP
Nameplate	P0708739		1			AP
Lockwasher	P0719188		12			AP
SCREW HHT .216-24X.500	P097F813		12			AP
Tapping Screw	P097F839		2			AP
Machine Screw	P099M457		6			AP
Label OPM Line	P0804164		1			AP
Retainer Clip	P0739181		12			AP
Block Assy., Cable Stub	A0351744		3			AP
Cable Retainer	P0652911		1			AP
# NUT HEX .190-32	P049C307		2			AP
# LOCK EXT .190-.410X.02	P099Q900		2			AP
# CABLE BRACKET	P0628371		6			AP
# CARD DESIGN BP NO.1-600	P0613827		1			AP
# CARD DESIGN BP NO.601-120	P0613828		1			AP
# LABEL	P0664807		1			AP
# LOCAL CABLE ASSY, LC9	NT8W0110		3			AP
# OPM-256 LABEL NTI-OPMA-4	P0713970		1			AP
# 96PR.PROT.BLK.E/W CA.STU	A0351743					AP
# RET. CLIPS SUPERMATES MOD	A0376541		16			AP
# 50 FOOT CABLE STUB	NT8X0804					RUL1

EQUIPMENT FLAGGED '#':

PEC	RATING	REPLACED BY PEC
	MD	

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 # denotes that parts are no longer part of the upgrade kit. These parts are not MDed and are shown for previous history information only.

RULES:

5-PIN STUBLESS PROTECTOR BLOCK ASSEMBLY
LINE UPGRADE

PEC CODE: NT8X09AD

CPC CODE: B0231050

RATING: Standard

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME:

ENGINEERING DESCRIPTION: This kit contains the LCA shelf, 5-Pin protector blocks, Bix Connectors and retainers required to terminate 5-Line Drawer on the OPM Left Hand Column (LHC).

Provision this Kit per Telco specifications for a 320-Line Upgrade equipped with 5-Pin protector block assembly.

REFERENCE DOCUMENTATION: SL8X09AD 00 04

MARKETS: Applicable markets:

US
Canada
Cala

ISSUE AUTHOR: NTI: Mark Sorrell Dept. 3471 (PPK)

MAIN CONTACT: NTI: Mark Sorrell Dept. 3471 (PPK)

NT8X09AD EMA2-99-OPM-3 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 07 03	ECM 514 18	Update to reflect Stocklist.

The 5-Pin Stubless Protector Block Assembly Line Upgrade is comprised of the following:

EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
Retainer	A0330377		12			AP
LCM Drawer	NT6X05AA		5			AP
Cable Assembly	NT8W0119		9			AP
Lockwasher	P0183220		8			AP
Washer	P0284154		8			AP
Cable Tie Bracket	P0558618		2			AP
Cable Tie	P0590550		12			AP
Rivet	P0592343		24			AP
Label	P0631765		1			AP
Cable Tie	P0633701		100			AP
Cable Tie Mount. Base	P0633735		6			AP
Retainer	P0652911		1			AP
Ferrite	P0654339		12			AP
Pan Head Screw	P0678321		12			AP
Nameplate	P0708739		1			AP
Label OPM-256	P0713970		1			AP
Lockwasher	P0719188		12			AP
Screw HHT .216-24X.500	P097F813		12			AP
Tapping Screw	P097F839		2			AP
Machine Screw	P099M457		6			AP
96Pr Prot. Blk Assy 5 Pin	A0351463		3			AP
Line Concent Array Sh Assy	NT8X0403	LCA	1	19		AP
# NUT HEX .190-32	P049C307		2			AP
# LOCK EXT .190-.410X.02	P099Q900		2			AP
# CABLE TIE 15 IN.	P0590550		20			AP
# CABLE BRACKET	P0628371		6			AP
# BIX CONNECTOR RETAINERS (GRN	QRE3A		16			AP
# BIX INTERFACE CONNECTORS	QCBE1B		16			AP
# CARD DESIGN BP NO.1-600	P0613827		1			AP
# CARD DESIGN BP NO.601-120	P0613828		1			AP
# LABEL	P0664807		1			AP
# LOCAL CABLE ASSY, LC9	NT820110		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 # denotes that parts are no longer part of the upgrade kit. These parts are not MDed and are shown for previous history information only.

RULES:

NT6X10AC/AD TO NT6X10DA PC KIT

PEC CODE: NT6X10ZA

| CPC CODE: B0245999

| RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: Provide the NT6X10ZA PC Kit to convert a NT6X10AC RCE frame or a NT6X10AD RCEI frame to a NT6X10DA RMME frame. Application of this kit removes the NT6X12 RCC controller shelves from positions 18 & 32 of both the NT6X10AC/AD frames, and removes the NT0X28EC FSP from position 45 of the NT6X10AD frame only. It also changes the PEC/designation of the frame from NT6X10AC/RCE, or NT6X10AD/RCEI to NT6X10DA/RMME.

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)

NT6X10ZA EMA2-99-RCC-10 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
96 08 09	ECM 618 27	Introduce NT6X10ZA Product Change Kit per EC 024-96391.

The NT6X10AC/AD to NT6X10DA 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
REMOVE	FSP (RCEI only)	NT0X28EC		1	45		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) NT6X10ZA PC Kit per NT6X10AC or NT6X10AD frame when converting from RCE/RCEI to RMME.
- 2) See Engineering Manual Section NT6X10DA for additional provisioning requirements for the new NT6X10DA RMME frame.

RULES:

RLM CONTROL SHELF MUX KIT

NT2X14AZ

RATING: Standard

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides hardware to change NT2X22AA CP to NT2X22AB CP on an RLM Control Shelf.

REFERENCE DOCUMENTATION: Not applicable

The RLM Control Shelf MUX Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Conn Mem & Trans MUX	NT2X22AA		1	65	12	AP
REMOVE	Des Label (NT2X22AA)	P0613369		1	65	12	AP
ADD	Conn Mem, Trm MUX CP	NT2X22AB		1	65	12	AP
ADD	Des Label (NT2X22AB)	P0613370		1	65	12	AP

NOTE:

- 1) Office release records shall be maintained to agree with the equipped RLM shelf and not the RLM Control Shelf MUX Kit.
- 2) The order in which equipment appears above is not necessarily the order in which it is to be removed from or added to the shelf.

RULE:

- AP 1) When PEC NT2X14AZ is ordered, these items are provided.

SMR PACKFILL CHANGE KIT

NT6X02CU

RATING: Standard

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides hardware modification to the SMR at BCS 33 and above to introduce new messaging.

REFERENCE DOCUMENTATION: N/A

MARKETS: Applicable markets:

US
Canada
Europe
Asia/Pacific
Wireless

NT6X02CU EMA2-99-SMR-2 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
92 12 18	ECM 231 09	Introduce Change Kit
93 04 14	ECM 231 10	Add Building Block codes to the table

ISSUE AUTHOR NTI: David Terwey Dept. 3471 (PPK)

MAIN CONTACT NTI: David Terwey Dept. 3471 (PPK)

The SMR Packfill Change Kit is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Message Interface CP	NT6X43AA		2	X	18	AP
REMOVE	Message Interface CP	NT6X43AA		2	X+14	18	AP
ADD	Message/Tone Gen. CP	NT6X69AC		2	X	18	AP
ADD	Des Strip (NT6X69AC)	P0710476		2	X	18	AP
ADD	Message/Tone Gen. CP	NT6X69AC		2	X+14	18	AP
ADD	Des Strip (NT6X69AC)	P0710476		2	X+14	18	AP

FLAGS:

NOTES:

- 1) Provide minimum one (1) maximum two (2) NT6X02CU Common Circuit Pack Kit per frame when converting NT6X02 XPM Modules as follows:

DESCRIPTION	FROM	TO
SMR Common CP	NT6X02CC	NT6X02CT
SMR Common CP	NT6X02CP	NT6X02CT
SMR Common CP	NT6X02CQ	NT6X02CT
SMR Common CP	NTZZ03CA	NT6X02CT
SMR Common CP	NTZZ03JA	NT6X02CT

- 2) The NT6X02CU Product Change Kit changes Slots 08,09,10,11,11R,12,14, 22 and 23 of the upgraded modules to provisionable slots.
- 3) X in SHF POS is equal to 18 or 51.
- 4) The NT6X02ZL kit must be applied before the NT6X02CU upgrade kit can be applied. One NT6X02ZL kit per frame.

AP 1) When PEC NT6X02CU is ordered, these items are provided.

RULES:

SMS Product Change Kit

NT6X02DK

RATING: Standard

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides hardware modification to field upgrade a NT6X02DC/DD SMS module to a NT6X02DJ SMS module. The NT6X02DK change kit upgrades the Master Processor Memory CP to the NT6X47AC. This retrofit is needed to meet BCS-31 gateing hardware requirements.

REFERENCE DOCUMENTATION: N/A

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Master Proc Mem CP	NT6X47AB		2	XX	10	
ADD	Master Proc Mem CP	NT6X47AC		2	XX	10	AP
ADD	Des Strip (NT6X47AC)	P0709529		2	XX	10	AP

NOTE:

- 1) Provide minimum one (1) maximum two (2) NT6X02DK Common Circuit Pack Kit per frame when converting NT6X02 XPM Modules as follows:

DESCRIPTION	FROM	TO
SMS Common CP	NT6X02DC	NT6X02DJ
SMS Common CP	NT6X02DD	NT6X02DJ

- 2) The NT6X02DK Product Change Kit changes Slots 11 and 11R of the modules to provisionable slots. These slots are being made provisionable to ease future design development.
- 3) The NT6X02DJ Common CP Fill is the PEC used for the field upgrade of existing peripheral modules ONLY. The NT6X02DJ Common CP Fill CANNOT be ordered.
- 4) XX in SHF POS is equal to 18,32 or 51,65.

SMR TO SMS KIT

PEC CODE: NT6X02YB

CPC CODE: B0245947

RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: Not Applicable

ENGINEERING DESCRIPTION: This change kit contains the hardware requirements to upgrade from an SMR (NT6X02CT) to an SMS (NT6X02DV). It also includes information for upgrading older SMR packfills to the current SMU (NT6X02DV).

REFERENCE DOCUMENTATION: SL6X02YB 00 01
PC6X02YB 00 02

MARKETS: Applicable markets:

US
Canada
CALA

ISSUE AUTHOR: Barbara Berkley Dept. 3471 (PPK)

MAIN CONTACT: Barbara Berkley Dept. 3471 (PPK)

NT6X02YB EMA2-99-SMS-6 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 04 23	ECM 714 04	Create this change kit per ECD 024-97732.

The SMR TO SMS KIT is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Power Converter	NT2X70AD/AE		2	XX	25	AP
REMOVE	DS-30 Network I/F	NT6X40AA		4	XX	22, 23	AP
REMOVE	LGC/DTC Processor	NT6X45BA		2	XX	8	AP
REMOVE	LGC/DTC Processor	NT6X46AF/AC		2	XX	12	AP
REMOVE	Signal Processor	NT6X46BB/BA/AC		2	XX	11	AP
REMOVE	Master Processor	NT6X47AB		2	XX	9	AP
REMOVE	Master Processor	NT6X47AC/AB		2	XX	10	AP
REMOVE	SMR Pad Ring Card	NT6X80AA		2	XX	19	AP
REMOVE	SMR A Bit, B Word CP	NT6X81BA		2	XX	13	AP
REMOVE	CPC Backpanel PB	NT6X1205		2	XX	11R	AP
REMOVE	DS1 Interface	NT6X50AA		10	XX	1-5	AP
ADD	Time Switch	NT6X86AB		2	XX	13	AP
ADD	Des Label (6X86AB)	P0724376		2	XX	13	AP
ADD	SMU Pad Ring Card	NT6X80BB		2	XX	19	AP
ADD	Des Label (6X80BB)	P0000015		2	XX	19	AP
ADD	Power Converter	NT2X70AF		2	XX	25	AP
ADD	Des Label (2X70AF)	P0809960		2	XX	25	AP
ADD	XPM Plus Upgrade Kit	NT6X02XG		2	XX		AP

Note5

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.
- 3) In addition to the NT6X02YA (SMR to SMU) conversions kit, the following circuit packs may be required to configure the product to meet customer's needs depending on each site's unique requirements for the new SMU frame:

PEC	KIT	DESCRIPTION	
NT6X85AC	NTZZ03FA	DS-1 Interface for SLC-96	1-5/shelf
NT6X92BC	NTZZ02FB	Universal Tone Receiver	1/shelf
NT7X05AA	NTZZ02UA	Peripheral Recovery Loader	1/shelf
NT6X78AB	NTZZ97AA	Class Modem Resource	1/shelf
NT6X40AC	NTZZ02GC	DS30 Interface (req'd if an older 6X40XX was present).	1/shelf
NT6X69AD	NT6X02WB	Message Interface Card (NT6X69AC is acceptable)	1/shelf
NT6X40FB NT6X40GA	NTZZ02HN (incl.)	DS512 Fiber (if SMU is to be ENET)	1/module
NT6X02UF	N/A	Bracket is required if SMR did not have NT6X02BU or NT6X02UF at XX-22R (req'd for fiber and non-fiber apps).	1/shelf

Note: The kit (building block code) contains the circuit pack and designation label to support that circuit pack.

- 4) The following circuit packs will be required when upgrading from the following older packfills. The customer sites must be reviewed to obtain the exact SMR packfill to properly provide the required packs for this conversion:

SMR NT6X02CA or SMR NT6X02CQ to SMS NT6X02DV:			
PEC	KIT	DESCRIPTION	
NT6X02YA	N/A	SMR to SMU upgrade kit with circuit packs	1/module
NT6X69AD	NT6X02WB	Message Interface Card (NT6X69AC is acceptable)	1/shelf

NT6X40AC	NTZZ02GC	DS30 Interface (if SMS	1/shelf
--OR--		is to be JNET)	
NT6X40FB	NTZZ02HN	DS512 Fiber (if SMS is to	1/module
NT6X40GA	" "	be ENET)	
NT6X02UF	N/A	Bracket is required if SMR	1/shelf
		did not have NT6X02BU or	
		NT6X02UF at XX-22R (req'd	
		for fiber and non-fiber apps).	

- 5) The NT6X02YA kit contains a kit within it -- the NT6X02XG CCPE Host XPM and RCC XPM+ Paddlecard Upgrade Kit which must also be applied. See EMS NT6X02XG for details on this kit.
- 6) The NT6X40AA is NOT compatible with the NT6X02DV SMS packfill and must be removed. Keep the NT6X40AC if present.

RULES:

- AP 1) When PEC NT6X02YB is ordered, these items are provided.

SMU COMMON CIRCUIT PACK KIT

PEC CODE: NT6X02CM

CPC CODE: B0230797

RATING: Standard

| REPLACES: NT6X02CL

REPLACED BY: N/A

ABBREVIATION NAME: N/A

ENGINEERING DESCRIPTION: This change kit provides hardware modification to the NT6X01AA frame when converting a NT6X02DD(SMS) module to a NT6X02EB(SMU) module.

| REFERENCE DOCUMENTATION: SL6X02CM 00 01

MARKETS: Applicable markets:

US
Canada
CALA

ISSUE AUTHOR: NTI: Barbara Berkley Dept. 3471 (PPK)

MAIN CONTACT: NTI: Barbara Berkley Dept. 3471 (PPK)

NT6X02CM EMA2-99-SMU-5 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 NT6X46BA with NT6X46BB.
97 04 01	ECM 714 03	Per ECD 024-96698 NT6X45BB is MD'd and replaced by NT6X45BA.
97 04 23	ECM 714 04	Modify cover sheet to reflect NT6X02CM replaces NT6X02CL.

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	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	P0705031		2	18, 32 or 51, 65		
ADD	XPM Processor CP	NT6X45BA			18, 32 or 51, 65	8, 12	RUL1
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) NT6X02CM 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	NT6X02DD	SMU Common CP	NT6X02EB

RULES:

- AP 1) When PEC NT6X02CM is ordered, these items are provided.
- RUL1 1) Replace all NT6X45CA XPM Processor CPs with NT6X45BAs.
- RUL2 1) Provide one (1) NT0X50AA Filler Faceplate for slot 13 that becomes unequipped.

NTAX78AB UPGRADE KIT

PEC CODE: NT6X02CY

| CPC CODE: B0248880

RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: Not Applicable

ENGINEERING DESCRIPTION: This change kit converts and NT6X02ES SMUI+ module to an NT6X02CX SMUI+ module with DTA (digital test access).

REFERENCE DOCUMENTATION: SL6X02CY 00 01
PC6X02CY 00 01

MARKETS: Applicable markets:

US
Canada
CALA

ISSUE AUTHOR: Barbara Berkley Dept. 3471 (PPK)

MAIN CONTACT: Barbara Berkley Dept. 3471 (PPK)

NT6X02CY EMA2-99-SMU-6 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 04 23	ECM 714 04	Create this section, NT6X02CY, per ECD 024-97732.

The NTAX78AB UPGRADE KIT is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Time Switch	NT6X44CA		2	X,X+14	14	AP
ADD	Enhanced Time Switch	NTAX78AB		2	X,X+14	14	AP
ADD	Des Strip (NTAX78AB)	P0803131		2	X,X+14	14	

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.
- 3) Application of this kit to NT6X02ES converts the SMUI+ module to NT6X02CX and adds Digital Test Access (DTA) by adding the NTAX78AB Enhanced Time Switch CP.

RULES:

- AP 1) When PEC NT6X02CY is ordered, these items are provided.

NT6X80BB PRODUCT CHANGE KIT

PEC CODE: NT6X02WE

CPC CODE: B0241104

RATING: Standard

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: Not Applicable

ENGINEERING DESCRIPTION: The NT6X02WE provides materials to upgrade one existing NT6X02EM SMU Module to the NT6X02EP SMU Module. This upgrade kit is to be used for field application only.

REFERENCE DOCUMENTATION: SL6X02WE 00 01
PC6X02WE 00 01

MARKETS: Applicable markets:

US
Canada
CALA

ISSUE AUTHOR: Barbara Berkley Dept. 3471 (PPK)

MAIN CONTACT: Barbara Berkley Dept. 3471 (PPK)

NT6X02WE EMA2-99-SMU-7 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
94 08 26	ECM 314 14	Introduce Product Change Kit
95 06 29	ECM 314 21	Reformat section.
96 11 22	ECM 314 23	Per SR RR60487 add note for E911 applications on SMU.

The NT6X80BB PRODUCT CHANGE KIT is comprised of the following:

	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Pad Ring Card	NT6X80BA		2	X,X+14	19	AP
ADD	Pad Ring Card	NT6X80BB		2	X,X+14	19	AP
ADD	Des Strip (NT6X80BB)	P0800015		2	X,X+14	19	AP

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) Application of this kit to an SMU module equipped with a NT6X02EM packfill converts the module to the NT6X02EP packfill level. This upgrade kit is to be used for field application only.
- 3) In the NT6X02EM module, slot 19 is always provided with NT6X80BA. Product Change Kit NT6X02WE make slot 19 provisionable with only the NT6X80BB. The NT6X80BB is required to reduce crosstalk during frequency selective ringing (FSR) in DMS-1Us, which interface SMUs/ (ISDN) SMUs.
- 4) 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 NT6X02WE is ordered, these items are provided.

SMR TO SMU KIT

PEC CODE: NT6X02YA

CPC CODE: B0245946

RATING: STD

REPLACES: Not Applicable

REPLACED BY: Not Applicable

ABBREVIATION NAME: Not Applicable

ENGINEERING DESCRIPTION: This change kit contains the hardware requirements to upgrade from an SMR (NT6X02CT) to an SMU (NT6X02EU). It also includes information for upgrading older SMR packfills to the current SMU (NT6X02EU).

REFERENCE DOCUMENTATION: SL6X02YA 00 01
PC6X02YA 00 02

MARKETS: Applicable markets:

US
Canada
CALA

ISSUE AUTHOR: Barbara Berkley Dept. 3471 (PPK)

MAIN CONTACT: Barbara Berkley Dept. 3471 (PPK)

NT6X02YA EMA2-99-SMU-8 CHANGE HISTORY

Engineering Manual Section Change History		
DATE	DOCUMENT	REASON
97 04 23	ECM 714 04	Create this change kit per ECD 024-97732.

The SMR TO SMU KIT is comprised of the following:

ACTION	EQUIPMENT	PEC	ABBR	QTY	SHF POS	CP POS	RULE
REMOVE	Power Converter	NT2X70AD/AE		2	XX	25	AP
REMOVE	Time Switch	NT6X44AB/AA		2	XX	14	AP
REMOVE	LGC/DTC Processor	NT6X45BA		2	XX	8	AP
REMOVE	LGC/DTC Processor	NT6X46AF/AC		2	XX	12	AP
REMOVE	Signal Processor	NT6X46BB/BA/AC		2	XX	11	AP
REMOVE	Master Processor	NT6X47AB		2	XX	9	AP
REMOVE	Master Processor	NT6X47AC/AB		2	XX	10	AP
REMOVE	SMR Pad Ring Card	NT6X80AA		2	XX	19	AP
REMOVE	SMR A Bit, B Word CP	NT6X81BA		2	XX	13	AP
REMOVE	CPC Backpanel PB	NT6X1205		2	XX	11R	AP
REMOVE	DS1 Interface	NT6X50AA		10	XX	1-5	AP
ADD	Time Switch	NT6X44CA		2	XX	14	AP
ADD	Des Label (6X44CA)	P0707641		2	XX	14	AP
ADD	SMU Pad Ring Card	NT6X80BB		2	XX	19	AP
ADD	Des Label (6X80BB)	P0000015		2	XX	19	AP
ADD	Power Converter	NT2X70AF		2	XX	25	AP
ADD	Des Label (2X70AF)	P0809960		2	XX	25	AP
ADD	XPM Plus Upgrade Kit	NT6X02XG		2	XX		AP

Note5

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.
- 3) In addition to the NT6X02YA (SMR to SMU) conversions kit, the following circuit packs may be required to configure the product to meet customer's needs depending on each site's unique requirements for the new SMU frame:

PEC	KIT	DESCRIPTION	
NT6X85AC	NTZZ03FA	DS-1 Interface for SLC-96	1-5/shelf
NT6X92BC	NTZZ02FB	Universal Tone Receiver	1/shelf
NT7X05AA	NTZZ02UA	Peripheral Recovery Loader	1/shelf
NT6X78AB	NTZZ97AA	Class Modem Resource	1/shelf
NT6X69AD	NT6X02WB	Message Interface Card (NT6X69AC is acceptable)	1/shelf
NT6X40FB	NTZZ02HN	DS512 Fiber (if SMU is to	1/module
NT6X40GA	(incl.)	be ENET	
NT6X02UF	N/A	Bracket is required if SMR did not have NT6X02BU or NT6X02UF at XX-22R (req'd for fiber and non-fiber apps).	1/shelf

Note: The kit (building block code) contains the circuit pack and designation label to support that circuit pack.

- 4) The following circuit packs will be required when upgrading from the following older packfills. The customer sites must be reviewed to obtain the exact SMR packfill to properly provide the required packs for this conversion:

SMR NT6X02CA or SMR NT6X02CQ to SMU NT6X02EU:			
PEC	KIT	DESCRIPTION	
NT6X02YA	N/A	SMR to SMU upgrade kit with circuit packs	1/module
NT6X69AD	NT6X02WB	Message Interface Card (NT6X69AC is acceptable)	1/shelf
NT6X40FB	NTZZ02HN	DS512 Fiber (if SMU is to	1/module
NT6X40GA	(incl.)	be ENET	

NT6X02UF N/A Bracket is required if SMR 1/shelf
did not have NT6X02BU or
NT6X02UF at XX-22R (req'd
for fiber and non-fiber apps).

- 5) The NT6X02YA kit contains a kit within it -- the NT6X02XG
CCPE Host XPM and RCC XPM+ Paddlecard Upgrade Kit which
must also be applied. See EMS NT6X02XG for details on this
kit.

RULES:

- AP 1) When PEC NT6X02YA is ordered, these items are provided.

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DMS-100 Family
North American DMS-100
ALL PRODUCTS COMPUTING-MODULE LOADS Vol 1 of 15

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