```


                 OPERATING SYSTEM =  NOS 2.8.7 871/871.   23/09/20. PRINTED = 24/05/29. 15.12.11.

                 UJN          =  MTR871      FAMILY    = CYBER         JOB ORIGIN    = INTERACTIVE.
                 CREATING JSN =  AABY        USER NAME = INSTALL       SERVICE CLASS = INTERACTIVE.





    AAAAAAAAAA    AAAAAAAAAA    AAAAAAAAAA   IIIIIIIIIIII   AAAAAAAAAA    AAAAAAAAAA    CCCCCCCCCC   DDDDDDDDDD
   AAAAAAAAAAAA  AAAAAAAAAAAA  AAAAAAAAAAAA  IIIIIIIIIIII  AAAAAAAAAAAA  AAAAAAAAAAAA  CCCCCCCCCCCC  DDDDDDDDDDD
   AA        AA  AA        AA  AA        AA       II       AA        AA  AA        AA  CC        CC  DD        DD
   AA        AA  AA        AA  AA        AA       II       AA        AA  AA        AA  CC        CC  DD        DD
   AA        AA  AA        AA  AA        AA       II       AA        AA  AA        AA  CC            DD        DD
   AA        AA  AA        AA  AA        AA       II       AA        AA  AA        AA  CC            DD        DD
   AA        AA  AA        AA  AA        AA       II       AA        AA  AA        AA  CC            DD        DD
   AAAAAAAAAAAA  AAAAAAAAAAAA  AAAAAAAAAAAA       II       AAAAAAAAAAAA  AAAAAAAAAAAA  CC            DD        DD
   AAAAAAAAAAAA  AAAAAAAAAAAA  AAAAAAAAAAAA       II       AAAAAAAAAAAA  AAAAAAAAAAAA  CC            DD        DD
   AA        AA  AA        AA  AA        AA       II       AA        AA  AA        AA  CC            DD        DD
   AA        AA  AA        AA  AA        AA       II       AA        AA  AA        AA  CC            DD        DD
   AA        AA  AA        AA  AA        AA       II       AA        AA  AA        AA  CC            DD        DD
   AA        AA  AA        AA  AA        AA       II       AA        AA  AA        AA  CC            DD        DD
   AA        AA  AA        AA  AA        AA       II       AA        AA  AA        AA  CC        CC  DD        DD
   AA        AA  AA        AA  AA        AA  IIIIIIIIIIII  AA        AA  AA        AA  CCCCCCCCCCCC  DDDDDDDDDDD
   AA        AA  AA        AA  AA        AA  IIIIIIIIIIII  AA        AA  AA        AA  CCCCCCCCCCC   DDDDDDDDDD


MWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWM
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MWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWMWM
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MODIFY INPUT.
MODIFY,L=LIST.


    1   *EDIT MTR
```

DECK - COPYRT

COPYRT MODIFIERS.

NS2796

4 ACTIVE LINE(S). 1 INACTIVE LINE(S). 1 INSERTED LINE(S).

MTR MODIFIERS.

NS2343	NS2384	NS2418A	MTR29	252L678	MTR38	NS2541	MTR45	MTR49	MTR52	FIXCLOK
MTR20	NS2396	MTR27	MTR30	NS2496	MTR39	NS2546	MTR46	NS2726	MTR53	NCCTMKP
MTR21	NS2418	NS2454	NS2480	MTR34	MTR40	NS2574	271L716	MTR50	MTR54	
MTR22	MTR24	NS2460	NS2492	MTR35	MTR41	NS2577	MTR47	273L780	281L803	
NS2373	MTR25	251L670	MTR31	MTR36	253L688	MTR42	MTR48	NS2748	MTR55	
243L647	251L664	MTR28	MTR33	MTR37	NS2543	MTR43	271L750	MTR51	MTR56	

*CALL	COMPMAC	MTR	40		
*CALL	COMPIOU	MTR54	1	40	
*CALL	COMSCPS	MTR	41		
*CALL	COMSMSC	MTR	42		
*CALL	COMSDSL	MTR	44		
*CALL	COMSDFT	NS2418	1	45	
*CALL	COMSDST	243L647	1	45	
*CALL	COMSIOU	271L750	2	45	
*CALL	COMSJCE	MTR	46		
*CALL	COMSMTR	MTR	47		
*CALL	COMSMST	MTR	48		
*CALL	COMSPIM	MTR	49		
*CALL	COMSPRD	271L716	4	49	
*CALL	COMSREM	MTR	51		
*CALL	COMSSSD	MTR	53		
*CALL	COMSMSP	MTR	55		
*CALL	COMSSCR	MTR	57		
*CALL	COMSIOU	MTR	59		
*CALL	COMPGFP	MTR	5124		
*CALL	COMPSIC	273L780	192	5402	

6517 ACTIVE LINE(S). 3196 INACTIVE LINE(S). 3835 INSERTED LINE(S).

DECKS ON PROGRAM LIBRARY.

COPYRT	COMCSFN	COMPC2D	COMPVID	COMSWEI	0ST	IHFU	TDUMP	COMFXFO	COMXSEB	EORSS15	SUBMT
CETEXT	COMCSKW	COMPDDT	COMPVLC	COMSZOL	0VJ	INSTALL	TDUOUT	COMFXSB	COMTALT	M86FORM	TARO
ECSTEXT	COMCSNF	COMPDLI	COMPVMS	COMS0VU	0VU	ISF	TDUTAB	COMFXSC	COMTBLD	M86SERV	TERMDEF
PPTEXT	COMCSNM	COMPDTS	COMPVPA	COMS1DS	1AJ	KEY	TERMIO	COMFXWK	COMTBLP	EORSS16	TSIM
PSSTEXT	COMCSOE	COMPDVC	COMPVSP	COMS1MV	1CD	KEYEX	TRMDEF	FSEBUFF	COMTCTW	VERMSGC	TSTAT
NOSTEXT	COMCSRI	COMPDV5	COMPWBB	COMS1RM	1CK	KEYPAN	ULIB	FSECMDS	COMTDBG	EORSS17	WAIT
SSYTEXT	COMCSRT	COMPECX	COMPWCB	COMS176	1CL	KRONREF	VALEX	FSEDATA	COMTDBP	MSE	WAITINP
SYSTEXT	COMCSSN	COMPFAT	COMPWEI	COMTBAN	1DL	LDI	VALNET	FSEEDIT	COMTDEF	MSESLAV	WSTAT
CPCOM	COMCSST	COMPFLF	COMPWSS	COMTCVT	1DS	LIBEDIT	VCC	FSEEX	COMTDER	MSECONF	BTASK
PPCOM	COMCSTF	COMPGBN	COMPWVE	COMTDA8	1HY	LIBGEN	VDTSUBS	FSEFILE	COMTDFP	EORSS18	CRMTASK
COMCMAC	COMCSYS	COMPGFP	COMSACC	COMTDP6	1IO	LIBRARY	VERIFY	FSEFORM	COMTERR	SSCONTL	CTASK
COMCCMD	COMCTIO	COMPGTN	COMSATF	COMTDP9	1IS	LIDOU	VFYLIB	FSEHELP	COMTFMT	FREEDSK	ITASK
COMABZF	COMCUPC	COMPICT	COMSBIO	COMTDSP	1LC	LISTLB	VIRTERM	FSELIB	COMTLAB	DESTAGE	KDIS
COMAFET	COMCUSB	COMPIFR	COMSCIO	COMTNAP	1MA	LISTLID	MAC1	FSEMAIN	COMTLBP	EORSS19	LOGT
COMAMSS	COMCVDE	COMPIMB	COMSCPD	COMTVDT	1MB	LIST80	MAC2	FSEPROC	COMTMOV	ISHARED	MSABT
COMAPFP	COMCVDT	COMPIOU	COMSCPS	COMT6DP	1MC	LOADBC	RFORM	FSESCRN	COMTMVD	COMKMAC	OFFTASK
COMAPFS	COMCVLC	COMPIRA	COMSCVS	COMT8AD	1MD	LO72	SYMSERV	FSESUBS	COMTMVP	COMKARF	RCTASK
COMCARG	COMCVQF	COMPLDA	COMSDFS	COMT9DP	1MI	MAG	CPUREL	FSETABL	COMTOUT	COMKBRD	RTASK
COMCARM	COMCWOD	COMPLDB	COMSDFT	COMUCPD	1MS	MAGNET	APRINST	FSEWORK	COMTSIT	COMKBST	STASK
COMCBAN	COMCWTA	COMPMRA	COMSDSL	COMUEST	1MT	MFILES	CMRINST	FSTEACH	COMTUSE	COMKCBD	SYSMSG
COMCBLP	COMCWTC	COMPMRM	COMSDSP	COMUFMT	1MU	MLSEXEC	EQPINST	SMFEX	COMTUSP	COMKCBT	XTASK
COMCCCE	COMCWTH	COMPMRQ	COMSDST	COMUJCA	1MV	MODIFY	IPRINST	SMFSTAT	COMTVLD	COMKCRM	COMCCDM
COMCCDD	COMCWTO	COMPMSV	COMSEJT	COMUOUT	1PP	MODVAL	COMLBAS	SMF	COMTVLF	COMKDPB	COMCCDP
COMCCFD	COMCWTS	COMPNFL	COMSESS	COMUPRB	1RI	MSI	COMLESM	1HP	COMTVLM	COMKFIO	COMSSTM
COMCCHD	COMCWTW	COMPPDI	COMSEVT	COMUQPR	1RM	NOTE	COMLFLD	COMCLNI	COMTVLP	COMKFLD	ADC
COMCCHG	COMCZAP	COMPPPR	COMSHIO	COMUQQC	1RO	OPLEDIT	COMLIPR	IAFP	COMTVLV	COMKIPR	BAT
COMCCIO	COMCZTB	COMPRBB	COMSIOQ	CALLCPU	1SJ	PACK	COMLSCD	IAFTM	COMTVLX	COMKKIM	DCC
COMCCNS	COMDMAC	COMPRCB	COMSIOU	CALLDIS	1TA	PANEL	COMLUEM	IAFTR	CALLFAS	COMKNWC	DDF
COMCCOD	COMDDBS	COMPRCS	COMSJCE	CALLPPU	1TM	PANSUBS	COMLVER	1TN	1SS	COMKNWF	DOG
COMCCPA	COMDDCM	COMPREI	COMSJIO	CALLSYS	1TO	PDU	APRDECK	RECOVER	EORSS1	COMKOPD	DS1
COMCCPM	COMDDIS	COMPREL	COMSJRO	CALLTAB	1VP	PFAM	CMRDECK	0MF	GMSG	COMKRRD	HFM
COMCCPT	COMDDSP	COMPRFI	COMSLFD	CALLINT	1XD	PFDM	EQPDECK	1MR	SMSG	COMKSCD	MPF
COMCCUA	COMDD7S	COMPRJC	COMSLFM	CPM	1XM	PFDUMP	IPRDECK	MREC	CALPFU	COMKSTC	SMP
COMCCVI	COMDGJD	COMPRLA	COMSLSD	CVL	1XY	PFHELPR	LIBDECK	MTE	GETMST	COMKTAF	WRM
COMCCVL	COMDSYS	COMPRLI	COMSMLS	DIO	5ME	PFILES	RDFP	COMBFAS	SETQP	COMKTDM	1TS
COMCDCM	COMDTFN	COMPRLM	COMSMMF	DIS	6DC	PFLIST	SUPERM	COMBBZF	EORSS2	COMKTER	DDFILE
COMCDCP	COMFCID	COMPRLS	COMSMRT	DSD	6DD	PFLOAD	VEMEM	COMBCDD	SSOVL	COMKTIF	DEMUX
COMCDTC	COMFVD2	COMPRNS	COMSMSC	DSP	6DE	PFS	ZTDAMT0	COMBCHN	SSARG	COMKTIP	DMPCCC
COMCDXB	COMFVD3	COMPRSI	COMSMSI	ELM	6DI	PROFILE	ZTDCCLC	COMBCMD	EORSS3	COMKTLD	KEYUTIL
COMCECM	COMFXTI	COMPRSS	COMSMSP	FDL	6DP	PURGALL	ZTDCCON	COMBCMS	SSEXEC	COMKTRF	LPT
COMCECS	COMFXVT	COMPSAF	COMSMST	IMS	6DX	QDSPLAY	ZTDCERR	COMBCPR	EORSS4	COMKTRN	MST
COMCEDT	COMFPAN	COMPSCA	COMSMTR	LFM	BATCHIO	QDUMP	ZTDCVRB	COMBFET	SSSLV	COMKTSA	PACKER
COMCFCE	COMFTIO	COMPSDA	COMSMTX	MDD	BLANK	QFSP	ZTDNMT0	COMBHFC	EORSS5	COMKTSC	SCRSIM
COMCFLD	COMFVDT	COMPSDI	COMSNCD	MSM	CATALOG	QFTLIST	ZTDPCLP	COMBKDA	ACCCAT	COMKTST	STIMULA
COMCFQO	COMFVD1	COMPSDN	COMSNET	MTR	CATLIST	QGET	ZTDPERR	COMBKDD	ACCMAP	COMKZFN	TST
COMCGMS	COMPMAC	COMPSDR	COMSPDT	OSB	CHKPT	QLOAD	ZTDPFIL	COMBLBL	SSINIT	TAFPRC	DFSORT
COMCGTO	COMPACS	COMPSEI	COMSPFM	O26	CLASS	QMOVE	ZTDPTBD	COMBLRQ	EORSS6	CALLKTS	PSAMP
COMCHXB	COMPANS	COMPSES	COMSPFS	PFM	CLDT	QREC	ZTDPTBS	COMBMAP	SSALTER	KTSDMP	SECART
COMCIQP	COMPAPI	COMPSFB	COMSPFU	PFU	CODING	RECLAIM	ZTDTFIL	COMBMAT	EORSS7	LIBTASK	MSGID
COMCJCR	COMPAST	COMPSFE	COMSPIM	PPR	CONFIG	REDO	ZTDTTAB	COMBMCT	SSBLD	TAFLOG	ABC
COMCLFM	COMPCDB	COMPSFI	COMSPRD	QAC	CONTROL	RESEQ	ZTDVERB	COMBOVL	EORSS8	TAF	CHD
COMCLOD	COMPCDD	COMPSFN	COMSPRO	QAP	COPYB	RESEX	ZTDVMT0	COMBPFP	SSDEBUG	TAFREC	DEBUG
COMCMSF	COMPCEA	COMPSIC	COMSQAC	QFM	COPYC	RESTART	ZTDVPDT	COMBPFS	EORSS9	BAAML	CPD
COMCMTM	COMPCFP	COMPSMI	COMSQFS	REC	CPMEM	ROUTE	5870JDL	COMBRCD	SSDEF	DMREC	ICPD
COMCMTP	COMPCHD	COMPSNT	COMSREM	RPV	CPUMLD	SCREX	EOR1	COMBSIT	EORSS10	TARL	ACPD

COMCMVE	COMPCHI	COMPSOF	COMSRPV	SET	CPUMTR	SCTD	EOR2	COMBSNS	SSLABEL	TMSG	PROBE
COMCOVL	COMPCHL	COMPSPA	COMSRSX	SFM	CPUPFM	SDSPLAY	EOR3	COMBTDM	EORSS11	AAMI	XEDIT
COMCPFM	COMPCHM	COMPSRA	COMSSCD	SFP	CUESHEL	SECHDR	EOR4	COMBUCR	SSMOVE	AAML	XEDITH
COMCPFP	COMPCIB	COMPSRR	COMSSCP	SLL	CVLCP	SETCORE	EOR5	COMBUDT	EORSS12	BEGIN	1DA
COMCPFS	COMPCLC	COMPSRU	COMSSCR	STL	DAYFILE	SFORM	EOR6	COMXACM	SSUSE	BLDABH	0CT
COMCPFU	COMPCKP	COMPSSE	COMSSFM	TLX	DFTERM	SFS	EOR7	COMXBST	EORSS13	CALLRTN	COMCCKD
COMCPOP	COMPCLD	COMPSSF	COMSSFS	VEJ	DOCMENT	SHOW	EOR8	COMXCCB	SSVAL	CALLTRN	COMCMBS
COMCQFM	COMPCLX	COMPSTA	COMSSRT	VER	DSDI	SHOWEX	EOR9	COMXCTF	EORSS14	CALLTSK	COMPTFM
COMCQFP	COMPCMA	COMPSTI	COMSSRU	XHC	EDIT	SMFSUBS	EOR10	COMXEMC	EXDRVR	CEASE	COMSTFU
COMCRDA	COMPCMX	COMPSUD	COMSSSD	0AU	ENQUIRE	SORT	COMFDS1	COMXEXP	SXDEST	CHKON	TFM
COMCRDC	COMPCOB	COMPSUT	COMSSSE	0AV	FCOPY	STAGE	COMFDS2	COMXFCQ	SXHLR	CMDUMP	TFU
COMCRDH	COMPCPE	COMPTGB	COMSSSJ	0BF	FILES	SUBMIT	COMFFSE	COMXHLR	SXINIT	DSDUMP	TFILES
COMCRDO	COMPCRA	COMPTLB	COMSTCM	0DF	FOTD	SUBSYST	COMFMLT	COMXINT	SXKD	EXTRACT	TFSP
COMCRDS	COMPCRS	COMPTMA	COMSTDR	0DQ	GENPFD	SYMPCOD	COMFONL	COMXIPR	SXLLR	INTOT	LDISTAP
COMCRDW	COMPCSC	COMPUFT	COMSTFM	0FA	GTR	SYSEDIT	COMFSGL	COMXJCA	SXMAIN	JOURNL	GETTASV
COMCRSB	COMPCTE	COMPUPP	COMSTIO	0PT	HELPLIB	TCOMND	COMFSMF	COMXLTC	SXSERV	LIMITS	SETTASV
COMCRSP	COMPCTI	COMPUPS	COMSTIR	0QM	HOSTCPY	TDU	COMFTAB	COMXMFD	SXSTGE	LOGIN	TMSPROC
COMCRTN	COMPCUA	COMPVEI	COMSTRX	0RF	HSTCOPY	TDUEX	COMFXCM	COMXMMF	SXSLV	MULTCB	TMSPROG
COMCSCB	COMPCUT	COMPVFC	COMSVED	0RP	IAFEX	TDUFILE	COMFXED	COMXMSC	SXUCP	SEND	
COMCSFM	COMPCVI	COMPVFN	COMSVER	0RT	IEDIT	TDUIN	COMFXFL	COMXOVL	SX3UCP	SETCHT	

COMMON DECKS ON PROGRAM LIBRARY.

COPYRT	COMCGTO	COMCSYS	COMPAST	COMPIFR	COMPSIC	COMSCVS	COMSRPV	COMUEST	COMFXED	COMXHLR	COMKBST
CPCOM	COMCHXB	COMCTIO	COMPCDB	COMPIMB	COMPSMI	COMSDFS	COMSRSX	COMUFMT	COMFXFL	COMXINT	COMKCBD
PPCOM	COMCIQP	COMCUPC	COMPCDD	COMPIOU	COMPSNT	COMSDFT	COMSSCD	COMUJCA	COMFXFO	COMXIPR	COMKCBT
COMCMAC	COMCJCR	COMCUSB	COMPCEA	COMPIRA	COMPSOF	COMSDSL	COMSSCP	COMUOUT	COMFXSB	COMXJCA	COMKCRM
COMCCMD	COMCLFM	COMCVDE	COMPCFP	COMPLDA	COMPSPA	COMSDSP	COMSSCR	COMUPRB	COMFXSC	COMXLTC	COMKDPB
COMABZF	COMCLOD	COMCVDT	COMPCHD	COMPLDB	COMPSRA	COMSDST	COMSSFM	COMUQPR	COMFXWK	COMXMFD	COMKFIO
COMAFET	COMCMSF	COMCVLC	COMPCHI	COMPMRA	COMPSRR	COMSEJT	COMSSFS	COMUQQC	COMCLNI	COMXMMF	COMKFLD
COMAMSS	COMCMTM	COMCVQF	COMPCHL	COMPMRM	COMPSRU	COMSESS	COMSSRT	COMLBAS	COMBFAS	COMXMSC	COMKIPR
COMAPFP	COMCMTP	COMCWOD	COMPCHM	COMPMRQ	COMPSSE	COMSEVT	COMSSRU	COMLESM	COMBBZF	COMXOVL	COMKKIM
COMAPFS	COMCMVE	COMCWTA	COMPCIB	COMPMSV	COMPSSF	COMSHIO	COMSSSD	COMLFLD	COMBCDD	COMXSEB	COMKNWC
COMCARG	COMCOVL	COMCWTC	COMPCLC	COMPNFL	COMPSTA	COMSIOQ	COMSSSE	COMLIPR	COMBCHN	COMTALT	COMKNWF
COMCARM	COMCPFM	COMCWTH	COMPCKP	COMPPDI	COMPSTI	COMSIOU	COMSSSJ	COMLSCD	COMBCMD	COMTBLD	COMKOPD
COMCBAN	COMCPFP	COMCWTO	COMPCLD	COMPPPR	COMPSUD	COMSJCE	COMSTCM	COMLUEM	COMBCMS	COMTBLP	COMKRRD
COMCBLP	COMCPFS	COMCWTS	COMPCLX	COMPRBB	COMPSUT	COMSJIO	COMSTDR	COMLVER	COMBCPR	COMTCTW	COMKSCD
COMCCCE	COMCPFU	COMCWTW	COMPCMA	COMPRCB	COMPTGB	COMSJRO	COMSTFM	ZTDAMT0	COMBFET	COMTDBG	COMKSTC
COMCCDD	COMCPOP	COMCZAP	COMPCMX	COMPRCS	COMPTLB	COMSLFD	COMSTIO	ZTDCCLC	COMBHFC	COMTDBP	COMKTAF
COMCCFD	COMCQFM	COMCZTB	COMPCOB	COMPREI	COMPTMA	COMSLFM	COMSTIR	ZTDCCON	COMBKDA	COMTDEF	COMKTDM
COMCCHD	COMCQFP	COMDMAC	COMPCPE	COMPREL	COMPUFT	COMSLSD	COMSTRX	ZTDCERR	COMBKDD	COMTDER	COMKTER
COMCCHG	COMCRDA	COMDDBS	COMPCRA	COMPRFI	COMPUPP	COMSMLS	COMSVED	ZTDCVRB	COMBLBL	COMTDFP	COMKTIF
COMCCIO	COMCRDC	COMDDCM	COMPCRS	COMPRJC	COMPUPS	COMSMMF	COMSVER	ZTDNMT0	COMBLRQ	COMTERR	COMKTIP
COMCCNS	COMCRDH	COMDDIS	COMPCSC	COMPRLA	COMPVEI	COMSMRT	COMSWEI	ZTDPCLP	COMBMAP	COMTFMT	COMKTLD
COMCCOD	COMCRDO	COMDDSP	COMPCTE	COMPRLI	COMPVFC	COMSMSC	COMSZOL	ZTDPERR	COMBMAT	COMTLAB	COMKTRF
COMCCPA	COMCRDS	COMDD7S	COMPCTI	COMPRLM	COMPVFN	COMSMSI	COMS0VU	ZTDPFIL	COMBMCT	COMTLBP	COMKTRN
COMCCPM	COMCRDW	COMDGJD	COMPCUA	COMPRLS	COMPVID	COMSMSP	COMS1DS	ZTDPTBD	COMBOVL	COMTMOV	COMKTSA
COMCCPT	COMCRSB	COMDSYS	COMPCUT	COMPRNS	COMPVLC	COMSMST	COMS1MV	ZTDPTBS	COMBPFP	COMTMVD	COMKTSC
COMCCUA	COMCRSP	COMDTFN	COMPCVI	COMPRSI	COMPVMS	COMSMTR	COMS1RM	ZTDTFIL	COMBPFS	COMTMVP	COMKTST
COMCCVI	COMCRTN	COMFCID	COMPC2D	COMPRSS	COMPVPA	COMSMTX	COMS176	ZTDTTAB	COMBRCD	COMTOUT	COMKZFN
COMCCVL	COMCSCB	COMFVD2	COMPDDT	COMPSAF	COMPVSP	COMSNCD	COMTBAN	ZTDVERB	COMBSIT	COMTSIT	COMCCDM
COMCDCM	COMCSFM	COMFVD3	COMPDLI	COMPSCA	COMPWBB	COMSNET	COMTCVT	ZTDVMT0	COMBSNS	COMTUSE	COMCCDP
COMCDCP	COMCSFN	COMFXTI	COMPDTS	COMPSDA	COMPWCB	COMSPDT	COMTDA8	ZTDVPDT	COMBTDM	COMTUSP	COMSSTM
COMCDTC	COMCSKW	COMFXVT	COMPDVC	COMPSDI	COMPWEI	COMSPFM	COMTDP6	COMFDS1	COMBUCR	COMTVLD	COMCCKD
COMCDXB	COMCSNF	COMFPAN	COMPDV5	COMPSDN	COMPWSS	COMSPFS	COMTDP9	COMFDS2	COMBUDT	COMTVLF	COMCMBS
COMCECM	COMCSNM	COMFTIO	COMPECX	COMPSDR	COMPWVE	COMSPFU	COMTDSP	COMFFSE	COMXACM	COMTVLM	COMPTFM
COMCECS	COMCSOE	COMFVDT	COMPFAT	COMPSEI	COMSACC	COMSPIM	COMTNAP	COMFMLT	COMXBST	COMTVLP	COMSTFU

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 COMCEDT   COMCSRI   COMFVD1   COMPFLF   COMPSES   COMSATF   COMSPRD   COMTVDT   COMFONL   COMXCCB   COMTVLV
 COMCFCE   COMCSRT   COMPMAC   COMPGBN   COMPSFB   COMSBIO   COMSPRO   COMT6DP   COMFSGL   COMXCTF   COMTVLX
 COMCFLD   COMCSSN   COMPACS   COMPGFP   COMPSFE   COMSCIO   COMSQAC   COMT8AD   COMFSMF   COMXEMC   COMKMAC
 COMCFQO   COMCSST   COMPANS   COMPGTN   COMPSFI   COMSCPD   COMSQFS   COMT9DP   COMFTAB   COMXEXP   COMKARF
 COMCGMS   COMCSTF   COMPAPI   COMPICT   COMPSFN   COMSCPS   COMSREM   COMUCPD   COMFXCM   COMXFCQ   COMKBRD

DECKS WRITTEN ON COMPILE FILE.

 MTR

   102700B STORAGE USED.          14085 LINES WRITTEN ON COMPILE FILE.
```

MTR

1412THE

1

STORAGE ALLOCATION.

```
                ADDRESS   LENGTH              BINARY CONTROL CARDS.

                      0     7757              IDENT  MTR,0
                   7757    (1461)

                ADDRESS   LENGTH              BINARY CONTROL CARDS.

                   7514      175              IDENT  4MZ,FMZ
                   7711      (32)

                ADDRESS   LENGTH              BINARY CONTROL CARDS.

                   7514      223              IDENT  4MY,FMY
                   7737      (37)

                ADDRESS   LENGTH              BINARY CONTROL CARDS.

                   7514      122              IDENT  4MX,OMU
                   7636      (22)

                ADDRESS   LENGTH              BINARY CONTROL CARDS.

                   7514      170              IDENT  4MW,SCC
                   7704      (31)

                ADDRESS   LENGTH              BINARY CONTROL CARDS.

                   7514      141              IDENT  4MV,THU
                   7655      (25)

                ADDRESS   LENGTH              BINARY CONTROL CARDS.

                   7514      225              IDENT  4MU,FMV
                   7741      (37)             END
```

```
                                   IDENT  MTR,0                                                   MTR            1
                                   PERIPH J                                                       MTR            2
                         D_M       BASE   MIXED                                                   MTR            3
                                   SST    FTN,IA,PPR,TH,.EST,SSCP                                 271L750        1
                              COMMENT 85/07/29. 24/05/19. MTR - PPU MONITOR.                      MTR            5
                                   COMMENT  COPYRIGHT CONTROL DATA SYSTEMS INC.  1992.            281L803        1


                             ***       MTR - PP MONITOR.                                          MTR            9
                             *         G. R. MANSFIELD.   70/12/13.                               MTR           10
                             *         R. E. TATE.        76/11/10.                               MTR           11



                             ***              *MTR* IS LOADED INTO PP 0 AT DEAD START TIME AND    MTR           13
                             *         REMAINS THERE FOR THE DURATION OF SYSTEM EXECUTION.        MTR           14
                             *                                                                    MTR           15
                             *                *MTR* PERFORMS THE FOLLOWING FUNCTIONS.             MTR           16
                             *         1.  PROCESS CERTAIN PPU REQUESTS.                          MTR           17
                             *         2.  ALLOCATION OF CENTRAL MEMORY.                          MTR           18
                             *         3.  MAINTAIN TIME OF DAY AND DATE.                         MTR           19
                             *         4.  MAINTAIN THE REAL TIME CLOCK.                          MTR           20
                             *         5.  CHECK THE CONTENTS OF (RA+1) OF ACTIVE CENTRAL         MTR           21
                             *                PROGRAMS FOR SYSTEM REQUESTS.                       MTR           22
                             *                                                                    MTR           23
                             *         *MTR* INPUT REGISTER.                                      MTR           24
                             *                                                                    MTR           25
                             *T, IR    18/ *MTR*,6/ SC,36/0                                       273L780        1
                             *                                                                    MTR           27
                             *         SC     SYSTEM CONTROL POINT NUMBER.                        273L780        2
                             *                                                                    MTR           29
                             *         *MTR* MAINTAINS THE FOLLOWING DATA IN THE                  MTR           30
                             *         STATISTICAL DATA AREA.                                     MTR           31
                             *                                                                    MTR           32
                             *T, MTRS  12/0,12/ CLOCK,12/ MXN,12/ WCT,12/ CCT                     MTR           33
                             *                                                                    MTR           34
                             *         CLOCK  COUNT OF TIMES *TIM* CALLED AND CLOCK UPDATE MISSED.  MTR         35
                             *         MXN    WORST CASE TIME TO DO AN MXN.  (MICRO SECONDS)      MTR           36
                             *         WCT    WORST CASE CYCLE TIME.  (MILLISECONDS)              MTR           37
                             *         CCT    CURRENT CYCLE TIME.  (MILLISECONDS)                 MTR           38



          0                            CTEXT  COMPMAC - PP SYSTEM MACROS.                         COMPMAC        1
          0                            CTEXT  COMPIOU - IOU INSTRUCTION DEFINITIONS.              COMPIOU        1
          0                            CTEXT  COMSCPS - CPUMTR SUBFUNCTION CODES.                 COMSCPS        1
          0                            CTEXT  COMSMSC - MISCELLANEOUS SYSTEM CONSTANTS.           COMSMSC        1
                                       QUAL   DSL                                                 MTR           43
          0                            CTEXT  COMSDSL - DEAD START LOAD PARAMETERS.               COMSDSL        1
                                       QUAL   *                                                   MTR           45
          0                            CTEXT  COMSDFT - *DFT* DEFINITIONS.                        COMSDFT        1
          0                            CTEXT  COMSDST - NOS/VE DUAL STATE DEFINITIONS.            NS2418         1
          0                            CTEXT  COMSIOU - MAINTENANCE REGISTER/TWO PORT MUX DEFS.   COMSIOU        1
```

0 CTEXT COMSJCE - JOB CONTROL EQUIVALENCES. COMSJCE 1
   LIST   X 271L716 2

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   0                                  CTEXT  COMSMTR - MTR/CPUMTR EQUIVALENCES.                   COMSMTR      1


                        M_M           BASE   M                                                    COMSMTR      3
                               *      COMMENT  COPYRIGHT CONTROL DATA SYSTEMS INC.  1992.         281L803      1




                               ***    COMSMTR - MTR/CPUMTR EQUIVALENCES.                          COMSMTR      6
                               *      G. R. MANSFIELD.  70/10/12.                                 COMSMTR      7




                               ***    *CPUMTR* LOW MEMORY LOCATIONS.                              271L750      2
                               *                                                                  271L750      3
                               *      LOCATIONS BEGIN AT *CPUMTR* RELATIVE LOCATION 0.  THE       271L750      4
                               *      ABSOLUTE ADDRESS OF *CPUMTR* IS IN CMR WORD *CMTP*.         271L750      5
                               *                                                                  271L750      6
                               *T CBLP   60/ *CPUMTR* LOADED BLOCK TABLE FWA                      271L750      7
                               *T,CSXP   60/ SYSTEM CP EXCHANGE PACKAGE TABLE POINTER             271L750      8
                               *T,CXBP   60/ *EXPACS* BLOCK FWA                                   271L750      9
                               *T,CFPP   24/,6/ PPTL,6/ FPPTL,24/ FPPT FWA                        271L750     10
                               *T,CMST   2/1,5/,1/S,4/ FTN,48/ CPU 0 MONITOR MODE BASE TIME       271L750     11
                               *T,CMST+1 2/1,5/,1/S,4/ FTN,48/ CPU 1 MONITOR MODE BASE TIME       271L750     12
                               *T,CPBT   60/ CPU 0 PROGRAM MODE BASE TIME                         271L750     13
                               *T,CPBT+1 60/ CPU 1 PROGRAM MODE BASE TIME                         271L750     14
                               *T,CACX   12/ 0,20/ PB,28/                                         273L780      1
                               *T,CACX+1 12/ 0,20/ PB,28/                                         273L780      2
                               *                                                                  271L750     15
                               *      PPTL = PREPROCESSOR TABLE LENGTH.                           271L750     16
                               *      FPPTL = FAST PP LOADER TABLE LENGTH.                        271L750     17
                               *      FPPT FWA = FAST PP LOADER TABLE FWA.                        271L750     18
                               *      S = 1 IF CPU SWITCH IN PROGRESS OR PERFORMED ON LAST EXIT   271L750     19
                               *          FROM MONITOR MODE.                                      271L750     20
                               *      FTN = 0 IF CURRENT/LAST ENTRY INTO MONITOR MODE FROM CPU    271L750     21
                               *            EXCHANGE (OTHER THAN FROM THE PSEUDO-PP) OR *CCPF*    271L750     22
                               *            *MTR* FUNCTION.                                       271L750     23
                               *          = *COMSMTR* OR *PPCOM* FUNCTION CODE IF CURRENT/LAST    271L750     24
                               *            ENTRY INTO MONITOR MODE FROM *MTR*, POOL PP, OR PSEUDO- 271L750   25
                               *            PP EXCHANGE.                                          271L750     26
                               *      PB  = BIT MASK OF PP-S REQUESTING FUNCTION TO BE PROCESSED IN 273L780    3
                               *            THIS CPU.                                             273L780      4
                               *                                                                  271L750     27
                               *      ON MACHINES SUPPORTING A FREE RUNNING COUNTER, THE MONITOR  271L750     28
                               *      MODE BASE TIME FOR THE EXECUTING CPU IS SET BY *CPUMTR* FROM 271L750    29
                               *      THE FREE RUNNING COUNTER ON ENTRY INTO MONITOR MODE AND WHEN 271L750    30
                               *      PROGRAM MODE CPU TIME IS ACCUMULATED.  THE FIELD IS CLEARED 271L750     31
                               *      ON EXIT FROM MONITOR MODE.  ON MACHINES NOT SUPPORTING A FREE 271L750   32
                               *      RUNNING COUNTER, THE MONITOR MODE BASE TIMES ARE ALWAYS ZERO. 271L750   33
                               *      THE FUNCTION CODE AND CPU SWITCH FLAGS IN THE *CMST* WORDS  271L750     34
                               *      ARE UTILIZED ON ALL MACHINES.  THE PROGRAM MODE BASE TIMES  271L750     35
                               *      ARE IN MICROSECONDS ON MACHINES SUPPORTING A FREE RUNNING   271L750     36
                               *      COUNTER AND ARE IN MILLISECONDS ON OTHER MACHINES.          271L750     37
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                                                                                          271L750     38
                                                                                          271L750     39
        0                  BEGIN    BSSN   0                                              271L750     40
                                                                                          271L750     41
        0                  CBLP     BSSN   1          *CPUMTR* LOADED BLOCK TABLE POINTER 271L750     42
      L 1                  CSXP     BSSN   1          SYSTEM CP EXCHANGE PACKAGE TABLE POINTER 271L750 43
      L 2                  CXBP     BSSN   1          *EXPACS* BLOCK POINTER              271L750     44
      L 3                  CFPP     BSSN   1          FAST PP LOADER TABLE POINTER        271L750     45
      L 4                  CMST     BSSN   2          MONITOR MODE STATUS BY CPU          271L750     46
      L 6                  CPBT     BSSN   2          PROGRAM MODE BASE TIME BY CPU       271L750     47
      L 10                 CACX     BSSN   2          ALTERNATE CPU EXCHANGE REQUESTS BY CPU 273L780   5
                                                                                          271L750     48
      L 12                 CMTLL    BSSN   0          *CPUMTR* LOW MEMORY DATA AREA LENGTH 271L750    49
                                                                                          271L750     50
      L 12                 END      BSSN                                                  271L750     51



                          **        MTR - CPUMTR REQUESTS.                                COMSMTR      9
                                                                                          COMSMTR     10
                                                                                          COMSMTR     11
        0                  BEGIN    BSSN   0                                              271L750     52
                                                                                          COMSMTR     24
        0                  CCPF     BSSN   1          CHECK CENTRAL PROGRAM               271L750     53
      L 1                  CSWF     BSSN   1          SWITCH CPU                          271L750     54
                                                                                          271L750     55
      L 2                  NXWF     BSSN   0          NO EXCHANGE JUMP WAIT THRESHOLD     271L750     56
                                                                                          271L750     57
      L 2                  ARTF     BSSN   1          UPDATE RUNNING TIME                 271L750     58
      L 3                  CSLF     BSSN   1          CHECK SUB-CONTROL POINT TIME LIMIT  271L750     59
      L 4                  EPRF     BSSN   1          ENTER PROGRAM MODE REQUEST          271L750     60
      L 5                  RCLF     BSSN   1          RECALL CPU                          271L750     61
      L 6                  MFLF     BSSN   1          MODIFY FL                           271L750     62
      L 7                  MRAF     BSSN   1          MODIFY RA                           271L750     63
      L 10                 MSCF     BSSN   1          MONITOR STEP CONTROL                NS2726       1
      L 11                 PRQF     BSSN   1          PROCESS RECALL REQUEST QUEUE        271L750     66
      L 12                 TCSF     BSSN   1          SWITCH CPU ON TIME SLICE            271L750     67
      L 13                 PCXF     BSSN   1          PROCESS ALTERNATE CPU EXCHANGE      271L750     68
      L 14                 ARMF     BSSN   1          ADVANCE RUNNING TIME MULTI-MAINFRAME MODE 271L750 69
      L 15                 UCCF     BSSN   1          UPDATE CTI CLOCK                    271L750     70
      L 16                 CRAF     BSSN   1          CHANGE RA                           271L750     71
      L 17                 ADTF     BSSN   1          ADVANCE DATE AND TIME               271L750     72
      L 20                 SKCF     BSSN   1          SET K DISPLAY COMPLETE BIT          NS2726       2
                                                                                          271L750     73
      L 21                 MXPF     BSSN   0          MAXIMUM FUNCTION + 1                271L750     74
                                                                                          271L750     75
      L 21                 END      BSSN                                                  271L750     76
                                                                                          271L750     77
                     0              ERRNG  CPUM-MXPF  MAXIMUM *MTR* REQUEST MUST BE BELOW *CPUM* 271L716 3
                     0              ERRNZ  MXPF-21    CHANGE DEFINITION IN *COMSPDT*      271L750     78



                          **        MTR - CPUMTR PROGRAM MODE REQUESTS.                   COMSMTR     27
                                                                                          COMSMTR     28
```

```
                                                                                                         COMSMTR     29
            0                      BEGIN    BSSN   0                                                     271L750     79
                                                                                                         COMSMTR     35
            0                      MSTF     BSSN   1            STORAGE MOVE                             271L750     80
       L    1                      PMRF     BSSN   1            PROCESS INTER-MAINFRAME FUNCTION REQUEST 271L750     81
       L    2                      MECF     BSSN   1            MOVE ECS STORAGE                         271L750     82
                                                                                                         271L750     83
       L    3                      PMXF     BSSN   0            MAXIMUM PROGRAM MODE FUNCTION + 1        271L750     84
                                                                                                         271L750     85
       L    3                      END      BSSN                                                         271L750     86
                                                                                                         271L750     87
                        0                   ERRNZ  PMXF-3       CHANGE DEFINITION IN *COMSPDT*           271L750     88


                                  **        PROGRAM MODE EXCHANGE PACKAGE TYPES.                         271L750     89
                                                                                                         271L750     90
                                                                                                         271L750     91
            0                      BEGIN    BSSN   0                                                     271L750     92
                                                                                                         271L750     93
            0                      CPXT     BSSN   1            USER OR SYSTEM CONTROL POINT             271L750     94
       L    1                      SMXT     BSSN   1            STORAGE MOVE                             271L750     95
       L    2                      FVXT     BSSN   1            FIELD LENGTH VERIFICATION                271L750     96
       L    3                      PSXT     BSSN   1            PSEUDO-PP                                271L750     97
                                                                                                         271L750     98
       L    4                      IDXT     BSSN   0            START OF IDLE PACKAGES                   271L750     99
                                                                                                         271L750    100
       L    4                      MIXT     BSSN   1            MAIN IDLE PACKAGE                        271L750    101
       L    5                      DIXT     BSSN   1            DUAL CPU IDLE PACKAGE FOR CPU 1          271L750    102
                                                                                                         271L750    103
       L    6                      MXXT     BSSN   1            MAXIMUM EXCHANGE PACKAGE TYPE + 1        271L750    104
                                                                                                         271L750    105
       L    7                      END      BSSN                                                         271L750    106



                                  **        *CPUMTR* BREAKPOINT DEFINITIONS.                             271L750    108
                                                                                                         271L750    109
                                                                                                         271L750    110
                                            QUAL   CPB          *CPUMTR* BREAKPOINT PACKAGE              271L750    111
            0                      BEGIN    BSSN   0                                                     271L750    112
            0                               BSSN   20B          BREAKPOINT EXCHANGE PACKAGE              271L750    113
       L   20                      CPBA     BSSN   1            BREAKPOINT ADDRESS                       271L750    114
       L   21                      CPBP     BSSN   1            PROTOTYPE BREAKPOINT INSTRUCTION         271L750    115
       L   22                      CPBW     BSSN   1            TEMPORARY FOR BREAKPOINTED ADDRESS       271L750    116
       L   23                      CPFG     BSSN   1            BREAKPOINT PENDING FLAG                  271L750    117
       L   24                      CPBAL    BSSN   0            LWA OF BREAKPOINT DATA                   271L750    118
       L   24                      END      BSSN                                                         271L750    119
                                            QUAL   *                                                     271L750    120
```

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                                **      PP EXCHANGE PACKAGE OFFSETS IN *CPUMTR* *EXPACS* BLOCK.      271L750   122
                                                                                                    271L750   123
                                                                                                    271L750   124
                                        QUAL    EXPACS      EXCHANGE PACKAGE OFFSETS (FOR *DSDI*)   271L750   125
          0                     BEGIN   BSSN    0                                                   271L750   126
          0                     MXP     BSSN    20B         *MTR* EXCHANGE PACKAGE                  271L750   127
      L   20                    BXP     BSSN    /CPB/CPBAL  BREAKPOINT/HANG EXCHANGE PACKAGE AND DATA 271L750 128
      L   44                    IXP     BSSN    24B         CPU 0 IDLE EXCHANGE PACKAGE AND DATA    271L750   129
      L   70                    PXP     BSSN    21B         PP EXCHANGE PACKAGE                     271L750   130
      L  111                    END     BSSN                                                        271L750   131
                                        QUAL    *                                                   271L750   132



                                **      MISCELLANEOUS DEFINITIONS.                                  271L750   134
                                                                                                    271L750   135
                                                                                                    271L750   136
                           23   CTMW    EQU     CSAW+1      SPECIAL EXCHANGE PACKAGE CPU TIME WORD  271L750   137



                          M_M           BASE    *                                                   COMSMTR    38
                                        ENDX                                                        COMSMTR    39
                                        LIST    *                                                   271L716     3
          0                             CTEXT   COMSMST - MST FLAG/INTERLOCK DEFINITIONS.           COMSMST     1
          0                             CTEXT   COMSPIM - PP INSTRUCTION MNEMONICS.                 COMSPIM     1
          0                             CTEXT   COMSPRD - PRIORITY DEFINITIONS.                     COMSPRD     1
                                        QUAL    REM                                                 MTR        50
          0                             CTEXT   COMSREM - INTERACTIVE SUBSYSTEM PARAMETERS.         COMSREM     1
          0                             ORG     SETLOC                                              NS21000    77
                                        QUAL    *                                                   271L716     5
          0                             CTEXT   COMSSSD - SUBSYSTEM DEFINITIONS.                    COMSSSD     1
                                        QUAL    MSP                                                 MTR        54
          0                             CTEXT   COMSMSP - MASS STORAGE PROCESSING EQUIVALENCES.     COMSMSP     1
                                        QUAL    *                                                   271L716     6
          0                             CTEXT   COMSSCR - S/C REGISTER EQUIVALENCES.                COMSSCR     1
                                        QUAL    IOU                                                 MTR        58
          0                             CTEXT   COMSIOU - MAINTENANCE REGISTER/TWO PORT MUX DEFS.   COMSIOU     1
                                        QUAL    *                                                   MTR        60



                               ****     DIRECT  LOCATION ASSIGNENTS.                                MTR        62
                                                                                                    MTR        63
                                                                                                    MTR        64
          0                             ORG     0                                                   MTR        65
                                                                                                    MTR        66
          0         7513        T0      CON     PRS-1       TEMPORARY STORAGE                       MTR        67
                                                                                                    271L716     7
                          0     PD      EQU     T0 - T0+4   PACKED DATE AND TIME (*PDTL*)           271L716     8
                                                                                                    271L716     9
          1         0000        T1      CON     0                                                   271L716    10
          2         0000        T2      CON     0                                                   251L664     2
          3         0000        T3      CON     0                                                   MTR        70
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      4          0000                  T4       CON     0                                              MTR          71
      5          0000                  T5       CON     0                                              MTR          72
      6          0000                  T6       CON     0                                              MTR          73
      7          0000                  T7       CON     0                                              MTR          74
                                                                                                       MTR          75
                                                                                                       MTR          76
     10          0000                  CM       VFD     60/0         CM WORD BUFFER                    MTR          77
     11          0000
     12          0000
     13          0000
     14          0000
                                  10   TI       EQU     CM - CM+4    DISPLAY CODE TIME (*TIML*)        271L716      11
                                                                                                       271L716      12
     15          0000                  T8       CON     0            TEMPORARY STORAGE                 273L780       3
     16          0000 0000             MB       CON     0,0          MEMORY BLOCKS - TEMPORARY         271L716      14
                                                                                                       MTR          82
                                                                                                       MTR          83
     20          0000                  CN       VFD     60/0         CM WORD BUFFER                    MTR          84
     21          0000
     22          0000
     23          0000
     24          0000
     25          7777                  LS       CON     7777         LATEST SECOND COUNT               MTR          86
     26          0000                  BA       CON     0            BYTE ADDRESS                      271L716      15
     27          0000                  PA       CON     0            PARAMETER ADDRESS                 271L716      16
                                                                                                       MTR          91
                                                                                                       MTR          92
     30          0000                  CS       VFD     60/0         CONTROL POINT STATUS WORD         MTR          93
     31          0000
     32          0000
     33          0000
     34          0000
                                                                                                       MTR          94
     35          0155                  RC       CON     RQRL         RECALL STACK POINTER              MTR          95
     36          0155                  RQ       CON     RQRL         *RQRL* POINTER                    MTR          96
     37          0001                  CF       CON     1            CHANNEL TABLE WRITE FLAG          NS2492        1
                                                                                                       MTR          98
                                                                                                       MTR          99
     40                                MM       BSS     0            MEMORY MANAGEMENT                 MTR         100
     40          7777                  MM.0     CON     7777         CONTROL POINT MOVING              271L716      17
     41          0000                  MM.1     CON     0            MOVE INCREMENT                    271L716      18
     42          0000                  MM.2     CON     0            LOWER MOVE CONTROL POINT          271L716      19
     43          0000                  MM.3     CON     0            CONTROL POINT REQUESTING MOVE     271L716      20
     44          0000                  MM.4     CON     0            PP REQUESTING MOVE                271L716      21
                                                                                                       MTR         106
     45          0000                  NP       CON     0            NUMBER OF PPS                     251L664       9
     46          0000                  NC       CON     0            NUMBER OF CONTROL POINTS          MTR         108
                                                                                                       MTR         109
                                                                                                       MTR         110
     47                                TM       BSS     0            REAL TIME CLOCK                   MTR         111
     47          0000                           VFD     24/0         SECONDS                           MTR         112
     50          0000
     51          0000                           VFD     36/0         MILLISECONDS                      MTR         113
     52          0000
     53          0000
                                                                                                       MTR         114
     54          0000                  MS       CON     0            LAST MICROSECOND COUNT            MTR         115
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  55          1750               ST       CON    1000D        SECOND TIMER                             MTR          116
                                                                                                       MTR          117
  56          4000               FT       CON    4000         CONSTANT 4000                            MTR          118
  57          0111               SC       CON    SCRL         *SCRL* POINTER                           MTR          119
                                                                                                       MTR          120
                                                                                                       MTR          121
  60          0000               OR       VFD    60/0         PP OUTPUT REGISTER                       MTR          122
  61          0000
  62          0000
  63          0000
  64          0000
                                                                                                       MTR          123
  65          0000               OF       CON    0            ADDRESS OF FIRST PP OUTPUT REGISTER      MTR          124
  66          0000               PP       CON    0            CURRENT PP NUMBER                        251L664       10
  67          0000               PR       CON    0            PRIORITY SEEK REQUEST PP                 MTR          126
  70          0001               ON       CON    1            CONSTANT 1                               MTR          127
  71          0100               HN       CON    100          CONSTANT 100                             MTR          128
  72          0004               FR       CON    4            CONSTANT FOUR                            MTR          129
  73          0003               TR       CON    3            CONSTANT 3                               MTR          130
  74          0000               CP       CON    0            CONTROL POINT NUMBER                     271L716       22
  75          0000               CY       CON    0            START OF CURRENT CYCLE                   MTR          132
  76          0000               OA       CON    0            CURRENT OUTPUT REGISTER ADDRESS          MTR          133
                                                                                                       MTR          134
  77          0000               ZR       VFD    60/0         CM ZERO WORD (5 LOCATIONS)               MTR          135
 100          0000
 101          0000
 102          0000
 103          0000
                                                                                                       MTR          136
                                                                                                       MTR          137
                                                                                                       MTR          138
                                                                                                       MTR          139
                                *         ASSEMBLY CONSTANTS.                                          MTR          140
                                                                                                       MTR          141
                                                                                                       MTR          142
                          1750   MLSC     EQU    1000D        MICROSECONDS/MILLISECOND                 MTR          143
                            16   CH       EQU    CHSC         S/C REGISTER CHANNEL                     MTR          144
                            17   MR       EQU    CHMR         CYBER 170-8X5 MAINTENANCE CHANNEL        MTR          145
                             3   MXRC     EQU    3            MAXIMUM RECALL REQUESTS PER LOOP         MTR          150
                             6   MBCS     EQU    6            MEMORY BLOCK CONVERSION SHIFT COUNT      271L716       23
                                                                                                       MTR          151
                                                                                                       MTR          152
                                ****                                                                   MTR          153
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                        **      MSTA - GENERATE MST ADDRESS.                                    MTR     164
                        *                                                                       MTR     165
                        *       THIS MACRO IS TO BE USED FOR ALL MST ADDRESSES IN ORDER TO      MTR     166
                        *       ALLOW FOR EST EXPANSION.                                        MTR     167
                        *                                                                       MTR     168
                        *       MSTA   WORD,PP,DC,EO                                            MTR     169
                        *       ENTRY  WORD = MST WORD DESIRED.                                 MTR     170
                        *              PP = PP NUMBER USED TO ACCESS PP TABLE OF MST            MTR     171
                        *              ADDRESSES (*TPMS*).                                      MTR     172
                        *              DC = 5 BYTES OF SCRATCH DIRECT CELLS.                    MTR     173
                        *              EO = IF SUPPLIED, (A) = EST ORDINAL.                     MTR     174
                        *                                                                       MTR     175
                        *       EXIT   (A) = CM ADDRESS IF *WORD* SUPPLIED.                     MTR     176
                        *              (DC - DC+4) = *EQDE* WORD OF EST ENTRY IF *DC* IS        MTR     177
                        *                            SUPPLIED.                                  MTR     178
                        *                                                                       MTR     179
                        *       IF *DC* IS SUPPLIED MST ADDRESS IS OBTAINED FROM THE            MTR     180
                        *       EST, AND IF *PP* IS SUPPLIED, IT IS STORED INTO *TPMS*.         MTR     181
                        *       IF *DC* IS NOT SUPPLIED, THE MST ADDRESS IS OBTAINED FROM       MTR     182
                        *       *TPMS*.  IF *WORD* IS NOT SUPPLIED THE CM ADDRESS IS NOT        MTR     183
                        *       RETURNED.                                                       MTR     184
                                                                                                MTR     185
                                                                                                MTR     186
                         MSTA   MACRO  WORD,PP,DC,EO                                            MTR     187
                                MACREF MSTA                                                     MTR     188
                         .M1    IFC    NE,*DC**                                                MTR     189
                                IFC    EQ,*EO**,1                                              MTR     190
                                LDD    T5                                                      MTR     191
                                SFA    EST                                                     MTR     192
                                ADK    EQDE                                                    MTR     193
                                CRD    DC                                                      MTR     194
                                LDD    DC+4                                                    MTR     195
                                IFC    NE,*PP**,1                                              MTR     196
                                STM    TPMS,PP                                                 MTR     197
                         .M1    ELSE                                                           MTR     198
                                LDM    TPMS,PP                                                 MTR     199
                         .M1    ENDIF                                                          MTR     200
                                IFC    NE,*WORD**,2                                            MTR     201
                                SHN    3                                                       MTR     202
                                ADN    WORD                                                    MTR     203
                                ENDM                                                           MTR     204


                        **      NSDJ - NO SHARED DEVICES JUMP.                                  MTR     206
                        *                                                                       MTR     207
                        *       THE INSTRUCTION FOLLOWING THIS MACRO IS REPLACED BY A *UJN*     MTR     208
                        *       IF THERE ARE NO SHARED DEVICES IN THE SYSTEM.                   MTR     209
                        *                                                                       MTR     210
                        *       NSDJ   ADDR                                                     MTR     211
                        *       ENTRY  ADDR = ADDRESS TO JUMP TO.                               MTR     212
                                                                                                MTR     213
                                                                                                MTR     214
                         NSDJ   MACRO  A                                                        MTR     215
                                LOCAL  AA                                                       MTR     216
                                MACREF NSDJ                                                     MTR     217
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AA      EQU   *                                                    MTR  218
NSDJ    RMT                                                        MTR  219
        CON   AA                                                   MTR  220
        LOC   AA                                                   MTR  221
        UJN   A                                                    MTR  222
        LOC   *O                                                   MTR  223
NSDJ    RMT                                                        MTR  224
        ENDM                                                       MTR  225


**      N8SJ - NO ISD SUBSYSTEM JUMP.                              MTR  227
*                                                                  MTR  228
*       THE INSTRUCTION FOLLOWING THIS MACRO IS REPLACED BY A *UJN*MTR  229
*       IF THERE IS NO ISD SUBSYSTEM PRESENT.                      MTR  230
*                                                                  MTR  231
*       N8SJ   ADDR                                                MTR  232
*       ENTRY  ADDR = ADDRESS TO JUMP TO.                          MTR  233
                                                                   MTR  234
                                                                   MTR  235
N8SJ    MACRO  A                                                   MTR  236
        LOCAL  AA                                                  MTR  237
        MACREF N8SJ                                                MTR  238
AA      EQU    *                                                   MTR  239
N8SJ    RMT                                                        MTR  240
        CON    AA                                                  MTR  241
        LOC    AA                                                  MTR  242
        UJN    A                                                   MTR  243
        LOC    *O                                                  MTR  244
N8SJ    RMT                                                        MTR  245
        ENDM                                                       MTR  246


**      PPR - SET PP REQUEST PROCESSOR.                            MTR  248
*                                                                  MTR  249
*       PPR    FCN,PRC                                             MTR  250
*       ENTRY  *FCN* = FUNCTION NUMBER.                            MTR  251
*              IF *PRC* IS SPECIFIED, *.PRC* IS ADDRESS OF PROCESSOR. MTR 252
*              OTHERWISE, *.FCN* IS ADDRESS OF PROCESSOR.          MTR  253
                                                                   MTR  254
                                                                   MTR  255
PPR     MACRO  FCN,PRC                                             MTR  256
        LOCAL  J,K                                                 MTR  257
        MACREF PPR                                                 MTR  258
J       OCTMIC FCN                                                 MTR  259
        IFC    EQ,$PRC$$                                           MTR  260
K       MICRO  1,3, FCN                                            MTR  261
K       MICRO  1,4,*."K"*                                          MTR  262
"K"     CON    FCN                                                 MTR  263
        ORG    *-1                                                 MTR  264
        ELSE   1                                                   MTR  265
K       MICRO  1,, PRC                                             MTR  266
PPR     RMT                                                        MTR  267
        ORG    TPPR+FCN                                            MTR  268
```

```
                           CON    "K"                                              MTR        269
                     PPR      RMT                                                  MTR        270
                           ENDM                                                    MTR        271


                     **        SUBFUN - SET SUBFUNCTION PROCESSOR.                 MTR        273
                     *                                                             MTR        274
                     *SFA      SUBFUN FNC,SFN                                      MTR        275
                     *         ENTRY  SFA = SUBFUNCTION PROCESSOR ENTRY NAME.      MTR        276
                     *                FNC = FUNCTION NAME.                         MTR        277
                     *                SFN = SUBFUNCTION NAME.                      MTR        278
                     *                                                             MTR        279
                     *         THIS MACRO BUILDS A TABLE OF SUBFUNCTION PROCESSORS. MTR       280
                     *         THE TABLE IS NAMED T*FNC*, AND EACH ENTRY IS THE    MTR        281
                     *         ADDRESS OF THE PROCESSOR FOR THE SUBFUNCTION.       MTR        282
                                                                                   MTR        283
                                                                                   MTR        284
                           MACRO  SUBFUN,SFA,FNC,SFN                               MTR        285
                           MACREF SUBFUN                                           NS2726       1
                      SFA  BSS    0                                                MTR        286
                           IRP    SFN                                              MTR        287
                      T_FNC    RMT                                                 MTR        288
                           ORG    T_FNC+SFN                                        MTR        289
                           CON    SFA                                              MTR        290
                      T_FNC    RMT                                                 MTR        291
                           IRP                                                     MTR        292
                           ENDM                                                    MTR        293
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                                    **       MONITOR RE-ENTRY PROCESSOR.                           251L664     12
                                                                                                   251L664     13
                                                                                                   251L664     14
      104         0000               MRP     CON     0            REENTRY ADDRESS                  251L664     15
      105         5000 0104                  LDM     MRP                                           251L664     16
      107         5466 7445                  STM     TREA,PP                                       251L664     17
                                    *        UJN     MTR          CHECK NEXT PP                    251L664     18



                                    **       MTR - MAIN PROGRAM.                                   MTR        325
                                                                                                   MTR        326
                                                                                                   MTR        327
      111         3666               MTR     AOD     PP           GET NEXT OUTPUT REGISTER ADDRESS 251L664     20
      112         1700               MTRA    SBN     **           (NUMBER OF NON-CONCURRENT PPS)   251L664     21
      113         0511               MTRB    NJN     MTR1         IF NOT LAST NPP                  251L664     22
                                    *        UJN     MTR2         (NO CONCURRENT PPS PRESENT)      251L664     23
                                    *        UJN     MTR1         (MONITOR STEP SET)               MTR27        1
      114         1451                       LDN     PPRL         CHECK FOR CPP REQUESTS           251L664     24
      115         6010                       CRD     CM                                            251L664     25
      116         3010                       LDD     CM                                            251L664     26
      117         0424                       ZJN     MTR4         IF NO CPP REQUESTS               251L664     27
      120         1400                       LDN     0            CLEAR CPP REQUEST FLAG           251L664     28
      121         3410                       STD     CM                                            251L664     29
      122         1451                       LDK     PPRL                                          251L664     30
      123         6210                       CWD     CM                                            251L664     31
      124         1700               MTR1    SBN     **           (NUMBER OF CONCURRENT PPS)       251L664     32
                              124    MTRC    EQU     *-1                                           251L664     33
                              -41            ERRPL   10-PPRL      *PPRL* MIGHT EQUAL NUMBER OF CPPS 251L664    34
      125         0416               MTR2    ZJN     MTR4         IF ALL OUTPUT REGISTERS CHECKED  251L664     35
      126         3066                       LDD     PP           READ PP-S OUTPUT REGISTER        251L664     36
      127         1003               MTR3    SHN     3                                             251L664     37
      130         3165                       ADD     OF                                            251L664     38
      131         3476                       STD     OA                                            251L664     39
      132         6060                       CRD     OR                                            251L664     40
      133         5066 7445                  LDM     TREA,PP      GET PP-S REENTRY ADDRESS         251L664     41
      135         5400 0142                  STM     MTRD                                          251L664     42
      137         3060                       LDD     OR                                            MTR        331
      140         0450                       ZJN     MTR          IF NO REQUEST                    251L664     43
      141         0100 0000                  LJM     **           EXIT TO PROCESSOR                251L664     44
                              142    MTRD    EQU     *-1                                           251L664     45
                                                                                                   MTR        347
                                    *        PERFORM SYSTEM FUNCTIONS.                             MTR        348
                                                                                                   MTR        349
      143         0200 0343          MTR4    RJM     TIM          UPDATE TIME                      251L664     46
      145         0200 0536                  RJM     CRQ          CHECK RECALL QUEUE               MTR        351
      147         3037                       LDD     CF                                            251L664     47
      150         0411                       ZJN     MTR5         IF NO CHANNEL UPDATES            251L664     48
      151         1411               MTRE    LDN     CTALL        WORD COUNT OF CHANNEL TABLE      251L664     49
                                    *        LDN     NCTAL        (CCH-S NOT PRESENT)              251L664     50
      152         3437                       STD     CF                                            251L664     51
      153         2000 0000                  LDC     **           WRITE CHANNEL TABLE              251L664     52
                              154    MTRF    EQU     *-1                                           251L664     53
      155         6337 7350                  CWM     TCHS,CF                                       251L664     54
      157         1400                       LDN     0            CLEAR CHANNEL UPDATE FLAG        251L664     55
      160         3437                       STD     CF                                            251L664     56
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 161          0200 0653             MTR5     RJM    PHE          PROCESS HARDWARE ERRORS                    251L664     57
                              161   MTRG     EQU    *-2                                                     251L664     58
                                    *        UJN    *+2          (6000 SERIES)                              MTR        356
                                                                                                            MTR        357
                                    *        UPDATE STATISTICAL DATA.                                       MTR        358
                                                                                                            MTR        359
 163          2000 0005                      TLDC   MTRS,SDA     READ *MTR* STATISTICAL DATA                273L780      4
 165          6010                           CRD    CM                                                      MTR        362
 166          2000 0000                      LDC    **           UPDATE MISSED CLOCK UPDATE COUNT           251L664     60
                              167   MTRI     EQU    *-1          (MISSED CLOCK UPDATE COUNT)                251L664     61
 170          3511                           RAD    CM+1                                                    251L664     62
 171          1400                           LDN    0            RESET CURRENT CYCLE MISSED CLOCK UPDATES   251L664     63
 172          5400 0167                      STM    MTRI                                                    251L664     64
 174          3053                           LDD    TM+4         CALCULATE ELAPSED CYCLE TIME               MTR        366
 175          3275                           SBD    CY                                                      MTR        367
 176          0603                           PJN    MTR6         IF NO OVERFLOW                             251L664     65
 177          2101 0000                      ADC    10000                                                   MTR        369
 201          3414                  MTR6     STD    CM+4                                                    251L664     66
 202          3575                           RAD    CY                                                      MTR        371
 203          3014                           LDD    CM+4                                                    MTR        372
 204          3213                           SBD    CM+3                                                    MTR        373
 205          0702                           MJN    MTR7         IF NOT NEW WORST CASE TIME                 251L664     67
 206          3513                           RAD    CM+3         UPDATE WORST CASE CYCLE TIME               251L664     68
 207          2000 0000             MTR7     LDC    **           SET WORST CASE *MXN* TIME                  251L664     69
                              210   MTRJ     EQU    *-1          (WORST CASE *MXN* TIME)                    251L664     70
 211          3212                           SBD    CM+2                                                    251L664     71
 212          0702                           MJN    MTR8         IF NOT WORST CASE *MXN* TIME               251L664     72
 213          3512                           RAD    CM+2         UPDATE WORST CASE *MXN* TIME               251L664     73
 214          1400                  MTR8     LDN    0            RESET CURRENT CYCLE WORST CASE *MXN* TIME  251L664     74
 215          5400 0210                      STM    MTRJ                                                    251L664     75
 217          2000 0005                      TLDC   MTRS,SDA     WRITE *MTR* STATISTICAL DATA               273L780      5
 221          6210                           CWD    CM                                                      MTR        381
                                                                                                            MTR        382
                                    *        THE CPU SWITCH IS DONE AS LONG AS POSSIBLE AFTER THE CALL      MTR        383
                                    *        TO *CRQ* TO ALLOW *CPUMTR* TO HAVE FINISHED PROCESSING CPU     MTR        384
                                    *        RECALLS.  THE CALL TO *WXP* IS MADE TO INSURE ANY RECALLS      MTR        385
                                    *        HAVE COMPLETED.                                                MTR        386
                                                                                                            MTR        387
 222          0200 5245                      RJM    WXP          WAIT RECALL COMPLETION                     MTR        388
 224          0200 5014                      RJM    CCS          CHECK CPU SWITCH                           MTR        389
 226          0200 4724                      RJM    CCP          CHECK CENTRAL PROGRAM                      MTR        390
 230          1400                           LDN    0            SET UP OUTPUT REGISTER SCAN                251L664     77
 231          3466                           STD    PP                                                      251L664     78
 232          0100 0111                      LJM    MTR          LOOP                                       MTR        391
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                                  **    AVC - ADVANCE CLOCK.                                     MTR       396
                                  *                                                              MTR       397
                                  *     ENTRY MUST BE MADE AT LEAST EVERY 4 MILLISECONDS.        MTR       398
                                  *                                                              MTR       399
                                  *     IF THE MACHINE IS IN A MULTI-MAINFRAME COMPLEX THE       MTR       400
                                  *     FOLLOWING IS DONE.                                       MTR       401
                                  *     1)     STATUS FLAG REGISTER BITS.                        MTR       402
                                  *     2)     WRITE REAL TIME CLOCK TO ECS.                     MTR       403
                                  *     3)     STATUS MAINFRAMES ECS CLOCKS EVERY 2 SECONDS.     MTR       404
                                  *                                                              MTR       405
                                  *     USES   CM - CM+4, T3.                                    MTR       406
                                  *                                                              MTR       407
                                  *     CALLS  AVT, CPR, TIM.                                    MTR       408
                                                                                                 MTR       409
                                                                                                 MTR       410
       234                         AVC4  BSS    0                                                MTR       411
       234      2001 0002          AVCB  LDC    10000B+ARTF ADVANCE CPU-1 RUNNING TIME           MTR       412
                                  *      UJN    AVC5        (1 CPU)                              271L716    24
       236      0200 5112                RJM    CPR                                              MTR       414
       240      3071               AVC5  LDD    HN          RESET RETURN                         271L716    25
       241      5400 0253                STM    AVCA                                             MTR       416
       243      0200 0442                RJM    AVT         ADVANCE TIME OF DAY                  MTR       417
       245      3050               AVCC  LDD    TM+1                                             MTR       418
                                  *      UJN    AVCD        (NO MULTI-MAINFRAME PROCESSING)      MTR       419
       246      1201                     LPN    1                                                MTR       420
       247      3422                     STD    CN+2        SET TIME TO STATUS MAINFRAMES        MTR       421
       250      1414               AVCD  LDN    ARMF        ADVANCE RUNNING TIME                 MTR       422
                                  *      LDN    ARTF        (NO MULTI-MAINFRAME PROCESSING)      MTR       423
       251      0200 5112                RJM    CPR                                              MTR       424
                                                                                                 MTR       425
       253      0100 0253          AVC   SUBR               ENTRY/EXIT                           MTR       426
                                  *      UJN    AVC4        (ONE SECOND ELAPSED)                 MTR       427
                             253   AVCA  EQU    *-2                                              MTR       428
       255      0200 0343                RJM    TIM         ADVANCE MILLISECOND CLOCK            MTR       429
       257      2000 0010          AVC1  TLDC   CACX,CMT    READ CPU 0 EXCHANGE REQUEST          273L780     6
                                  *      UJN    AVCX        (1 CPU ONLY)                         MTR       431
                             257   CX1   EQU    *-2                                              MTR       432
       261      6010                     CRD    CM                                               MTR       433
       262      1400                     LDN    0           CLEAR EXCHANGE REQUEST OUTSTANDING FLAG  MTR   434
       263      3403                     STD    T3                                               MTR       435
       264      3011                     LDD    CM+1                                             MTR       436
       265      3112                     ADD    CM+2                                             MTR       437
       266      0405                     ZJN    AVC2        IF NO EXCHANGE REQUEST               MTR       438
       267      3603                     AOD    T3                                               MTR       439
       270      1413                     LDN    PCXF        PROCESS CPU 0 EXCHANGE REQUEST       MTR       440
       271      0200 5112                RJM    CPR                                              MTR       441
       273      2000 0011          AVC2  TLDC   CACX+1,CMT  READ CPU 1 EXCHANGE REQUEST          273L780     7
       275      6010                     CRD    CM                                               MTR       443
       276      3011                     LDD    CM+1                                             MTR       444
       277      3112                     ADD    CM+2                                             MTR       445
       300      0406                     ZJN    AVC3        IF NO EXCHANGE REQUEST               MTR       446
       301      3603                     AOD    T3                                               MTR       447
       302      2001 0013                LDC    10000+PCXF  PROCESS CPU 1 EXCHANGE REQUEST       MTR       448
       304      0200 5112                RJM    CPR                                              MTR       449
       306      3003               AVC3  LDD    T3                                               MTR       450
       307      0547                     NJN    AVC1        IF EXCHANGE REQUEST OUTSTANDING      MTR       451
       310      0342                     UJN    AVCX        RETURN                               MTR       452
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                                **        TIM - UPDATE REAL TIME CLOCK.                                   MTR       454
                                *                                                                         MTR       455
                                *         THE REAL TIME CLOCK IN CM IS UPDATED EVERY MILLISECOND.  THIS  NS2418      2
                                *         ROUTINE WHEN CALLED FROM OTHER THAN *AVC* IS USED TO MAINTAIN  NS2418      3
                                *         TIME ACCURACY WITHOUT CALLS TO *CPR*.  ON CYBER 180 AND        NS2418      4
                                *         CYBER 170-865/875 MAINFRAMES, THE REAL TIME CLOCK IS READ      NS2418      5
                                *         AFTER EVERY EXCHANGE TO *CPUMTR*, SINCE *CPUMTR* CONTROLS      NS2418      6
                                *         THE CLOCK USING THE CPU CLOCK.  BETWEEN EXCHANGES, *MTR*       NS2418      7
                                *         MAINTAINS THE REAL TIME CLOCK IN THE USUAL WAY TO ENSURE       NS2418      8
                                *         ACCURACY DURING PERIODS WHEN *CPUMTR* IS INACTIVE.             NS2418      9
                                *                                                                         MTR       464
                                *         EXIT   (RTCL) UPDATED IN CM IF MILLISECOND OR MORE ELAPSED.    MTR       465
                                *                (MTRI) = COUNT OF TIMES CLOCK UPDATE MISSED.            251L664    80
                                *                                                                         MTR       467
                                *         USES   LS, MS, ST, CM - CM+4, TM - TM+4.                       271L716    26
                                *                                                                         MTR       468
                                *         CALLS  ETA.                                                     MTR       469
                                                                                                          MTR       470
                                                                                                          MTR       471
 311          3071              TIM5     LDD    HN          RESET RETURN                                  MTR       472
 312          5400 0342                  STM    TIMX                                                      MTR       473
 314          0330                       UJN    TIM1        REENTER LOOP                                  MTR       474
                                                                                                          MTR       475
 315          3454              TIM6     STD    MS                                                        MTR       476
 316          2000 0006                  TLDC   /EXPACS/MXP+6,XBP  READ (MA), (A6), (B6)               273L780     8
 320          6010                       CRD    CM                                                        MTR       478
 321          3010                       LDD    CM                                                        MTR       479
 322          3111                       ADD    CM+1                                                      MTR       480
 323          0517                       NJN    TIMX        IF EXCHANGE PACKAGE NOT READY                 MTR       481
 324          2000 0106                  LDC    RTCL                                                      MTR       482
 326          6047                       CRD    TM          READ THE MILLISECOND CLOCK                    MTR       483
 327          3050                       LDD    TM+1                                                      MTR       484
 330          3225                       SBD    LS                                                        MTR       485
 331          0406                       ZJN    TIM8        IF NO CHANGE IN SECONDS                       MTR       486
 332          1401                       LDN    1           FORCE DELTA TO 1 SECOND                       NCCTMKP     1
 333          0200 0415         TIM7     RJM    ETA         ENABLE TIME ADVANCE                           MTR       489
 335          3050                       LDD    TM+1        MARK CURRENT SECONDS                          MTR       490
 336          3425                       STD    LS                                                        MTR       491
 337          1477              TIM8     LDN    PSNI        RESET EXCHANGE SWITCH                         MTR       492
 340          5400 0345                  STM    TIMB                                                      MTR       493
                                                                                                          MTR       494
 342          0100 0342         TIM      SUBR               ENTRY/EXIT                                 MTR       495
 344          7014              TIM1     IAN    14          READ CLOCK                                    MTR       496
 345          2400              TIMB     PSN                NORMAL                                        MTR       497
                                *         UJN    TIM6        EXCHANGE OUTSTANDING (CPU CLOCK)              NS2418     11
 346          3254                       SBD    MS                                                        MTR       500
 347          0603                       PJN    TIM2        IF NO OVERFLOW                                MTR       501
 350          2101 0000                  ADC    10000                                                     MTR       502
 352          2177 6027         TIM2     ADC    -MLSC       CYCLES TILL RTCL WRITTEN                      FIXCLOK     1
 354          0765                       MJN    TIMX        IF NOT .GE. 1 MILLISECOND ELAPSED             MTR       507
 355          1065                       SHN    -12                                                       MTR       508
 356          0407                       ZJN    TIM3        IF REMAINDER .LT. 1024 MICROSECONDS           MTR       509
 357          5600 0167                  AOM    MTRI        COUNT MISSED CLOCK UPDATE                     251L664    82
 361          2000 0000                  ISTORE TIMX,(UJN TIM5)  SET UP TO LOOP                           NS2418     12
 365          2000 1750         TIM3     LDC    MLSC                                                      MTR       514
 367          3554                       RAD    MS                                                        MTR       515
 370          3653                       AOD    TM+4        ADVANCE MILLISECOND CLOCK                     MTR       516
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 371         1063                  SHN    -14                                            MTR        517
 372         0404                  ZJN    TIM4          IF NO OVERFLOW                   MTR        518
 373         3552                  RAD    TM+3          UPDATE MILLISECONDS ON OVERFLOW  MTR        519
 374         1063                  SHN    -14                                            MTR        520
 375         3551                  RAD    TM+2                                           MTR        521
 376         3755          TIM4    SOD    ST            UPDATE SECOND TIMER              MTR        522
 377         0510                  NJN    TIM4.1        IF NOT 1 SECOND ELAPSED          MTR        523
 400         1401                  LDN    1             SET INCREMENT FOR *AVT*          MTR        524
 401         0200 0415             RJM    ETA           ENABLE TIME ADVANCE              MTR        525
 403         3650                  AOD    TM+1          UPDATE SECONDS                   MTR        526
 404         3425                  STD    LS            MARK CURRENT SECONDS             MTR        527
 405         1063                  SHN    -14                                            MTR        528
 406         3547                  RAD    TM                                             MTR        529
 407         2000 0106     TIM4.1  LDC    RTCL          UPDATE CLOCK                     MTR        530
 411         6247                  CWD    TM                                             MTR        531
 412         0100 0342             LJM    TIMX          EXIT                             MTR        532


                          **       ETA - ENABLE TIME ADVANCE.                            MTR        534
                          *                                                              MTR        535
                          *        THE UPDATE OF THE DATE AND TIME IS ENABLED, THE       MTR        536
                          *        NUMBER OF SECONDS TO ADVANCE IT IS ESTABLISHED,       MTR        537
                          *        AND THE SECOND TIMER IS RESET.                        MTR        538
                          *                                                              MTR        539
                          *        ENTRY  (A) .EQ. NUMBER OF SECONDS TO ADVANCE TIME.    MTR        540
                          *                                                              MTR        541
                          *        EXIT   TIME ADVANCE IS ENABLED.                       MTR        542
                                                                                         MTR        543
                                                                                         MTR        544
 414         0100 0414     ETA     SUBR                 ENTRY/EXIT                       MTR        545
 416         5400 0450             STM    AVTC          SET SECONDS INCREMENT            MTR        546
 420         2000 0000             ISTORE AVCA,(UJN AVC4)  ENABLE CLOCK UPDATE           NS2418      13
 424         2000 1750             LDC    1000D         RESET SECOND TIMER               MTR        550
 426         3455                  STD    ST                                             MTR        551
 427         0364                  UJN    ETAX          EXIT                             MTR        552


                          **       AVT - ADVANCE TIME.                                   MTR        554
                          *                                                              MTR        555
                          *        ADVANCES THE TIME OF DAY AND DATE IN RESPONSE TO THE REAL   MTR  556
                          *        TIME CLOCK AND STORES THEM IN CENTRAL MEMORY.  ON THE HOUR, MTR  557
                          *        THE TIME PROCESSING FUNCTION CODE IS SET IN THE *1MB* CALL  MTR  558
                          *        WORD.                                                 MTR        559
                          *                                                              MTR        562
                          *        EXIT   (PDTL), (JDAL), (TIML), (DTEL) UPDATED IN CMR. NS2418      14
                          *                                                              253L688      3
                          *        USES   CN, PD - PD+4(T0 - T0+4), TI - TI+4(CM - CM+4).   271L716  27
                          *                                                              253L688      5
                          *        CALLS  CPR.                                           253L688      6
                                                                                         MTR        564
                                                                                         MTR        565
 430         1431          AVT2    LDN    PDTL          WRITE *PDTL* AND *TIML*          253L688      7
 431         6200                  CWD    PD                                             253L688      8
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 432         1601                     ADK   TIML-PDTL                                 271L716     28
 433         6210                     CWD   TI                                        253L688     11
 434         3020                     LDD   CN                                        253L688     12
 435         0504                     NJN   AVTX        IF NOT TOP OF HOUR            253L688     13
                             *        LDN   0           CLEAR BUFFER ADDRESS          253L688     14
                             *        STD   CN                                        253L688     15
 436         1417                     LDN   ADTF        CALL *CPUMTR* TO COMPLETE THE ADVANCE     253L688     16
 437         0200 5112                RJM   CPR                                       253L688     17
                                                                                      MTR        568
 441         0100 0441       AVT      SUBR              ENTRY/EXIT                    MTR        569
 443         1431                     LDN   PDTL        READ *PDTL* AND *TIML*        253L688     18
 444         6000                     CRD   PD                                        253L688     19
 445         1601                     ADK   TIML-PDTL                                 271L716     29
 446         6010                     CRD   TI                                        253L688     22
 447         2000 0001                LDC   1           ADVANCE SECONDS               MTR        572
                       450   AVTC     EQU   *-1                                       MTR        573
 451         3420                     STD   CN          INITIALIZE TOP OF HOUR FLAG   253L688     23
 452         3504                     RAD   PD+4                                      MTR        574
 453         5000 0450                LDM   AVTC                                      MTR        575
 455         1006                     SHN   6                                         MTR        576
 456         3514                     RAD   TI+4                                      MTR        577
 457         1071                     SHN   -6                                        MTR        578
 460         1745                     SBN   1R9+1                                     MTR        579
 461         0746            AVT1     MJN   AVT2        IF NOT 10 SECONDS             253L688     24
 462         1006                     SHN   6                                         MTR        581
 463         2100 3357                ADC   2R0.        RESET SECONDS                 MTR        582
 465         3414                     STD   TI+4                                      MTR        583
 466         3613                     AOD   TI+3        ADVANCE 10 SECONDS            MTR        584
 467         1277                     LPN   77                                        MTR        585
 470         1741                     SBN   1R6                                       MTR        586
 471         0767                     MJN   AVT1        IF NOT 60 SECONDS             MTR        587
 472         1404                     LDN   100-60D     ADVANCE MINUTES, RESET SECONDS    MTR        588
 473         3504                     RAD   PD+4                                      MTR        589
 474         2000 5733                LDC   2R.0        RESET 10 SECONDS              MTR        590
 476         3413                     STD   TI+3                                      MTR        591
 477         3612                     AOD   TI+2        ADVANCE MINUTES               MTR        592
 500         1277                     LPN   77                                        MTR        593
 501         1745                     SBN   1R9+1                                     MTR        594
 502         0756                     MJN   AVT1        IF NOT 10 MINUTES             MTR        595
 503         1466                     LDN   100+1R0-1R9-1 ADVANCE 10 MINUTES          MTR        596
 504         3512                     RAD   TI+2                                      MTR        597
 505         1071                     SHN   -6                                        MTR        598
 506         1741                     SBN   1R6                                       MTR        599
 507         0751                     MJN   AVT1        IF NOT 60 MINUTES             253L688     25
 510         5000 1004                LDM   PHED+2                                    MTR42        1
 512         1301                     SCN   SPTP                                      MTR42        2
 513         1101            AVTA     LMN   SPTP        SET TIME PROCESSING FUNCTION FOR *1MB*    MTR42        3
                             *        LMN   0           (NO TIME CALL FOR C70 NON-SIMULATION)     MTR42        4
                         0            ERRNZ SPTP-1      (ERROR IF TIME FUNCTION VALUE CHANGES)    MTR        603
 514         5400 1004                STM   PHED+2                                    MTR42        5
 516         1400                     LDN   0           CLEAR BUFFER ADDRESS          253L688     26
 517         3420                     STD   CN                                        253L688     27
 520         0100 0430                LJM   AVT2        CALL *CPUMTR* TO COMPLETE THE ADVANCE     253L688     28
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                                  **        CRQ - CHECK RECALL CRITERION.                                  MTR         699
                                  *                                                                        MTR         700
                                  *         THIS ROUTINE PROCESSED UP TO *MXRC* ENTRIES OF THE RECALL      MTR         701
                                  *         REQUEST QUEUE.  EACH ENTRY IS CHECKED TO SEE IF THE            MTR         702
                                  *         RECALL CRITERION HAS BEEN SATISFIED.  IF IT HAS, *CPUMTR* IS   MTR         703
                                  *         CALLED TO BRING THE REQUEST OUT OF RECALL.                     MTR         704
                                  *                                                                        MTR         705
                                  *         CALLS  CPR, RCP.                                               MTR         706
                                                                                                           MTR         707
                                                                                                           MTR         708
 522        3022                   CRQ6     LDD    CN+2         CHECK REQUEST                              MTR         709
 523        1277                            LPN    77                                                      MTR         710
 524        1125                            LMN    CRCW-100                                                271L750       3
                        25                  ERRNG  CRCW-100     *CRCW* MUST BE .GE. 100                    271L750       4
 525        0406                            ZJN    CRQ7         IF CPU IN RECALL                           MTR         712
 526        2001 0011                       LDC    10000+PRQF                                              271L716      30
 530        0200 5112                       RJM    CPR                                                     MTR         714
 532        0317                            UJN    CRQ3         CHECK NEXT REQUEST                         MTR         715
                                                                                                           MTR         716
 533        0200 7260              CRQ7     RJM    RCP          RECALL CPU                                 MTR         717
                                                                                                           MTR         718
 535        0100 0535              CRQ      SUBR                ENTRY/EXIT                                 MTR         719
 537        1403                            LDN    MXRC         SET MAXIMUM NUMBER OF REQUESTS TO PROCESS  MTR         720
 540        3403                            STD    T3                                                      MTR         721
 541        3035                            LDD    RC                                                      MTR         722
 542        3336                            LMD    RQ                                                      MTR         723
 543        0510                            NJN    CRQ4         IF NOT POINTER WORD                        MTR         724
 544        3603                            AOD    T3                                                      MTR         725
                                                                                                           MTR         726
                                  *         THIS CODE IS USED TO RESET THE LIST POINTER TO THE             MTR         727
                                  *         BEGINNING IN THE INFREQUENT EVENT THAT *MTR* TRIES             MTR         728
                                  *         TO USE A BAD POINTER, WHICH IS USUALLY CAUSED BY               MTR         729
                                  *         *CPUMTR* MAKING CHANGES IN THE LIST WHILE *MTR* IS             MTR         730
                                  *         SCANNING IT.                                                   MTR         731
                                                                                                           MTR         732
 545        3036                   CRQ2     LDD    RQ           RESET TO START OF LIST                     MTR         733
 546        6010                            CRD    CM                                                      MTR         734
 547        3014                            LDD    CM+4         SET TO PROCESS FIRST ENTRY                 MTR         735
 550        3435                            STD    RC                                                      MTR         736
 551        3703                   CRQ3     SOD    T3                                                      MTR         737
 552        0762                            MJN    CRQX         IF LIMIT OF ENTRIES TO PROCESS             MTR         738
 553        3035                   CRQ4     LDD    RC                                                      MTR         739
 554        6010                   CRQ5     CRD    CM                                                      MTR         740
 555        3422                            STD    CN+2                                                    MTR         741
 556        3014                            LDD    CM+4         SET NEXT ENTRY                             MTR         742
 557        3435                            STD    RC                                                      MTR         743
 560        1317                            SCN    17                                                      MTR         744
 561        0463                            ZJN    CRQ2         IF END OF LIST                             MTR         745
                                                                                                           MTR         746
                                  *         THE FOLLOWING LOGIC IS DEPENDENT ON THE RECALL TYPES BEING     MTR         747
                                  *         IN A CERTAIN ORDER.                                            MTR         748
                                                                                                           MTR         749
                         0                  ERRNZ  PCBF-1       LOGIC REQUIRES THIS VALUE                  MTR         750
                         0                  ERRNZ  PTRF-2       LOGIC REQUIRES THIS VALUE                  MTR         751
                         0                  ERRNZ  PTMF-3       LOGIC REQUIRES THIS VALUE                  MTR         752
                                                                                                           MTR         753
 562        3010                            LDD    CM                                                      MTR         754
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 563          1703                  SBN    PTMF                                   MTR         755
 564          0405                  ZJN    PTM         IF TIMED RECALL            MTR         756
 565          0657                  PJN    CRQ2        IF ILLEGAL RECALL CRITERION MTR        757
 566          1602                  ADN    -PCBF+PTMF                             MTR         758
 567          0424            CRQA  ZJN    PCB         IF PROCESS COMPLETION BIT  MTR         759
                             *      ZJN    PCB3        (CME PRESENT)              MTR         760
 570          0754                  MJN    CRQ2        IF NOT TIMED RECALL        MTR         761



                             **     PTM - TIMED RECALL PROCESSOR.                 MTR         763
                             *                                                    MTR         764
                             *T, CM 12/  PTMF,36/  RT,12/  LK                     MTR         765
                             *      RT     RECALL TIME.                           MTR         766
                             *      LK     NEXT RECALL ENTRY.                     MTR         767
                                                                                  MTR         768
                                                                                  MTR         769
 571          3051            PTM   LDD    TM+2                                   MTR         770
 572          3211                  SBD    CM+1                                   MTR         771
 573          0506                  NJN    PTM1        IF LIMIT PASSED OR NOT REACHED MTR     772
 574          3052                  LDD    TM+3                                   MTR         773
 575          3212                  SBD    CM+2                                   MTR         774
 576          0503                  NJN    PTM1        IF LIMIT PASSED OR NOT REACHED MTR     775
 577          3053                  LDD    TM+4                                   MTR         776
 600          3213                  SBD    CM+3                                   MTR         777
 601          0703            PTM1  MJN    PTM3        IF NOT TIME TO RECALL REQUEST MTR      778
 602          0100 0522       PTM2  LJM    CRQ6        RECALL REQUEST             MTR         779
                                                                                  MTR         780
 604          3010            PTM3  LDD    CM                                     MTR43         1
 605          1102                  LMN    PTRF                                   MTR43         2
 606          0414                  ZJN    PCB2        IF *PTRF* ENTRY PRESENT    MTR43         3
 607          3036                  LDD    RQ          RESET POINTER TO START OF LIST MTR43     4
 610          3435                  STD    RC                                     MTR         782
 611          0100 0535             LJM    CRQX        RETURN                     MTR         783



                             **     PCB - COMPLETION BIT PROCESSOR.               MTR         785
                             *                                                    MTR         786
                             *T, CM 12/  PCBF,12/,24/  AD,12/  LK                 MTR         787
                             *      AD     ADDRESS OF WORD TO CHECK COMPLETION BIT. MTR       788
                             *      LK     NEXT RECALL ENTRY.                     MTR         789
                                                                                  MTR         790
                                                                                  MTR         791
 613          3012            PCB   LDD    CM+2        CHECK COMPLETION BIT       MTR         792
 614          1014            PCB1  SHN    14                                     MTR         793
 615          3113                  ADD    CM+3                                   MTR         794
 616          6060                  CRD    OR                                     MTR         795
 617          3064                  LDD    OR+4                                   MTR         796
 620          1201                  LPN    1                                      MTR         797
 621          0560                  NJN    PTM2        IF COMPLETE                MTR         798
 622          0100 0551       PCB2  LJM    CRQ3        CHECK NEXT REQUEST         MTR         799
                                                                                  MTR         800
                             *      COMPLETION BIT PROCESSOR FOR CME MAINFRAMES.  MTR         801
                                                                                  MTR         802
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 624  3012            PCB3  LDD  CM+2   SET R-REGISTER TO UPPER 12 BITS          MTR  803
 625  1006                  SHN  6                                               MTR  804
 626  3461                  STD  OR+1                                            MTR  805
 627  1063                  SHN  -14                                             MTR  806
 630  3460                  STD  OR                                              MTR  807
 631  2000 0000             LDC  0       GET UPPER HALF OF MACHINE SIZE/100B     MTR  808
           632  PCBA       EQU  *-1                                             MTR  809
 633  3260                  SBD  OR                                              MTR  810
 634  0765                  MJN  PCB2    IF ADDRESS .GT. MACHINE SIZE            MTR  811
 635  0512                  NJN  PCB4    IF ADDRESS .LT. MACHINE SIZE            MTR  812
 636  3013                  LDD  CM+3                                            MTR  813
 637  1071                  SHN  -6                                              MTR  814
 640  3161                  ADD  OR+1                                            MTR  815
 641  3400                  STD  T0                                              MTR  816
 642  2000 0000             LDC  0       GET LOWER HALF OF MACHINE SIZE/100B     MTR  817
           643  PCBB       EQU  *-1                                             MTR  818
 644  3200                  SBD  T0                                              MTR  819
 645  0754                  MJN  PCB2    IF ADDRESS .GT. MACHINE SIZE            MTR  820
 646  0453                  ZJN  PCB2    IF ADDRESS .EQ. MACHINE SIZE            MTR  821
 647  2460            PCB4  LRD  OR      LOAD R-REGISTER                         MTR  822
 650  1440                  LDN  40      SET R-REGISTER BIT IN A                 MTR  823
 651  0342                  UJN  PCB1    READ COMPLETION ADDRESS                 MTR  824
```

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                                **        PHE - PROCESS HARDWARE ERRORS.                                  MTR       827
                                *                                                                         MTR       828
                                *         EXIT    (A) = 0 IF *1MB* CALL NOT REQUIRED.                     MTR       829
                                *                         = 1 IF *1MB* WAS CALLED OR WAS ALREADY CALLED.  MTR       830
                                *                                                                         MTR       831
                                *         USES    CP, T4, CM - CM+4, CS - CS+4.                           MTR       832
                                *                                                                         MTR       833
                                *         CALLS   FTN, ODW, PSE.                                          MTR       834
                                *                                                                         MTR       835
                                *         NOTE    *1MB* IS CALLED IF ONE OR MORE OF THE FOLLOWING         MTR       836
                                *                 CONDITIONS HAVE BEEN DETECTED WHEN CHECKING THE         MTR       837
                                *                 S/C REGISTERS AND THE *1MB* INHIBIT BIT IS NOT SET.     MTR       838
                                *                 1)  A UNIQUE SINGLE BIT SECDED ERROR HAS OCCURRED.      MTR       839
                                *                 2)  ERRORS OTHER THAN UNIQUE SINGLE BIT SECDED          MTR       840
                                *                     ERRORS HAVE OCCURRED.                               MTR       841
                                *                 3)  TOP-OF-HOUR PROCESSING HAS BEEN SPECIFIED.          MTR       842
                                *                                                                         NS2418     15
                                *                 *1MB* IS CALLED FOR MAINTENANCE REGISTER PROCESSING     MTR       844
                                *                 AND TIME PROCESSING IF THE MACHINE IS A CYBER 180.      NS2418     16
                                                                                                          MTR       847
                                                                                                          MTR       848
     652        0100 0652        PHE      SUBR              ENTRY/EXIT                                  MTR       849
                                                                                                          MTR       850
                                *         CHECK CYBER 180 MAINTENANCE REGISTERS.                          NS2418     17
                                *                                                                         MTR       852
                                *         NOTE    THE FOLLWING CODE IS ALTERED BY *PRESET* TO PROCESS     MTR       853
                                *                 HARDWARE ERRORS ON VARIOUS MAINFRAMES.                  MTR       854
                                                                                                          MTR       855
                                                                                                          MTR       856
     654        2000 0000        PHEA     LDC     **          (ADDRESS OF *DFT* CONTROL WORD)             NS2418     18
     656        6010             PHE      CRD     CM          READ *DFT* CONTROL WORD                     243L647     3
     657        2000 0000        PHEF     LDC     **          (ADDRESS OF NOS REQUEST HEADER)             NS2418     19
     661        6030             PHE      CRD     CS                                                      NS2418     20
     662        3014                      LDD     CM+4                                                    243L647     4
     663        1017                      SHN     21-2                                                    243L647     5
     664        0704                      MJN     PHE0        IF NOT DEDICATED *DFT*                      243L647     6
     665        3014                      LDD     CM+4                                                    243L647     7
     666        1201                      LPN     1                                                       243L647     8
     667        0323                      UJN     PHE3        CHECK FOR *1MB* CALL                        243L647     9
                                                                                                          243L647    10
     670        6457 0652        PHE0     SCF     PHEX,MR     IF CHANNEL RESERVED BY ANOTHER PP           243L647    11
     672        7717 0300                 FNC     /IOU/MRSS,MR  SUMMARY STATUS                            MTR       858
     674        6517 0702                 IJM     PHE1,MR     IF CHANNEL RESPONDED TO FUNCTION            NS2541     1
     676        7557                      DCN     MR+40                                                   NS2541     2
     677        6557 0677                 CCF     *,MR                                                    NS2541     3
     701        0350                      UJN     PHEX        RETURN                                      NS2541     4
                                                                                                          NS2541     5
     702        7417             PHE1     ACN     MR                                                      NS2541     6
     703        7017                      IAN     MR          READ SUMMARY STATUS                         NS2541     7
     704        7557                      DCN     MR+40                                                   MTR       862
     705        6757 0710                 CFM     PHE2,MR     IF NO ERRORS OCCURRED                       MTR       863
     707        1401                      LDN     1           ERROR IN READING SS REGISTER                NS2541     8
     710        6557 0710        PHE2     CCF     *,MR                                                    MTR       865
                                *         UJN     PHE3        PROCESS *1MB* CALL                          MTR       866
                                                                                                          MTR       867
                                *         ACCESS CYBER 70, 170, 700 SERIES AND 865/875 S/C REGISTER.      MTR       868
                                                                                                          MTR       869
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                                 PHEE    RMT                                             MTR        870
                                         LOC     PHEA                                    MTR        871
                                         LDC     FCTE         TEST ERROR FUNCTION        MTR        872
                               *         LDC     FCTB         (CYBER 70 NON-SCR SIMULATION)   MTR   873
                                         FJM     PHEX,CH      IF CHANNEL HUNG FULL       MTR        874
                               *         FJM     PHEX,15      (CYBER 70)                 MTR        875
                                         RJM     ODW                                     MTR        876
                                         UJN     PHE3         SAVE ERROR STATUS          MTR        877
                                         LOC     *O                                      MTR        878
                                 PHEE    RMT                                             MTR        879
                                                                                         MTR        880
                               *         SAVE ERROR PRESENT STATUS.                      MTR        881
                               *         CHECK IF *1MB* CALL IS NEEDED.                  MTR        882
                                                                                         MTR        883
     712         3400            PHE3    STD     T0           SAVE ERROR STATUS          MTR        884
     713         3134            PHEG    ADD     CS+4         INCLUDE *DFT* REQUEST PRESENT STATUS   NS2418A   1
                               *         PSN                  (NON-CYBER 180 MAINFRAME)  NS2418A      2
     714         5100 1004               ADM     PHED+2                                  MTR        885
     716         0434                    ZJN     PHE4.1       IF *1MB* CALL NOT REQUIRED NS2418      22
     717         3057                    LDD     SC           CHECK INHIBIT BIT          MTR        887
     720         6030                    CRD     CS                                      MTR        888
     721         3030                    LDD     CS                                      MTR        889
     722         1064                    SHN     0-13                                    MTR        890
     723         0527                    NJN     PHE4.1       IF *1MB* ALREADY CALLED    NS2418      23
     724         3000                    LDD     T0           GET ERROR STATUS           MTR        892
     725         0327                    UJN     PHE5         PROCESS CYBER 180 ERROR    NS2418      24
                               *         ZJN     PHE5         (CYBER 170, 865/875 ERROR/TIME PROCESSING)  MTR   895
                               *         UJN     PHE5         (CYBER 70 AND NO SIMULATION)   MTR    896
                          725    PHEB    EQU     *-1                                     MTR        897
                                                                                         NS2418      25
     726         0200 1010               RJM     PSE          PROCESS SINGLE BIT ERRORS  MTR        898
     730         2000 7000               LDC     FCTE         TEST FOR OTHER ERRORS      MTR        899
     732         0200 1065               RJM     ODW                                     MTR        900
     734         3404                    STD     T4                                      MTR        901
     735         2000 2166               LDC     FCCL+DSBL    ENABLE SINGLE BIT LOGGING  MTR        902
     737         0200 1065               RJM     ODW                                     MTR        903
     741         0305                    UJN     PHE4         TEST FOR NEED TO CALL *1MB*   MTR     904
                                                                                         MTR        905
                               *         PSN                  (CYBER 176)                MTR        906
                          741    PHEC    EQU     *-1                                     MTR        907
     742         2000 2262               LDC     FCCL+DLSL    ENABLE 176 LCME SINGLE BIT LOGGING   MTR   908
     744         0200 1065               RJM     ODW                                     MTR        909
     746         5000 1004       PHE4    LDM     PHED+2       TEST FOR NEED TO CALL *1MB*   MTR     910
     750         3104                    ADD     T4                                      MTR        911
     751         0503                    NJN     PHE5         IF TIME/ERROR PROCESSING REQUIRED   NS2418   26
     752         0100 0652       PHE4.1  LJM     PHEX         RETURN                     NS2418      27
                                                                                         MTR        913
                               *         CALL *1MB* VIA *1MP*.                           NS2418      28
                                                                                         MTR        915
     754         3056            PHE5    LDD     FT           SET INHIBIT BIT            MTR        916
     755         3530                    RAD     CS                                      MTR        917
     756         3057                    LDD     SC                                      MTR        918
     757         6230                    CWD     CS                                      MTR        919
     760         3046                    LDD     NC           SYSTEM CONTROL POINT NUMBER   MTR     920
     761         3474                    STD     CP                                      MTR        922
     762         3065                    LDD     OF           PP0 OUTPUT REGISTER ADDRESS   MTR     923
     763         1601                    ADN     1                                       MTR        924
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 764         6370 1002                  CWM    PHED,ON     WRITE PP CALL TO MESSAGE BUFFER          MTR      925
 766         1400                       LDN    0                                                    MTR      926
 767         3411                       STD    CM+1                                                 MTR      927
 770         2000 0100                  MONITOR  RPPM      REQUEST PP                               MTR      928
                                        EXECUTE  1MP,=                                              MTR      929
                              *         LDN    SPLG        RESTORE LOGGING FUNCTION                 MTR      930
                           0            ERRNZ  SPLG        CODE DEPENDS ON VALUE                    MTR      931
 774         5400 1004                  STM    PHED+2                                               MTR      932
 776         5400 1006                  STM    PHED+4                                               MTR      933
1000         1401                       LDN    1           SET ERROR FOUND                          MTR      934
1001         0350                       UJN    PHE4.1      RETURN                                   NS2418    29
                                                                                                    MTR      936
1002         3415                 PHED  VFD    18/3L1MP,6/**,12/0,24/0                              MTR      937
1003         2000
1004         0000
1005         0000
1006         0000


                              **        PSE - PROCESS SINGLE BIT ERRORS.                             MTR      939
                              *                                                                      MTR      940
                              *         ENTRY  (PSEA) = CORRECT MAINFRAME TABLE INDEX.               MTR      941
                              *                                                                      MTR      942
                              *         CALLS  BIS, ODW.                                             MTR      943
                                                                                                     MTR      944
                                                                                                     MTR      945
1007         0100 1007           PSE    SUBR               ENTRY/EXIT                            MTR      946
1011         2000 4166                  LDC    FCSB+DSBL   DISABLE CM SINGLE BIT LOGGING           MTR      947
1013         0200 1065                  RJM    ODW                                                  MTR      948
1015         2000 1003                  LDC    FCTB+SECD   TEST FOR SECDED ERROR                   MTR      949
1017         0200 1065                  RJM    ODW                                                  MTR      950
1021         0411                       ZJN    PSE1        IF NO SECDED ERROR                       MTR      951
1022         2000 1267                  LDC    FCTB+SDSC   TEST FOR DOUBLE BIT ERROR               MTR      952
1024         0200 1065                  RJM    ODW                                                  MTR      953
1026         0504                       NJN    PSE1        IF DOUBLE BIT ERROR                      MTR      954
1027         1400                  PSEA LDN    0           PASS MAINFRAME TABLE INDEX               MTR      955
                                   *    LDN    1           (CYBER 176)                              MTR      956
1030         0200 1106                  RJM    BIS         SEARCH FOR MATCHING IDENTIFIER           MTR      957
1032         0354                  PSE1 UJN    PSEX        RETURN                                   MTR      958
                                   *    PSN                (CYBER 176)                              MTR      959
                         1032      PSEB EQU    *-1                                                  MTR      960
                                                                                                     MTR      961
                                   *         PROCESS CYBER 176 LCM ERRORS.                          MTR      962
                                                                                                     MTR      963
1033         2000 4262                  LDC    FCSB+DLSL   DISABLE LCME SINGLE BIT LOGGING          MTR      964
1035         0200 1065                  RJM    ODW                                                  MTR      965
1037         2000 1013                  LDC    FCTB+LSCD   TEST FOR LCME SECDED ERROR               MTR      966
1041         0200 1065                  RJM    ODW                                                  MTR      967
1043         0443                       ZJN    PSEX        IF NO LCME SECDED ERROR                  MTR      968
1044         2000 1304                  LDC    FCTB+LDSC   TEST FOR LCME DOUBLE SECDED ERROR       MTR      969
1046         0200 1065                  RJM    ODW                                                  MTR      970
1050         0512                       NJN    PSE2        IF DOUBLE BIT ERROR                      MTR      971
1051         1412                       LDN    UIDL        ADD OFFSET FOR LCME ID TABLE             MTR      972
1052         5500 1156                  RAM    BISD                                                 MTR      973
1054         1402                       LDN    2           LOAD IDENTIFIER FOR 176 LCME             MTR      974
```

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1055          0200 1106                    RJM    BIS          SEARCH FOR MATCHING IDENTIFIER                MTR         975
1057          1512                         LCN    UIDL         RESTORE OFFSET FOR CM ID TABLE                MTR         976
1060          5500 1156                    RAM    BISD                                                       MTR         977
1062          0100 1007             PSE2   LJM    PSEX         EXIT                                          MTR         978
```

```
                                    **     ODW - OUTPUT DESCRIPTOR WORD.                                      MTR         980
                                    *                                                                         MTR         981
                                    *      ENTRY  (A) = DESCRIPTOR WORD.                                      MTR         982
                                    *                                                                         MTR         983
                                    *      EXIT   (A) = SCR REPLY WORD.                                       MTR         984
                                                                                                              MTR         985
                                                                                                              MTR         986
1064          0100 1064              ODW    SUBR                ENTRY/EXIT                                 MTR         987
1066          7216                         OAN    CHSC         OUTPUT DESCRIPTOR WORD                        MTR         988
                                    *      OAN    15           (CYBER 70)                                    MTR         989
                          1066      ODWA   EQU    *-1                                                        MTR         990
1067          7016                         IAN    CHSC         INPUT SCR REPLY WORD                          MTR         991
                                    *      IAN    15           (CYBER 70)                                    MTR         992
                          1067      ODWB   EQU    *-1                                                        MTR         993
1070          0373                         UJN    ODWX         EXIT                                          MTR         994
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                                    **     BIS - BUILD ID AND SEARCH TABLE.                                   MTR         996
                                    *                                                                         MTR         997
                                    *      ENTRY  (A) = 0 - BUILD ID FOR CYBER 170 AND 865/875.               MTR         998
                                    *                   1 - BUILD ID FOR 176 CM.                              MTR         999
                                    *                   2 - BUILD ID FOR 176 LCME.                            MTR        1000
                                    *                                                                         MTR        1001
                                    *      EXIT   (CM-CM+4) = ERROR COUNTS IN *CECL* UPDATED.                 MTR        1002
                                    *                                                                         MTR        1003
                                    *      USES   T1, T2, T4, T6, T7, CM - CM+4, CN - CN+4, CS - CS+4.        MTR        1004
                                    *                                                                         MTR        1005
                                    *      CALLS  ODW.                                                        MTR        1006
                                                                                                              MTR        1007
                                                                                                              MTR        1008
1071          3614                   BIS8   AOD    CM+4         INITIALIZE ID ERROR COUNT                     MTR        1009
1072          3006                         LDD    T6           STORE UNIQUE ID INTO TABLE                    MTR        1010
1073          1014                         SHN    14                                                         MTR        1011
1074          3104                         ADD    T4                                                         MTR        1012
1075          6210                         CWD    CM                                                         MTR        1013
1076          3002                         LDD    T2           SET APPROPRIATE FUNCTION BIT                  MTR        1014
1077          1102                         LMN    2                                                          MTR        1015
1100          0402                         ZJN    BIS9         IF LCME SECDED ERROR                          MTR        1016
1101          1402                         LDN    SPCS-SPLS    SET CM SECDED ERROR FUNCTION BIT              MTR        1017
1102          1602                   BIS9  ADN    SPLS         SET LCME SECDED ERROR FUNCTION BIT            MTR        1018
1103          5500 1004                    RAM    PHED+2                                                     MTR        1019
                                                                                                              MTR        1020
1105          0100 1105              BIS    SUBR                ENTRY/EXIT                                 MTR        1021
1107          3402                         STD    T2           SAVE ID BUILD TYPE                            MTR        1022
1110          5002 1247                    LDM    TBIS,T2      SAVE FWA OF ID BUILD ROUTINE                  MTR        1023
1112          3407                         STD    T7                                                         MTR        1024
1113          1466                         LDN    ZERL         CLEAR FIELD FOR BUILDING ID                   MTR        1025
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1114         6010                         CRD    CM                                             MTR       1026
                                                                                                MTR       1027
                                    *     BUILD ID FOR APPROPRIATE MACHINE.                     MTR       1028
                                                                                                MTR       1029
1115         1410                         LDN    CM          INITIALIZE ID BUILD ADDRESS        MTR       1030
1116         3406                         STD    T6                                             MTR       1031
1117         3607                   BIS1  AOD    T7                                             MTR       1032
1120         4007                         LDI    T7          GET NEXT SCR WORD INFORMATION      MTR       1033
1121         0427                         ZJN    BIS2        IF ID BUILD COMPLETE               MTR       1034
1122         5400 1141                    STM    BISA        SET APPROPRIATE MASK FOR SCR BYTES MTR       1035
1124         3607                         AOD    T7                                             MTR       1036
1125         4007                         LDI    T7          GET SHIFT COUNT                    MTR       1037
1126         1277                         LPN    77                                             MTR       1038
1127         2100 1000                    ADC    SHNI        BUILD SHIFT INSTRUCTION            MTR       1039
1131         5400 1142                    STM    BISB                                           MTR       1040
1133         4007                         LDI    T7          GET SCR WORD FROM TABLE AND READ   MTR       1041
1134         1071                         SHN    -6                                             MTR       1042
1135         1237                         LPN    37                                             MTR       1043
                                          IFNE   FCRD,0,1    (ADJUST IF READ FUNCTION CHANGES)  MTR       1044
1136         0200 1065                    RJM    ODW                                            MTR       1046
1140         2200 1140                    LPC    *                                              MTR       1047
                        1141        BISA  EQU    *-1         MASK OFF DESIRED SCR BITS          MTR       1048
1142         1000                         SHN    0                                              MTR       1049
                        1142        BISB  EQU    *-1         POSITION FOR ID BIT MERGE          MTR       1050
1143         4506                         RAI    T6          MERGE ID BITS                      MTR       1051
1144         4007                         LDI    T7          CONTINUE ID BUILD IN APPROPRIATE BYTE MTR    1052
1145         1064                         SHN    0-13                                           MTR       1053
1146         3506                         RAD    T6                                             MTR       1054
1147         0347                         UJN    BIS1        GET NEXT SCR WORD                  MTR       1055
                                                                                                MTR       1056
                                    *     SCAN UNIQUE ID TABLE BACKWARDS TO SEE IF              MTR       1057
                                    *     THERE IS ALREADY AN ENTRY FOR THIS ERROR.             MTR       1058
                                                                                                MTR       1059
1150         1412                   BIS2  LDN    UIDL        UNIQUE ID TABLE LENGTH             MTR       1060
1151         3401                         STD    T1                                             MTR       1061
1152         3701                   BIS3  SOD    T1          DECREMENT CURRENT ENTRY OFFSET     MTR       1062
1153         0737                         MJN    BIS5        IF SCAN COMPLETE                   MTR       1063
1154         2100 0000                    ADC    **          FWA OF UNIQUE ID TABLE             MTR       1064
                        1155        BISC  EQU    *-1                                            MTR       1065
1156         1600                   BISD  ADN    0           ADD OFFSET FOR APPROPRIATE ID TABLE MTR      1066
1157         6020                         CRD    CN                                             MTR       1067
1160         3404                         STD    T4          STORE UNIQUE ID TABLE ADDRESS      MTR       1068
1161         1063                         SHN    -14                                            MTR       1069
1162         3406                         STD    T6                                             MTR       1070
1163         3020                         LDD    CN          TEST IF ENTRY IS AVAILABLE         MTR       1071
1164         3121                         ADD    CN+1                                           MTR       1072
1165         3122                         ADD    CN+2                                           MTR       1073
1166         0503                         NJN    BIS4        IF LOCATION CONTAINS AN IDENTIFIER MTR       1074
1167         0100 1071                    LJM    BIS8        IF LOCATION IS AVAILABLE           MTR       1075
                                                                                                MTR       1076
1171         3010                   BIS4  LDD    CM          TEST IF BYTE 0 MATCHES             MTR       1077
1172         3320                         LMD    CN                                             MTR       1078
1173         0556                         NJN    BIS3        IF NO MATCH                        MTR       1079
1174         3011                         LDD    CM+1        TEST IF BYTE 1 MATCHES             MTR       1080
1175         3321                         LMD    CN+1                                           MTR       1081
1176         0553                         NJN    BIS3        IF NO MATCH                        MTR       1082
1177         3012                         LDD    CM+2        TEST IF BYTE 2 MATCHES             MTR       1083
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 1200      3322                LMD   CN+2                                 MTR       1084
 1201      0550                NJN   BIS3        IF NO MATCH              MTR       1085
                                                                          MTR       1086
                          *    THE NEWLY-BUILT IDENTIFIER MATCHES A TABLE ENTRY.  MTR       1087
                                                                          MTR       1088
 1202      1477                LDN   77                                   MTR       1089
 1203      3324                LMD   CN+4                                 MTR       1090
 1204      0406                ZJN   BIS5        IF REACHED THRESHOLD     MTR       1091
 1205      3624                AOD   CN+4        INCREMENT COUNTER        MTR       1092
 1206      3006                LDD   T6          REWRITE UPDATED ID AND COUNT  MTR       1093
 1207      1014                SHN   14                                   MTR       1094
 1210      3104                ADD   T4                                   MTR       1095
 1211      6220                CWD   CN                                   MTR       1096
                                                                          MTR       1097
                          *    TEST WHICH RANK AND/OR SECDED BITS TO CLEAR.  MTR       1098
                                                                          MTR       1099
 1212      3607           BIS5 AOD   T7          ISSUE SECDED CLEARING FUNCTION(S)  MTR       1100
 1213      4007                LDI   T7                                   MTR       1101
 1214      0200 1065           RJM   ODW                                  MTR       1102
 1216      3607                AOD   T7                                   MTR       1103
 1217      4007           BISE LDI   T7                                   271L716     31
                          *    UJN   BIS6        (CYBER 170 OR 865/875)   271L716     32
 1220      0200 1065           RJM   ODW         SET C176 CM/LCME RANK II CLEAR  MTR       1106
 1222      3607                AOD   T7                                   MTR       1107
 1223      4007                LDI   T7          CLEAR C176 CM/LCME RANK II CLEAR  MTR       1108
 1224      0200 1065           RJM   ODW                                  MTR       1109
 1226      3002           BIS6 LDD   T2          INCREMENT APPROPRIATE ERROR COUNT  MTR       1110
 1227      1076                SHN   -1                                   MTR       1111
 1230      1613                ADN   CM+3                                 MTR       1112
 1231      3402                STD   T2                                   MTR       1113
 1232      2000 0103           LDK   CECL                                 MTR       1114
 1234      6010                CRD   CM                                   MTR       1115
 1235      4002                LDI   T2                                   MTR       1116
 1236      2300 7777           LMC   7777                                 MTR       1117
 1240      0405                ZJN   BIS7        IF CM/LCME ERROR COUNT THRESHOLD REACHED  MTR       1118
 1241      4602                AOI   T2                                   MTR       1119
 1242      2000 0103           LDK   CECL                                 MTR       1120
 1244      6210                CWD   CM          UPDATE *CECL*            MTR       1121
 1245      0100 1105      BIS7 LJM   BISX        RETURN                   MTR       1122
                                                                          MTR       1123
                          *    TBIS - TABLE OF ID BUILD ENTRY POINTS.     MTR       1124
                                                                          MTR       1125
 1247                     TBIS BSS   0                                    MTR       1126
L    0                         LOC   0                                    MTR       1127
L    0     1251                CON   BISF-1      BUILD ID FOR LOWER C170 CM.  271L716     33
L    1     1251                CON   BISF-1      BUILD ID FOR C176 CM.    MTR       1129
L    2     1265                CON   BISG-1      BUILD ID FOR C176 LCME.  MTR       1130
 1252                          LOC   *O                                   MTR       1131
                                                                          MTR       1132
                          *    THE TABLE FIELDS BELOW CONTAIN THE FOLLOWING INFORMATION.  MTR       1133
                          *                                               MTR       1134
                          *    12/MASK, 1/INCR, 5/SCR WORD, 6/SHIFT.      MTR       1135
                          *    WHERE INCR = 0, IF NO INCREMENT TO NEXT ID CELL.  MTR       1136
                          *               = 1, IF INCREMENT REQUIRED.     MTR       1137
                          *          SHIFT = BIT ALIGNMENT NEEDED TO MERGE SCR BITS  MTR       1138
                          *                  INTO ID.                     MTR       1139
                          *                                               MTR       1140
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                                *       FOLLOWING THE TERMINATOR FOR EACH ID TYPE ARE THE                MTR     1141
                                *       ERROR-CLEARING FUNCTION CODES TO BE ISSUED TO THE SCR.           MTR     1142
                                *       EACH FUNCTION USES 12 BITS.                                      MTR     1143
                                                                                                         MTR     1144
1252                             BISF   BSS    0          C176 CM ID INFORMATION                        MTR     1154
1252    7777                           VFD    12/7777,1/1,5/LCMW,6/0                                   MTR     1155
1253    5500
1254    0077                           VFD    12/77,1/0,5/CMAW,6/6                                     MTR     1156
1255    0406
1256    7700                           VFD    12/7700,1/1,5/SYNW,6/-6                                  MTR     1157
1257    4371
1260    0060                           VFD    12/60,1/0,5/SYNW,6/6                                     MTR     1158
1261    0306
1262    0000                           CON    0          C176 CM ID BUILD TERMINATOR                   MTR     1159
1263    2003                           CON    FCCL+SECD                                                MTR     1160
1264    4250                           CON    FCSB+CCRT                                                MTR     1161
1265    2250                           CON    FCCL+CCRT                                                MTR     1162
                          14    BISFL  EQU    *-BISF     LENGTH OF TABLE                               271L716  34
                                                                                                       271L716  35
                                *BISF  BSS    0          C170 CM ID INFORMATION                        271L716  36
                                *       VFD    12/6000,1/0,5/CSEW,6/0                                   271L716  37
                                *       VFD    12/77,1/0,5/CMAW,6/4                                     271L716  38
                                *       VFD    12/7400,1/1,5/SYNW,6/-10                                 271L716  39
                                *       VFD    12/360,1/0,5/SYNW,6/4                                    271L716  40
                                *       CON    0          C170 ID BUILD TERMINATOR                      271L716  41
                                *       CON    FCCL+SECD                                                271L716  42
                                *       CON    0          TERMINATOR FOR C170 CLEARING FUNCTIONS        271L716  43
                                *       CON    0                                                        271L716  44
                                                                                                         MTR     1163
1266                             BISG   BSS    0          C176 LCME ID INFORMATION                      MTR     1164
1266    0377                           VFD    12/377,1/0,5/LSYW,6/4                                    MTR     1165
1267    1404
1270    1400                           VFD    12/1400,1/0,5/LERW,6/-6                                  MTR     1166
1271    1171
1272    0060                           VFD    12/60,1/1,5/LCAW,6/-4                                    MTR     1167
1273    5073
1274    0017                           VFD    12/17,1/0,5/LCAW,6/10                                    MTR     1168
1275    1010
1276    0000                           CON    0          C176 LCME ID BUILD TERMINATOR                 MTR     1169
1277    2013                           CON    FCCL+LSCD                                                MTR     1170
1300    4260                           CON    FCSB+LCRT                                                MTR     1171
1301    2260                           CON    FCCL+LCRT                                                MTR     1172
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                                          ***       PP FUNCTION REQUESTS.                                    MTR       1175
                                          *                                                                  MTR       1176
                                          *                PP FUNCTION REQUESTS ARE MADE TO *MTR* BY PLACING MTR       1177
                                          *         THE FUNCTION CODE IN BYTE 0 OF THE PP-S OUTPUT REGISTER. MTR       1178
                                          *         WHEN THE REQUEST IS COMPLETED, *MTR* CLEARS BYTE 0 OF    MTR       1179
                                          *         THE OUTPUT REGISTER.                                     MTR       1180


                                          **        PP REQUEST PROCESSOR.                                    MTR       1182
                                          *         NOTE - FOLLOWING CODE MUST BE IN ORDER.                  MTR       1183


                                          **        HNG - HANG PPU AND DISPLAY MESSAGE                       MTR       1185
                                                                                                             MTR       1186
                                                                                                             MTR       1187
             1302          7777            HNGB     DATA   7777         A REGISTER SAVE AREA                 251L664     84
                                                                                                             251L664     85
             1303          0000            HNG      CON    **           ADDRESS OF CALLER                    251L664     86
             1304          5400 1302       HNG1     STM    HNGB         SAVE (A)                             251L664     87
             1306          3076                     LDD    OA                                                MTR34        1
             1307          1606                     ADN    6                                                 MTR34        2
             1310          6020                     CRD    CN                                                MTR34        3
             1311          1431                     LDN    PDTL         SET PACKED DATE AND TIME             251L664     88
             1312          6010                     CRD    CM                                                MTR       1189
             1313          2000 1016                LDC    2RHN         ADD *HNG/* TO PACKED DATE/TIME       NS2343       1
             1315          3410                     STD    CM                                                NS2343       2
             1316          2000 0750                LDC    2RG/                                              NS2343       3
             1320          3411                     STD    CM+1                                              NS2343       4
             1321          3321                     LMD    CN+1                                              MTR34        4
             1322          0504                     NJN    HNG2         IF INITIAL DETECTION OF HUNG PP      MTR34        5
             1323          3010                     LDD    CM                                                MTR34        6
             1324          3320                     LMD    CN                                                MTR34        7
             1325          0416                     ZJN    HNG3         IF NOT INITIAL DETECTION OF HUNG PP  MTR34        8
             1326          3076            HNG2     LDD    OA                                                MTR34        9
             1327          1606                     ADN    6                                                 MTR       1191
             1330          6210                     CWD    CM                                                MTR       1192
             1331          3076                     LDD    OA           ADD PP NAME TO *HUNG PP* MESSAGE     NS2577       1
             1332          1701                     SBN    1                                                 NS2577       2
             1333          6010                     CRD    CM                                                NS2577       3
             1334          3010                     LDD    CM                                                NS2577       4
             1335          5400 1355                STM    HNGC                                              NS2577       5
             1337          3011                     LDD    CM+1                                              NS2577       6
             1340          1377                     SCN    77                                                NS2577       7
             1341          5400 1356                STM    HNGC+1                                            NS2577       8
             1343          2000 0036       HNG3     LDC    MS2W+***     DISPLAY SYSTEM CP MESSAGE            271L716     45
                                      1344 HNGD     EQU    *-1                                               271L716     46
             1345          6373 1350                CWM    HNGA,TR                                           NS2577       9
             1347          0325                     UJN    DSD1         RETURN                               MTR       1197
                                                                                                             271L716     47
                                                                                                             MTR       1198
             1350          1025            HNGA     DATA   H*HUNG PP - *                                     NS2577      10
             1355          3030            HNGC     DATA   C*XXX*       NAME OF HUNG PP                      NS2577      11
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                                         **         DSD - PROCESS *DSD* REQUEST.                              MTR        1201
                                                                                                              MTR        1202
                                                                                                              MTR        1203
          1360          2000 7000          DSD      LDC     7000          CHECK REQUEST                       273L780      11
          1362          3560                        RAD     OR                                                MTR        1214
          1363          1010                        SHN     21-11                                             MTR        1215
          1364          0710                        MJN     DSD1          IF PREVIOUSLY PROCESSED             MTR        1216
          1365          3060                        LDD     OR                                                MTR        1217
          1366          1721                        SBN     CPUM                                              MTR        1218
          1367          0710                        MJN     PPR1          IF MTR FUNCTION                     MTR        1219
          1370          3076                        LDD     OA            WRITE *OR* WITH CLEARED INTERLOCK   MTR        1220
          1371          6260                        CWD     OR                                                MTR        1221
          1372          0200 5112                   RJM     CPR           PROCESS CPU FUNCTION                MTR        1222
          1374          0313               DSD1     UJN     FNR           FUNCTION RETURN                     MTR        1223


                                         **         PPR - PROCESS PP REQUEST.                                 MTR        1228
                                         *                                                                    MTR        1229
                                         *          ENTRY  (A) = REQUEST.                                     MTR        1230
                                         *                 (OA) = PP OUTPUT REGISTER ADDRESS.                 MTR        1231
                                         *                 (OR - OR+4) = PP OUTPUT REGISTER.                  MTR        1232
                                         *                                                                    MTR        1233
                                         *          EXIT   TO FUNCTION PROCESSOR WITH (A) = (OA).             MTR        1234
                                                                                                              MTR        1235
                                                                                                              MTR        1236
          1375          1721               PPR      SBN     CPUM                                              MTR        1252
                                  1375     PPRA     EQU     *-1                                               MTR        1253
                                         *          UJN     MSC           (STEP MODE)                         MTR        1254
          1376          0613                        PJN     FNR1          IF NOT AN *MTR* FUNCTION            253L688      30
          1377          5060 7425          PPR1     LDM     TPPR,OR       SET FUNCTION PROCESSOR              253L688      31
          1401          3415                        STD     T8                                                MTR        1257
          1402          3076                        LDD     OA                                                MTR        1258
          1403          0115 0000                   LJM     0,T8          PROCESS FUNCTION                    253L688      32


                                         **         FNZ - FUNCTION RETURN TO CLEAR OUTPUT REGISTER.           MTR        1261
                                                                                                              MTR        1262
                                                                                                              MTR        1263
          1405          3076               FNZ      LDD     OA            CLEAR OUTPUT REGISTER               MTR        1264
          1406          6277                        CWD     ZR                                                MTR        1265
                                         *          UJN     FNR                                               MTR        1266


                                         **         FNR - FUNCTION RETURN.                                    MTR        1268
                                                                                                              MTR        1269
                                                                                                              MTR        1270
          1407          0200 4724          FNR      RJM     CCP           CHECK CENTRAL PROGRAM               MTR        1271
          1411          0100 0111          FNR1     LJM     MTR           RETURN TO MAIN LOOP                 251L664      89
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                                **      FNC - FUNCTION RETURN TO CLEAR UPPER BYTE OF *OR*.          MTR  1276
                                                                                                   MTR  1277
                                                                                                   MTR  1278
     1413       1400            FNC     LDN   0                                                   MTR  1279
     1414       3460            FNC1    STD   OR                                                  MTR  1280
     1415       3076                    LDD   OA                                                  MTR  1281
     1416       6260                    CWD   OR                                                  MTR  1282
     1417       0367                    UJN   FNR       FUNCTION RETURN                           MTR  1283


                                **      MSC - MONITOR STEP CONTROL.                               MTR  1285
                                                                                                   MTR  1286
                                                                                                   MTR  1287
     1420       3076            MSC     LDD   OA        READ INPUT REGISTER                       MTR  1288
     1421       1701                    SBN   1                                                   MTR  1289
     1422       6010                    CRD   CM                                                  MTR  1290
     1423       1460                    LDN   OR                                                  MTR  1291
     1424       0200 7000               RJM   CFS       CHECK FOR STEP CRITERION                  MTR  1292
     1426       0522                    NJN   MSC5      IF STEP CRITERION NOT MET                 MTR  1293
     1427       2000 7777               LDC   7777                                                MTR  1294
                                *       LDC   0         (STEP REQUESTED BY *DSD*)                 MTR  1295
                      1430      MSCA    EQU   *-1                                                 MTR  1296
     1431       0555                    NJN   FNR       IF NOT STEPPED                            MTR  1297
     1432       3076                    LDD   OA                                                  MTR  1298
     1433       3265                    SBD   OF                                                  MTR  1299
     1434       2300 0000               LMC   **        (NEXT PP TO STEP)                         MTR  1300
                      1435      MSCB    EQU   *-1                                                 MTR  1301
     1436       0404                    ZJN   MSC4      IF THIS PP                                MTR  1302
     1437       0200 1503               RJM   SNP       SET NEXT PP TO STEP                       MTR  1303
     1441       0345            MSC3    UJN   FNR       IGNORE REQUEST                            MTR  1304
                                                                                                   MTR  1305
     1442       1500            MSC4    LCN   0         RESET STEP FLAG                           MTR  1306
     1443       5400 1430               STM   MSCA                                                MTR  1307
     1445       1410                    LDN   10        ADVANCE PP                                MTR  1308
     1446       5500 1435               RAM   MSCB                                                MTR  1309
     1450       0200 0343       MSC5    RJM   TIM       UPDATE TIME                               MTR  1310
     1452       0200 1503               RJM   SNP       SET NEXT PPU TO STEP                      MTR  1311
                                                                                                   MTR  1312
                                *       PROCESS FUNCTION.                                         MTR  1313
                                                                                                   MTR  1314
     1454       3060                    LDD   OR        CHECK FUNCTION                            MTR  1315
     1455       1721                    SBN   CPUM                                                MTR  1316
     1456       0605                    PJN   MSC6      IF CPU FUNCTION                           MTR  1317
     1457       0200 0343               RJM   TIM       UPDATE TIME                               MTR  1318
     1461       0100 1377               LJM   PPR1      PROCESS REQUEST                           MTR  1319
                                                                                                   MTR  1320
     1463       3060            MSC6    LDD   OR                                                  MTR  1321
     1464       1066                    SHN   0-11                                                251L664   90
     1465       1101                    LMN   1                                                   251L664   91
     1466       0552                    NJN   MSC3      IF NOT *STEP* ONLY                        251L664   92
     1467       3060                    LDD   OR        CLEAR FLAGS                               251L664   93
     1470       2200 0177               LPC   177                                                 251L664   94
     1472       3460                    STD   OR                                                  251L664   95
     1473       3076                    LDD   OA                                                  MTR  1327
     1474       6260                    CWD   OR                                                  MTR  1328
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1475         0200 5112           RJM    CPR                               MTR        1329
1477         0341                UJN    MSC3        COMPLETE FUNCTION     MTR        1330




                          **     SNP - SET NEXT PP TO STEP.               MTR        1332
                          *                                               MTR        1333
                          *      ENTRY  (MSCB) = CURRENT PP.              MTR        1334
                          *                                               MTR        1335
                          *      EXIT   (MSCB) = NEXT PP.                 MTR        1336
                          *                                               MTR        1337
                          *      USES   T1, T2, T4, CM - CM+4, CN - CN+4. 251L664      96
                          *                                               MTR        1339
                          *      CALLS  CFS.                              MTR        1340
                                                                          MTR        1341
                                                                          MTR        1342
1500         1420          SNP5  LDN    20                                MTR        1343
1501         0307                UJN    SNP1        RESET PP 2            MTR        1344
                                                                          MTR        1345
1502         0100 1502     SNP   SUBR               ENTRY/EXIT            MTR        1346
1504         1401                LDN    1           SET PP COUNT          MTR        1347
1505         3401                STD    T1                                MTR        1348
1506         5000 1435           LDM    MSCB        SET PP                MTR        1349
1510         3402          SNP1  STD    T2                                MTR        1350
1511         5400 1435     SNP2  STM    MSCB                              MTR        1351
1513         1074                SHN    -3                                MTR        1352
1514         3404                STD    T4          SAVE PP NUMBER        251L664      97
1515         3345                LMD    NP                                MTR        1353
1516         0461                ZJN    SNP5        IF LAST PP            MTR        1354
1517         3601                AOD    T1          ADVANCE PP COUNT      MTR        1355
1520         3345                LMD    NP                                MTR        1356
1521         0460          SNP3  ZJN    SNPX        IF ALL PP-S CHECKED   MTR        1357
1522         3002                LDD    T2          READ INPUT REGISTER   MTR        1358
1523         3165                ADD    OF                                MTR        1359
1524         6020                CRD    CN                                MTR        1360
1525         1701                SBN    1                                 MTR        1361
1526         6010                CRD    CM                                MTR        1362
1527         3010                LDD    CM                                MTR        1363
1530         0414                ZJN    SNP4        IF PP NOT ASSIGNED    MTR        1364
1531         3020                LDD    CN                                MTR        1365
1532         0412                ZJN    SNP4        IF NO FUNCTION REQUEST MTR       1366
1533         1420                LDN    CN                                MTR        1367
1534         0200 7000           RJM    CFS         CHECK FOR STEP        MTR        1368
1536         0506                NJN    SNP4        IF STEP CRITERION NOT MET MTR    1369
1537         5004 7445           LDM    TREA,T4                           251L664      98
1541         2300 1375           LMC    PPR                               MTR        1371
1543         0455                ZJN    SNP3        IF NO REENTRY PROCESSING MTR     1372
1544         1410          SNP4  LDN    10          ADVANCE PP            MTR        1373
1545         3502                RAD    T2                                MTR        1374
1546         0342                UJN    SNP2        LOOP                  MTR        1375
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                                **      NOTE - EXIT CONDITION REFERENCES TO (OR - OR+4) SPECIFY       MTR       1377
                                *       THE STATUS OF THE PP OUTPUT REGISTER IN CENTRAL MEMORY.       MTR       1378
                                *       IN ALL CASES, (OR) = 0.  IF A BYTE IS NOT SPECIFIED,         MTR       1379
                                *       THAT BYTE IS NOT CHANGED.                                    MTR       1380
                                *       THE DIRECT LOCATIONS *OR - OR+4* MAY DIFFER IN CONTENT       MTR       1381
                                *       FROM THE ACTUAL OUTPUT REGISTER.                             MTR       1382


                                ***     *ASCM* IS A *PPR* FUNCTION.  IT IS USED TO TELL PP RESIDENT  253L688    34
                                *       ROUTINE *PLL* THAT THE LIBRARY HAS BEEN SEARCHED DURING      253L688    35
                                *       ASSIGNMENT OF THE PP.  NO *MTR* PROCESSING IS REQUIRED.      253L688    36
                                                                                                     MTR       1388
                                                                                                     MTR       1389
                                        PPR     ASCM,FNR1                                            253L688    37


                                ***     *BOTM* IS A *PPR* FUNCTION.  IT IS USED TO TELL PP RESIDENT  253L688    39
                                *       ROUTINE *FTN* TO LOAD A BOOTSTRAP PROGRAM.  NO *MTR*         253L688    40
                                *       PROCESSING IS REQUIRED.                                      253L688    41
                                                                                                     253L688    42
                                                                                                     253L688    43
                                        PPR     BOTM,FNR1                                            253L688    44


                                ***     CCHM - CHECK CHANNEL.                                        MTR       1392
                                *                                                                    MTR       1393
                                *       ASSIGN CHANNEL IF NOT IN USE.                                MTR       1394
                                *                                                                    MTR       1395
                                *       ENTRY                                                        MTR       1396
                                *T, OR  12/  CCHM,6/  ,1/  C,5/  CH,36/                              252L678    1
                                *       C       SET IF CONCURRENT CHANNEL.                           252L678    2
                                *       CH      CHANNEL NUMBER.                                      252L678    3
                                *                                                                    MTR       1399
                                *       EXIT                                                         MTR       1400
                                *T, OR  12/  0,12/  CH,12/  ST,24/                                   252L678    4
                                *       CH      CHANNEL ASSIGNED IF ST = 1.                          MTR       1402
                                *       BIT 2**5 OF CH SET IF DOWN CHANNEL IN USE BY ANOTHER         MTR       1403
                                *       MAINTENANCE USER.                                            MTR       1404
                                *       ST = 1 IF CHANNEL ASSIGNED.                                  MTR       1405
                                *       ST = 0 IF CHANNEL NOT ASSIGNED.                              MTR       1406
                                                                                                     MTR       1410
                                                                                                     MTR       1411
        1547    0003                    PPR     CCHM                                                 MTR       1412
                                                                                                     MTR       1413
        1547    3061                    LDD     OR+1        CHECK CHANNEL                            MTR       1414
        1550    0200 7303               RJM     TCH                                                  MTR       1416
        1552    0415                    ZJN     CCH3        IF FREE                                  MTR       1417
        1553    0703                    MJN     CCH2        IF DOWN                                  MTR       1418
        1554    0100 1405       CCH1    LJM     FNZ         REJECT FUNCTION                          252L678    5
                                                                                                     MTR       1427
        1556    1063            CCH2    SHN     5-21                                                 MTR       1428
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1557       1237                LPN    37                                 MTR        1429
1560       0573                NJN    CCH1        IF DOWN CHANNEL IN USE MTR        1430
1561       3002                LDD    T2                                 MTR        1431
1562       0200 7143           RJM    GCE         GET CHANNEL ASSIGNMENT TABLE ENTRY  MTR   1432
1564       0403                ZJN    CCH3        IF CHANNEL IS NOT ASSIGNED TO A JOB MTR   1433
1565       3320                LMD    CN                                 NS2454        1
1566       0520                NJN    CCH6        IF CHANNEL IS NOT ASSIGNED TO THIS JOB  MTR  1435
1567       1401       CCH3     LDN    1           SET OUTPUT REGISTER    MTR        1436
1570       3462                STD    OR+2                               MTR        1437
                                                                         MTR        1438
                      *        ENTRY FROM *RCHM*.                        MTR        1439
                                                                         MTR        1440
1571       3002       CCH4     LDD    T2          SET CHANNEL            MTR        1441
1572       1237                LPN    37                                 251L664     105
1573       3461                STD    OR+1                               MTR        1442
1574       3066                LDD    PP          SET ASSIGNMENT TO THIS PP        273L780      13
1575       3437                STD    CF          SET FLAG FOR CHANNEL UPDATE      251L664     106
1576       5302 7350           LMM    TCHS,T2                            252L678       6
1600       2277 3777           LPC    -4000                              252L678       7
1602       5402 7350           STM    TCHS,T2                            252L678       8
1604       0100 1413  CCH5     LJM    FNC         COMPLETE FUNCTION      MTR        1447
                                                                         MTR        1448
1606       3061       CCH6     LDD    OR+1        INDICATE DOWN CHANNEL IN USE     251L664     107
1607       1340                SCN    40                                 251L664     108
1610       1140                LMN    40                                 251L664     109
1611       3461                STD    OR+1                               251L664     110
1612       0371                UJN    CCH5        COMPLETE FUNCTION      MTR        1451
                                                                         MTR        1452


                      ***      CDBM - CHECK DAYFILE BUSY.                MTR        1454
                      *                                                  MTR        1455
                      *        CHECK STATUS OF SPECIFIED DAYFILE.        MTR        1456
                      *                                                  MTR        1457
                      *        ENTRY                                     MTR        1458
                      *T, OR   12/  CDBM, 12/  BC, 12/  MO, 12/  CP+SF, 12/  DI    251L664     111
                      *        BC     BYTE COUNT OF MESSAGE.             MTR        1460
                      *        MO     MESSAGE OPTION.                    MTR        1461
                      *        CP     CONTROL POINT ADDRESS.             MTR        1462
                      *        SF  =  0 TO WAIT ON SPACE IN DAYFILE BUFFER.        MTR        1463
                      *            =  1 TO WAIT UNTIL PP DUMP BUFFER NOT BUSY.     MTR        1464
                      *        DI     DAYFILE INDEX.                     251L664     112
                      *               0 = JOB DAYFILE.                   251L664     113
                      *               1 = MASTER DAYFILE.                251L664     114
                      *               2 = ACCOUNT DAYFILE.               251L664     115
                      *               3 = ERRLOG DAYFILE.                251L664     116
                      *               4 = MAINLOG DAYFILE.               251L664     117
                      *                                                  MTR        1466
                      *        EXIT   (SUBFUNCTION (SF) REQUEST SATISFIED)         MTR        1467
                      *T, OR   12/  DFMM, 12/  BC, 12/  MO, 12/, 12/     MTR        1468
                                                                         MTR        1469
                                                                         MTR        1470
1613       0012                PPR    CDBM                               MTR        1471
                                                                         MTR        1472
1613       3063                LDD    OR+3        CHECK FOR MOVE         MTR        1473
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1614         1070                       SHN    0-7                                        271L716      50
1615         3340                       LMD    MM.0                                       271L716      51
1616         0503                       ZJP    FNR          IF CP SCHEDULED FOR MOVE      271L716      52
1621         3063                       LDD    OR+3         CHECK REQUEST                 MTR        1477
1622         1201                       LPN    1                                          MTR        1478
1623         0405                       ZJN    CDB1         IF WAITING ON SPACE IN BUFFER 271L716      53
1624         1447                       LDN    DFPP                                       271L716      54
1625         6030                       CRD    CS                                         271L716      55
1626         0100 1667                  LJM    CDB5         CHECK DUMP BUFFER BUSY        271L716      56
                                                                                          271L716      57
1630         3064              CDB1     LDD    OR+4                                       271L716      58
1631         0406                       ZJN    CDB2         IF JOB DAYFILE                271L716      59
1632         1001                       SHN    1                                          271L716      60
1633         2100 0000         CDBA     ADC    **           (FWA-3 OF DAYFILE POINTERS)   271L716      61
1635         3164                       ADD    OR+4                                       271L716      62
1636         0315                       UJN    CDB3         CONTINUE PROCESSING           251L664     123
                                                                                          251L664     124
1637         3076              CDB2     LDD    OA           REREAD INPUT REGISTER         271L716      63
1640         1701                       SBN    1                                          MTR        1491
1641         6010                       CRD    CM                                         MTR        1492
1642         3011                       LDD    CM+1         EXTRACT CONTROL POINT NUMBER  MTR        1493
1643         1237                       LPN    37                                         MTR        1494
1644         1007                       SHN    7                                          MTR        1495
1645         1623              CDBB     ADN    FLSW         GET RA FROM FL CONTROL WORD   271L716      64
                              *         ADN    FLSW+1       (CME PRESENT)                 MTR        1497
1646         6010                       CRD    CM                                         MTR        1498
1647         2411                       LRD    CM+1                                       MTR        1499
1650         3013                       LDD    CM+3         READ BUFFER POINTERS FROM NFL MTR        1500
1651         1006                       SHN    6                                          MTR        1501
1652         1703                       SBN    DAPN                                       251L664     126
1653         6010              CDB3     CRD    CM                                         251L664     127
1654         1601                       ADN    1                                          MTR        1505
1655         6020                       CRD    CN                                         MTR        1506
1656         1601                       ADN    1                                          MTR        1507
1657         6030                       CRD    CS                                         MTR        1508
1660         3024                       LDD    CN+4         OUT - IN                      MTR        1509
1661         3214                       SBD    CM+4                                       MTR        1510
1662         0410                       ZJN    CDB6         IF BUFFER EMPTY               MTR        1511
1663         0602                       PJN    CDB4         IF OUT .GT. IN                MTR        1512
1664         3122                       ADD    CN+2         ADD BUFFER LENGTH             MTR        1513
1665         1710              CDB4     SBN    MXML                                       MTR        1514
1666         0604                       PJN    CDB6         IF SPACE IN BUFFER            271L716      65
1667         3034              CDB5     LDD    CS+4                                       271L716      66
1670         1201                       LPN    1                                          MTR        1517
1671         0406                       ZJN    CDB7         IF DAYFILE BUSY               MTR        1518
1672         2000 5060         CDB6     LDC    DFMM+5000    HAVE PP REISSUE REQUEST WITHOUT DELAY  MTR  1519
1674         3460                       STD    OR                                         MTR        1520
1675         3076                       LDD    OA           STORE OUTPUT REGISTER         MTR        1521
1676         6260                       CWD    OR                                         MTR        1522
1677         0100 1407         CDB7     LJM    FNR          RETURN                        MTR        1523
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                         ***       DCHM - DROP CHANNEL.                                 MTR       1525
                         *                                                              MTR       1526
                         *         RELEASE CHANNEL FROM ASSIGNMENT.                     MTR       1527
                         *                                                              MTR       1528
                         *         ENTRY                                                MTR       1529
                         *T, OR    12/  DCHM,6/  0,1/  C,5/  CH,36/                     252L678      9
                         *         C       SET IF CONCURRENT CHANNEL SPECIFIED IN CH.   251L664    129
                         *         CH      CHANNEL TO DROP.                             251L664    130
                         *                                                              MTR       1532
                         *         EXIT                                                 MTR       1533
                         *T, OR    60/  0                                               MTR       1534
                                                                                        MTR       1535
                                                                                        MTR       1536
 1701      0004                    PPR     DCHM                                         MTR       1537
                                                                                        MTR       1538
 1701      3061                    LDD     OR+1         CHECK LEGAL CHANNEL NUMBER      MTR       1539
 1702      0200 7327               RJM     VCN                                          252L678     10
 1704      3066                    LDD     PP                                           273L780     14
 1705      5302 7350               LMM     TCHS,T2                                      252L678     11
 1707      1237                    LPN     37                                           MTR       1546
 1710      0404                    ZJN     DCH1         IF CHANNEL ASSIGNED TO THIS PP  MTR       1547
 1711      3066                    LDD     PP                                           273L780     15
 1712      1701                    SBN     1                                            273L780     16
 1713      0513                    NJN     DCH2         IF NOT *DSD*                    MTR       1551
 1714      3076           DCH1     LDD     OA           CLEAR OUTPUT REGISTER           MTR       1552
 1715      3437                    STD     CF           SET FLAG FOR CHANNEL UPDATE     251L664    131
 1716      6277                    CWD     ZR                                           MTR       1553
 1717      5002 7350               LDM     TCHS,T2                                      252L678     12
 1721      2200 0140               LPC     140          UPDATE CHANNEL RESERVATION TABLE 252L678    13
 1723      5402 7350               STM     TCHS,T2                                      252L678     14
 1725      0351                    UJN     CDB7         RETURN                          MTR       1557
                                                                                        MTR       1558
 1726      0200 1303      DCH2     RJM     HNG          HANG PP                         251L664    132


                         ***       DRCM - DRIVER RECALL CPU.                            MTR       1561
                         *                                                              MTR       1562
                         *         PERFORMS AN RCLM IF THE JOB IS IN RECALL.  THIS IS USED BY MTR   1563
                         *         THE TAPE AND MASS STORAGE DRIVERS WHO WRITE THIS FUNCTION TO MTR 1564
                         *         THEIR OUTPUT REGISTER WITHOUT WAITING FOR AN ACCEPT. MTR       1565
                         *                                                              MTR       1566
                         *         ENTRY                                                MTR       1567
                         *T, OR    12/  DRCM,48/                                        MTR       1568
                         *                                                              MTR       1569
                         *         EXIT                                                 MTR       1570
                         *T, OR    60/  0                                               MTR       1571
                                                                                        MTR       1572
                                                                                        MTR       1573
 1730      0005                    PPR     DRCM                                         MTR       1574
                                                                                        MTR       1575
 1730      6277                    CWD     ZR           CLEAR OUTPUT REGISTER           MTR       1576
 1731      3066                    LDD     PP           GET ASSIGNED CP/PCP             273L780     17
 1732      1004                    SHN     PPXES                                        273L780     18
 1733      2100 0000               TADC    ACPP,PPX                                     273L780     19
 1735      6010                    CRD     CM                                           MTR       1578
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1736          3014                       LDD    CM+4         SET CP ADDRESS                       273L780    20
1737          3422                       STD    CN+2                                              MTR      1582
1740          1620                       ADN    STSW         CHECK RECALL STATUS                  MTR      1583
1741          6030                       CRD    CS                                                MTR      1584
1742          1603                DCRA   ADN    FLSW-STSW                                         MTR      1585
                                 *       ADN    FLSW+1-STSW (CME PRESENT)                         MTR      1586
1743          6010                       CRD    CM                                                MTR      1587
1744          3030                       LDD    CS                                                MTR      1588
1745          1066                       SHN    -11                                               MTR      1589
1746          1105                       LMN    XCPS                                              MTR      1590
1747          0410                       ZJN    DRC1         IF *X* STATUS                        271L750     5
1750          3022                       LDD    CN+2                                              271L750     6
1751          1621                       ADN    CWQW                                              271L750     7
1752          6010                       CRD    CM                                                271L750     8
1753          3011                       LDD    CM+1                                              271L750     9
1754          1007                       SHN    21-12                                             271L750    10
1755          0611                       PJN    DRC2         IF TO RECALL CPU                     271L750    11
1756          0312                       UJN    DRC4         RETURN                               271L750    12
                                                                                                  271L750    13
1757          2411                DRC1   LRD    CM+1                                              271L750    14
1760          3013                       LDD    CM+3         CHECK (RA+1)                         MTR      1593
1761          1006                       SHN    6                                                 MTR      1594
1762          1601                       ADN    1                                                 MTR      1595
1763          6010                       CRD    CM                                                MTR      1596
1764          3010                       LDD    CM                                                MTR      1597
1765          0503                       NJN    DRC4         IF (RA+1) .NE. 0                     MTR      1598
1766          0200 7260           DRC2   RJM    RCP          RECALL CPU                           271L750    15
1770          0100 1407           DRC4   LJM    FNR          RETURN                               MTR      1600
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***       DSWM - DRIVER SEEK WAIT.                                                  MTR      1602
*                                                                                   MTR      1603
*         CAUTION, STORAGE MOVE MAY OCCUR DURING *DSWM* PROCESSING.                 MTR      1604
*                                                                                   MTR      1605
*         ENTRY                                                                     MTR      1606
*T, OR    12/  DSWM,12/,12/,12/  F,12/                                              MTR      1607
*T, MB    12/  T4,12/  T5,12/  T6,12/  T7,12/  CHRV                                 MTR29       1
*T, MB+1  12/  LU,6/  SF,6/  PU,12/  PC,12/  PT,12/  PS                             MTR      1609
*         F    = SUBFUNCTION CODE.                                                  MTR      1610
*              0 = DROP CHANNEL.                                                    MTR      1611
*              1 = REQUEST CHANNEL, AND EQUIPMENT IF READSYS.                       MTR      1612
*              2 = SEEK IN PROGRESS.                                                MTR      1613
*              4 = UNIT SWITCH.                                                     MTR      1614
*             10 = DRIVE RESERVE.                                                   MTR      1615
*             11 = REQUEST CHANNEL, UNIT, AND EQUIPMENT IF READSYS.                 MTR      1616
*             20 = WRITE IN PROGRESS (ISD ONLY).                                    MTR      1617
*           2000 = CONTROLLER RESERVED.                                             MTR      1618
*         T4   =  CHANNEL.                                                          MTR      1619
*         T5   =  EQUIPMENT.                                                        MTR      1620
*         T6   =  LOGICAL TRACK.                                                    MTR      1621
*         T7   =  LOGICAL SECTOR.                                                   MTR      1622
*         CHRV = WORD *CHRV*.                                                       MTR29       2
*         LU   =  LOGICAL UNIT NUMBER.                                              MTR      1628
*         SF   =  SEEK TYPE (USED ON ISD DEVICES ONLY).                             MTR      1629
*              0 = NORMAL SEEK.                                                     MTR      1630
*              1 = WRITE/SEEK.                                                      MTR      1631
*              2 = READ/SEEK.                                                       MTR      1632
*              3 = CHECK WRITE COMPLETE.                                            MTR      1633
*         PU   =  PHYSICAL UNIT NUMBER.                                             MTR      1634
*         PC   =  CYLINDER ADDRESS.                                                 MTR      1635
*         PT   =  PHYSICAL TRACK.                                                   MTR      1636
*         PS   =  PHYSICAL SECTOR.                                                  MTR      1637
*                                                                                   MTR      1638
*         HANG CONDITIONS -                                                         MTR      1639
*                                                                                   MTR      1640
*         BAD CHANNEL NUMBER.                                                       MTR      1642
*         EQUIPMENT *EQ* NOT MASS STORAGE.                                          MTR      1643
*         CHANNEL NOT ASSIGNED WHEN BIT 0 OF *CHRV* .NE. 0.                         MTR29       3
*                                                                                   MTR      1645
*                                                                                   MTR      1646
*         EXIT                                                                      MTR      1647
*T, OR    12/  0,12/  RF,12/  CC,12/  ST,12/  T4                                    MTR      1648
*T, MB    60/  SAME AS INPUT WITH *CHRV* UPDATED.                                   MTR      1649
*T, MB+1  60/  *PU* UPDATED IF READSYS, *SF* SET TO 3 IF SUBFUNCTION 20             MTR      1650
*         RF   =  RELEASE FUNCTION.                                                 MTR      1651
*              A DRIVE RELEASE FUNCTION IS RETURNED IF SEEK WAITS                   MTR      1652
*              ARE OUTSTANDING ON THE CHANNEL FOR SHARED DEVICES.                   MTR      1653
*              AN OPERATION COMPLETE IS RETURNED IN ALL OTHER CASES.                MTR      1654
*              THE OPERATION COMPLETE RELEASES BOTH THE DRIVE AND                   MTR      1655
*              THE CONTROLLER.                                                      MTR      1656
*         CC   =  1, IF ISD AND FUNCTION WAS *WRITE IN PROGRESS*.                   MTR      1657
*              12, OTHERWISE.                                                       MTR      1658
*         ST   =  (CHRV), IF OK TO SEEK.                                            MTR      1659
*              COMPLEMENT OF EC, IF ERROR DETECTED.                                 MTR      1660
*              EC = CRSE, IF CONTROLLER RESERVE TIME OUT.                           MTR      1661
*              EC = CHFE, IF INCORRECT *DSWM* FUNCTION NUMBER.                      MTR29       4
*              EC = DRVE, IF DRIVE RESERVE TIMEOUT.                                 MTR      1662
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*               EC = LNRE, IF LOGICAL NOT READY.                        MTR29       5
*                                                                       MTR      1663
*       RE-ENTRY                                                        MTR      1664
*T, OR  12/  DSWM,12/  RP,12/  CPM,12/  CH,5/ CP,7/  FG                  273L780    21
*       RP = REENTRY PROCESSOR ADDRESS.                                 MTR      1666
*       CPM = CONTROL POINT/PSEUDO-CONTROL POINT FOR MOVE CHECK.        273L780    22
*       CH = CHANNEL(S) TO REQUEST.                                     MTR      1668
*       CP = CONTROL POINT NUMBER FOR PRIVILEGES CHECK.                 273L780    23
*       FG = FLAGS.                                                     MTR      1670
*             1 = REQUEST FOR CHANNEL AND UNIT ON NEW SEEK.             MTR      1671
*             2 = SEEK WAIT FLAG.                                       MTR      1672
*             4 = EQUIPMENT IS A SHARED DEVICE.                         MTR      1673
*             10 = SEEK OUTSTANDING ON SHARED DEVICE.                   MTR      1674
*             20 = CALLER SELECTED CHANNEL.                             MTR      1675
*             40 = ISD DEVICE FLAG.                                     MTR      1676
*             100 = WRITE IN PROGRESS (ISD ONLY).                       MTR      1677
*T, MB  SAME AS INPUT WITH (T4) = ALLOWABLE CHANNEL(S).                  MTR      1678



**      MAXIMIZATION OF SEEK OVERLAP.                                   MTR      1680
*                                                                       MTR      1681
*       THE THROUGHPUT OF THE MASS STORAGE SUBSYSTEM CAN BE ENHANCED    MTR      1682
*       BY MAXIMIZING THE SEEK OPERATIONS WHICH ARE PERFORMED IN        MTR      1683
*       PARALLEL WITH DATA TRANSFERS, IE. SEEK OVERLAP.  IN ORDER TO    MTR      1684
*       MAXIMIZE SEEK OVERLAPS WE MUST GIVE PRIORITY TO THE             MTR      1685
*       INITIATION OF NEW SEEKS, WHICH WILL START THE POSITIONER        MTR      1686
*       MOVING.  WE SHOULD NOT GIVE THE CHANNEL TO A PP WHICH IS        MTR      1687
*       CHECKING FOR THE COMPLETION OF A SEEK OPERATION IF ANOTHER      MTR      1688
*       PP IS WAITING TO INITIATE A SEEK.  DOING SO WOULD TEND TO       MTR      1689
*       SERIALIZE THE SEEK AND DATA TRANSFER OPERATIONS.                MTR      1690
*                                                                       MTR      1691
*       TO GIVE PRIORITY TO THE ASSIGNMENT OF THE CHANNEL TO INITIAL    MTR      1692
*       SEEK OPERATIONS, *DSWM* KEEPS TRACK OF THE FOLLOWING.           MTR      1693
*       1)     FOR EACH CHANNEL REQUESTED BY A PP FOR AN INITIAL        MTR      1694
*              SEEK, THE PP NUMBER OF THE REQUESTING PP IS SAVED        MTR      1695
*              IN *TCHR*.                                               MTR      1696
*       2)     FOR EACH EQUIPMENT THE PP REQUESTING LOGICAL UNIT        MTR      1697
*              ZERO IS SAVED IN *DALL* BYTE 3.                          MTR      1698
*       USING THIS INFORMATION WE KNOW WHEN RELEASING A RESOURCE        MTR      1699
*       (IE. CHANNEL OR LOGICAL UNIT ZERO OF AN EQUIPMENT) IF           MTR      1700
*       ANOTHER PP NEEDS THE RESOURCE TO INITIATE A SEEK OPERATION.     MTR      1701
*       WHEN ANOTHER PP DOES NEED THE RESOURCE TO INITIATE A SEEK       MTR      1702
*       THIS IS TERMED A *PRIORITY SEEK REQUEST*.                       MTR      1703
*                                                                       MTR      1704
*       THE MECHANISM OF GIVING PRIORITY TO A PARTICULAR PP IS          MTR      1705
*       ACCOMPLISHED BY PROCESSING THE PRIORITY SEEK REQUEST UPON       MTR      1706
*       EXIT OF THE *DSWM* PROCESSING.  WHEN A *DSWM* FUNCTION          MTR      1707
*       RESULTS IN THE FREEING OF A RESOURCE (IE. UNIT OR CHANNEL),     MTR      1708
*       THE RESOURCE WOULD NORMALLY BE ASSIGNED TO THE NEXT PP IN       MTR      1709
*       NUMERIC ORDER WHICH IS WAITING FOR IT.  TO ASSIGN IT TO A       MTR      1710
*       PRIORITY PP, NOT THE NEXT NUMERICAL PP, THE PP NUMBER IS        MTR      1711
*       SAVED IN DIRECT CELL *PR* WHEN THE RESOURCE IS RELEASED.        MTR      1712
*       WHEN THE *DSWM* REQUEST WHICH RELEASED THE RESOURCE, AND SET    MTR      1713
*       *PR* IS COMPLETE OR GOES INTO REENTRY PROCESSING, A CHECK IS    MTR      1714
*       MADE FOR A PENDING PRIORITY REQUEST.  IF ONE IS PRESENT,        MTR      1715
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                                *       THEN BEFORE RETURNING TO THE MAIN LOOP OF MTR, THE PRIORITY   MTR       1716
                                *       SEEK REQUEST IS PROCESSED.  THIS IS ACCOMPLISHED BY SETTING   MTR       1717
                                *       THE REGISTERS TO LOOK EXACTLY LIKE THE REQUEST WAS SENSED     MTR       1718
                                *       BY THE MAIN LOOP IN MTR.  IN EFFECT THE PROCESSING OF A       MTR       1719
                                *       PRIORITY SEEK REQUEST LOOKS AS THOUGH THE REQUEST WERE        MTR       1720
                                *       INSERTED AS THE NEXT REQUEST IN THE MAIN LOOP OF MTR.  THIS   MTR       1721
                                *       APPROACH USES ALL THE NORMAL REENTRY LOGIC FOR RESOURCE        MTR       1722
                                *       ASSIGNMENT, THUS MINIMIZING SPECIAL CASE LOGIC.               MTR       1723
                                                                                                      MTR       1724
                                                                                                      MTR       1725
                                **      MSEK - THIS TAG DEFINES THE MAXIMUM NUMBER OF SEEK WAITS      MTR       1726
                                *              ON A CHANNEL WITH SHARED DEVICES BEFORE ACCESS TO THE  MTR       1727
                                *              CHANNEL FOR NEW SHARED DEVICE ACTIVITY IS              MTR       1728
                                *              DISALLOWED.  THE TABLE *TSCA* CONTAINS THE NUMBER      MTR       1729
                                *              OF SEEK WAITS FOR SHARED DEVICES WHICH ARE OUTSTANDING MTR       1730
                                *              ON A CHANNEL.  WHEN THERE ARE OUTSTANDING SEEKS ON     MTR       1731
                                *              SHARED DEVICES, A DRIVE RELEASE FUNCTION WILL BE       MTR       1732
                                *              ISSUED INSTEAD OF AN OPERATION COMPLETE FOR ALL        MTR       1733
                                *              DEVICES ON THE CHANNEL.  THE                           MTR       1734
                                *              CONTINUED ISSUANCE OF DRIVE RELEASES INSTEAD OF        MTR       1735
                                *              OPERATION COMPLETES WILL LOCK OUT ACCESS BY OTHER      MTR       1736
                                *              MACHINES TO THE CONTROLLER AND DRIVES.  THUS THE       MTR       1737
                                *              NEED FOR A LIMIT ON THE NUMBER OF TIMES A DRIVE        MTR       1738
                                *              RELEASE IS ISSUED.  *MSEK* PROVIDES A LIMIT TO         MTR       1739
                                *              THE CONTINUED ACCESS OF A CONTROLLER BY A SINGLE       MTR       1740
                                *              MACHINE.  THIS NUMBER DOES NOT HAVE A DIRECT           MTR       1741
                                *              CORRESPONDENCE TO THE NUMBER OF CONTIGUOUS I/O         MTR       1742
                                *              REQUESTS ALLOWED ON A CHANNEL.  THIS IS BECAUSE        MTR       1743
                                *              THE TABLE *TSEK* WHICH *MSEK* LIMITS IS NOT A          MTR       1744
                                *              COUNT OF I/O REQUESTS BUT RATHER IT IS A COUNT         MTR       1745
                                *              OF THE NUMBER TIMES A SEEK WAIT IS ISSUED WITH         MTR       1746
                                *              MULTIPLE SHARED DEVICE SEEKS OUTSTANDING.  THUS        MTR       1747
                                *              THE CONTINUED ACCESS BY A SINGLE MACHINE WILL          MTR       1748
                                *              BE LIMITED BUT NOT TO ANY SPECIFIC NUMBER OF           MTR       1749
                                *              REQUESTS.                                              MTR       1750
                                                                                                      MTR       1751
                          40    MSEK    EQU     40                                                    MTR       1752
                                                                                                      MTR       1753
                                                                                                      MTR       1754
 1772     0013                        PPR     DSWM                                                  MTR       1755
 1772     1601                        ADN     1           READ PARAMETERS                           273L780     24
 1773     6004                        CRD     T4                                                    273L780     25
 1774     3066                        LDD     PP          GET ASSIGNED CP/PCP                       273L780     26
 1775     1004                        SHN     PPXES                                                 273L780     27
 1776     2100 0000                   TADC    ACPP,PPX                                              273L780     28
 2000     6020                        CRD     CN                                                    MTR       1757
 2001     3020                        LDD     CN          SET ASSIGNED CP/PCP FOR MOVE CHECK        273L780     29
 2002     3462                        STD     OR+2                                                  MTR       1762
 2003     3024                        LDD     CN+4                                                  273L780     30
 2004     3464                        STD     OR+4        SET CP FOR PRIVILEGES CHECK               273L780     31
 2005     3010                        LDD     CM          SET CALLER SELECTED CHANNEL FLAG          MTR       1767
 2006     1220                        LPN     20                                                    MTR       1768
 2007     3564                        RAD     OR+4                                                  MTR       1769
 2010     3005                        MSTA    DALL,PP,CS  GET EST, SAVE MST ADDRESS, READ DALL      273L780     32
 2021     6020                        CRD     CN                                                    MTR       1771
 2022     3030                        LDD     CS                                                    MTR       1772
 2023     1006                        SHN     21-13                                                 MTR       1773
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2024          0705                       MJN    DSW1        IF MASS STORAGE                      MTR        1774
2025          3005                       LDD    T5                                               MTR        1775
2026          0403                       NJP    DSW7        IF NOT PERFORMING ON-LINE RECONFIGURATION 251L664    133
                                DSW1     N8SJ   DSW3        (NO ISD SUBSYSTEM JUMP)              MTR        1777
2031          3033                       LDD    CS+3                                             MTR        1778
2032          2300 0407                  LMC    2RDG                                             MTR52         1
2034          0403                       ZJN    DSW2        IF 836 DEVICE                        MTR        1781
2035          1103                       LMN    1RD&1RG                                          MTR        1782
2036          0503                       NJN    DSW3        IF NOT 834 DEVICE                    MTR        1783
2037          1440              DSW2     LDN    40                                               MTR        1784
2040          3564                       RAD    OR+4                                             MTR        1785
                                DSW3     NSDJ   DSW4        (NO SHARED DEVICE JUMP)              MTR        1786
2041          3030                       LDD    CS                                               MTR        1787
2042          1070                       SHN    2-11                                             MTR        1788
2043          1204                       LPN    4           SET SHARED DEVICE FLAG               MTR        1789
2044          3564                       RAD    OR+4                                             MTR        1790
2045          3010              DSW4     LDD    CM                                               MTR        1791
2046          1201                       LPN    1                                                MTR        1792
2047          0503                       ZJP    DSW12       IF CHANNEL NOT RESERVED              MTR30         1
                                                                                                 MTR        1794
                               *         PROCESS RELEASE OF CHANNEL.                             MTR        1795
                                                                                                 MTR        1796
2052          1433                       LDN    MXNC                                             251L664     135
2053          3437                       STD    CF          SET FLAG FOR CHANNEL UPDATE          251L664     136
2054          3204                       SBD    T4                                               MTR        1798
2055          0716              DSW5     MJN    DSW7        IF INVALID CHANNEL                   251L664     137
2056          5004 7530                  LDM    TCHR,T4     SET REQUESTING PP                    MTR        1800
2060          0405                       ZJN    DSW6        IF NO PRIORITY SEEK REQUEST          251L664     138
2061          3467                       STD    PR                                               MTR        1802
2062          1400                       LDN    0           CLEAR PRIORITY SEEK REQUEST          MTR        1803
2063          5404 7530                  STM    TCHR,T4                                          MTR        1804
2065          5004 7350         DSW6     LDM    TCHS,T4                                          251L664     139
2067          3366                       LMD    PP                                               273L780      33
2070          3401                       STD    T1                                               252L678      15
2071          1237                       LPN    37                                               MTR        1807
2072          0403                       ZJN    DSW8        IF ASSIGNED TO THIS PP               251L664     140
2073          0200 1303         DSW7     RJM    HNG         HANG PP                              251L664     141
2075          3001              DSW8     LDD    T1          CLEAR CHANNEL ASSIGNMENT             252L678      16
2076          2277 3777                  LPC    -4000                                            252L678      17
2100          5404 7350                  STM    TCHS,T4                                          252L678      18
                                         NSDJ   DSW9        (NO SHARED DEVICE JUMP)              MTR30         2
2102          3064                       LDD    OR+4                                             MTR30         3
2103          1017                       SHN    21-2                                             MTR30         4
2104          0604                       PJN    DSW8.1      IF NOT SHARED DEVICE                 MTR30         5
2105          3063                       LDD    OR+3                                             MTR22         1
2106          1304                       SCN    4                                                MTR30         6
2107          0506                       NJN    DSW9        IF NOT ENDMS OR UNIT SWITCH FUNCTION MTR30         7
2110          5004 7640         DSW8.1   LDM    TSCA,T4                                          MTR30         8
2112          0503                       NJN    DSW9        IF SHARED CHANNEL ACTIVITY           251L664     145
2113          5404 7674                  STM    TSEK,T4     CLEAR SEEK COUNT                     MTR22         7
                                DSW9     N8SJ   DSW12       (NO ISD SUBSYSTEM JUMP)              251L664     146
2115          3063                       LDD    OR+3                                             MTR30         9
2116          1222                       LPN    22                                               MTR30        10
2117          0526                       NJN    DSW12       IF SEEK OR BUFFER FLUSH WAIT         MTR30        11
2120          3064                       LDD    OR+4                                             MTR        1811
2121          1240                       LPN    40                                               MTR        1812
2122          0423              DSW10    ZJN    DSW12       IF NOT ISD DEVICE                    251L664     147
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                                                                                     MTR        1814
                                         *         DECREMENT CONTROL MODULE ACTIVITY EXCEPT DURING SEEK      MTR        1815
                                         *         WAITS OR WRITE IN PROGRESS WAITS.  MAINTAINING THE        MTR        1816
                                         *         CONTROL MODULE ACTIVITY INSURES THE REQUEST WILL RECEIVE  MTR        1817
                                         *         THE SAME CHANNEL ASSIGNMENT.                              MTR        1818
                                                                                     MTR        1819
  2123      5066 7572                              LDM    TCMN,PP                                273L780      34
  2125      1074                                   SHN    -3                                     MTR        1824
  2126      2100 7564                              ADC    TCMA                                   MTR        1825
  2130      3401                                   STD    T1                                     MTR        1826
  2131      4701                                   SOI    T1                                     MTR        1827
  2132      1277                                   LPN    77                                     MTR        1828
  2133      0510                                   NJN    DSW11       IF NOT DECREMENT TO ZERO   251L664     148
  2134      4401                                   STI    T1          CLEAR CHANNEL ASSIGNMENT   MTR        1830
  2135      3024                                   LDD    CN+4        REVERSE CHANNEL PRIORITY   MTR20         2
  2136      1006                                   SHN    6                                      MTR20         3
  2137      3324                                   LMD    CN+4                                   MTR20         4
  2140      1006                                   SHN    6                                      MTR20         5
  2141      3424                                   STD    CN+4                                   MTR20         6
  2142      1400                                   LDN    0                                      MTR20         7
  2143      1240                          DSW11    LPN    40                                     251L664     149
  2144      0523                                   NJN    DSW15       IF UNDERFLOW               MTR29         6
  2145      3063                          DSW12    LDD    OR+3        VALIDATE FUNCTION CODE     251L664     151
  2146      1712                                   SBN    MXDSWM                                 MTR        1834
  2147      0713                                   MJN    DSW14       IF FUNCTION IN TABLE       251L664     152
  2150      1706                                   SBN    20-MXDSWM                              MTR        1836
  2151      0503                                   ZJP    WIP         IF ISD BUFFER FLUSH WAIT   MTR        1837
  2154      2177 6017                              SBK    2000-20                                MTR        1838
  2156      0413                                   ZJN    RSV         IF CONTROLLER RESERVE      252L678      19
  2157      1505                          DSW13    LCN    /MSP/CHFE   SET CHANNEL FAILURE CODE   MTR29         7
  2160      0100 2362                              LJM    RCE6        RETURN INCORRECT FUNCTION STATUS  MTR29   8
                                                                                     251L664     154
  2162      5063 3340                     DSW14    LDM    TDSWM,OR+3                             251L664     155
  2164      3415                                   STD    T8                                     MTR        1843
  2165      0115 0000                              LJM    0,T8        ENTER PROCESSOR            MTR        1844
                                                                                     MTR        1845
  2167      0200 1303                     DSW15    RJM    HNG         HANG PP                    MTR29         9
                                                                                     MTR29        10
                                    12    MXDSWM   EQU    12          MAXIMUM VALUE OF DSWM SUBFUNCTION  MTR   1846


                                         **        RSV - *DSWM* ROUTINE TO PROCESS RESERVE SITUATIONS.       MTR        1848
                                         *                                                                   MTR        1849
                                         *         FUNCTION 10 = DRIVE RESERVE.                              MTR        1850
                                         *         FUNCTION 2000 = CONTROLLER RESERVE.                       MTR        1851
                                         *                                                                   MTR        1852
                                         *         THESE FUNCTIONS SHOULD ONLY BE EXECUTED IN A MULTI-MAINFRAME  MTR    1853
                                         *         CONFIGURATION OR WHERE CONTROLLERS ARE BEING SHARED BETWEEN   MTR    1854
                                         *         MACHINES.  THE PURPOSE OF THESE FUNCTIONS ARE TO RETRY THE    MTR    1855
                                         *         REQUEST UNTIL THE APPROPRIATE RESERVES CAN BE GAINED OR       MTR    1856
                                         *         UNTIL THE FIVE SECOND TIME OUT HAS EXPIRED.  WHEN A TIME      MTR    1857
                                         *         OUT OCCURS, THE DRIVER WILL CALL THE ERROR PROCESSOR AND      MTR    1858
                                         *         THE APPROPRIATE ERROR PROCESSING WILL BE EXECUTED DEPENDING   MTR    1859
                                         *         ON THE CALLER SELECTED OPTIONS.                               MTR    1860
                                                                                     MTR        1861
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                                                                                MTR       1862
2171                     RSV        SUBFUN DSWM,10      DRIVE RESERVE PROCESSOR ENTRY      MTR       1863
2171                                SUBFUN DSWM,2000    CONTROLLER RESERVE ENTRY           252L678     20
2171          3024                  LDD    CN+4         REVERSE CHANNELS IN MST            252L678     21
2172          1006                  SHN    6                                               MTR       1870
2173          3324                  LMD    CN+4                                            MTR       1871
2174          1006                  SHN    6                                               MTR       1872
2175          3424                  STD    CN+4                                            MTR       1873
2176          5066 7727             MSTA   DALL,PP                                         273L780     35
2202          6220                  CWD    CN                                              MTR       1875
2203          3076                  LDD    OA                                              252L678     22
2204          1603                  ADN    3                                               MTR       1877
2205          6030                  CRD    CS                                              MTR       1878
2206          3063                  LDD    OR+3                                            MTR       1879
2207          3230                  SBD    CS                                              MTR       1880
2210          0407                  ZJN    RSV3         IF START TIME SET                  MTR       1881
2211          3530                  RAD    CS                                              MTR       1882
2212          3050                  LDD    TM+1                                            MTR       1883
2213          3434                  STD    CS+4                                            MTR       1884
2214          3076                  LDD    OA           REWRITE TIME WORD                  MTR       1885
2215          1603                  ADN    3                                               MTR       1886
2216          6230                  CWD    CS                                              MTR       1887
2217          3050       RSV3       LDD    TM+1                                            MTR       1888
2220          3234                  SBD    CS+4                                            MTR       1889
2221          0603                  PJN    RSV4         IF NO ROLL OVER                    MTR       1890
2222          2101 0000             ADC    10000                                           MTR       1891
2224          1724       RSV4       SBN    20D                                             MTR51        1
2225          0714                  MJN    RSV6         IF 20 SECONDS HAVE NOT ELAPSED     MTR51        2
2226          1500                  LCN    0            SET UNIT NUMBER CLEARED            MTR       1894
2227          3430                  STD    CS                                              MTR       1895
2230          0200 6726             RJM    CDA          CLEAR DEVICE ACTIVITY              MTR       1896
2232          3063                  LDD    OR+3                                            MTR       1897
2233          1110                  LMN    10                                              MTR       1898
2234          0402                  ZJN    RSV5         IF DRIVE RESERVED                  MTR       1899
2235          1501                  LCN    /MSP/CRSE-/MSP/DRVE                             MTR       1900
2236          1717       RSV5       SBN    /MSP/DRVE                                       MTR       1901
2237          0100 2362             LJM    RCE6         SET ERROR CODE                     MTR       1902
                                                                                           MTR       1903
2241          0200 3267  RSV6       RJM    SCS          SET CHANNEL SELECTION PROCESSING   MTR       1904
2243          0100 2511             LJM    RER          REASSIGN CHANNEL UPON REENTRY      MTR       1905
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                    **        RCE - *DSWM* ROUTINE TO REQUEST IO RESOURCES.                  MTR     1907
                    *                                                                        MTR     1908
                    *         FUNCTION 11 = REQUEST CHANNEL, UNIT, AND EQUIPMENT.            MTR     1909
                    *                                                                        MTR     1910
                    *         THIS FUNCTION REQUESTS ALL THE RESOURCES THAT ARE NEEDED TO    MTR     1911
                    *         PERFORM AN I/O OPERATION FOR THE *6DI* AND *6DJ* DRIVERS.      MTR     1912
                    *         THE ORDER OF RESOURCE ASSIGNMENT IS AS FOLLOWS.                MTR     1913
                    *         FIRST, IF A SYSTEM REQUEST IS PENDING AND MORE THAN ONE        MTR     1914
                    *         SYSTEM DEVICE IS PRESENT, THE SYSTEM EQUIPMENT WILL BE         MTR     1915
                    *         SELECTED.  THE SELECTION CRITERION IS DOCUMENTED IN *RSY*.     MTR     1916
                    *         SECOND, THE SOFTWARE UNIT INTERLOCK IN *DALL* IS GAINED.       MTR     1917
                    *         THIS IS AN IMPORTANT INTERLOCK IN THAT IT INSURES ONLY         MTR     1918
                    *         ONE REQUEST IS PROCESSED FOR A UNIT AT A TIME.                 MTR     1919
                    *         THIRDLY, A CHANNEL IS SELECTED AND RESERVED.                   MTR     1920
                    *                                                                        MTR     1921
                    *         FUNCTION 4 = UNIT SWITCH.                                      MTR     1922
                    *                                                                        MTR     1923
                    *         THE UNIT INTERLOCK FOR THE PREVIOUS UNIT IS RELEASED AND THE   MTR     1924
                    *         INTERLOCK FOR THE NEXT OR CURRENT UNIT IS REQUESTED.           MTR     1925
                    *                                                                        MTR     1926
                    *         ACCESS TO AN *OFF* OR *SUSPECT* DEVICE WILL NOT NORMALLY BE    MTR     1927
                    *         GRANTED.  HOWEVER, IT WILL BE ALLOWED IF ONE OF THE FOLLOWING  MTR     1928
                    *         CONDITIONS IS MET -                                            MTR     1929
                    *               1. THE OPERATION IS A *READSYS* AND NO *ON* OR *IDLE*    MTR     1930
                    *                  SYSTEM DEVICE EXISTS.                                 MTR     1931
                    *               2. THE *AD* OR *NS* *SETMS* ERROR PROCESSING OPTIONS     MTR     1932
                    *                  WERE SELECTED.                                        MTR     1933
                    *               3. THE JOB TO WHICH THE CALLING PP IS ASSIGNED HAS AT    MTR     1934
                    *                  LEAST ONE OF THE FOLLOWING ATTRIBUTES -               MTR     1935
                    *                        A. IT-S A SUBSYSTEM.                            MTR     1936
                    *                        B. IT HAS THE *UTL=* ENTRY POINT.               MTR     1937
                    *                        C. IT IS IN THE PROCESS OF BEING                MTR     1938
                    *                           UNCONDITIONALLY TERMINATED BY THE            MTR     1939
                    *                           OPERATOR.                                    MTR     1940
                    *         ACCESS TO A *DOWN* DEVICE WILL BE GRANTED ONLY IF THE CALLER   MTR     1941
                    *         SPECIFIED THE *AD* *SETMS* ERROR PROCESSING OPTION.  ALTHOUGH  MTR     1942
                    *         THE CHECK FOR A *DOWN* DEVICE IS BYPASSED FOR *READSYS*        MTR     1943
                    *         OPERATIONS, ACCESS TO A *DOWN* DEVICE WILL NOT BE GRANTED      MTR     1944
                    *         SINCE ROUTINE *RSY* WILL ALWAYS SELECT A NON-*DOWN* DEVICE     MTR     1945
                    *         AND IT IS NOT POSSIBLE TO *DOWN* THE LAST SYSTEM DEVICE.       MTR     1946
                                                                                             MTR     1947
                                                                                             MTR     1948
 2245                             RCE      SUBFUN DSWM,(11,4) REQUEST CHANNEL AND UNIT PROCESSOR ENTRY  MTR     1949
 2245       3076                           LDD    OA                                         MTR     1950
 2246       1602                           ADN    2                                          MTR     1951
 2247       6030                           CRD    CS                                         MTR     1952
 2250       3664                           AOD    OR+4        SET INITIAL SEEK REQUEST       MTR     1953
                                           N8SJ   RCE1        (NO ISD SUBSYSTEM JUMP)        MTR     1954
 2251       1240                           LPN    40                                         MTR     1955
 2252       0405                           ZJN    RCE1        IF NOT ISD DEVICE              MTR     1956
 2253       3031                           LDD    CS+1        STORE UNIT NUMBER IN *TCMN*    MTR     1957
 2254       1277                           LPN    77                                         MTR     1958
 2255       5466 7572                      STM    TCMN,PP                                    273L780   36
 2257       0200 6726             RCE1     RJM    CDA         CLEAR CURRENT UNIT ACTIVITY    MTR     1960
 2261       3010                           LDD    CM                                         MTR     1961
 2262       1014                           SHN    21-5                                       MTR     1962
 2263       0605                           PJN    RCE1.1      IF NOT *READSYS*               NS2574     1
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2264         0316                       UJN    RCE2         CONTINUE                               NS2574       2
                               *        LDC    RSY          (MULTIPLE SYSTEM DEVICES EXIST)        MTR       1965
                      2264     RCEA     EQU    *-1                                                 MTR       1966
2265         3014                       CON    RSY                                                 MTR       1967
2266         0100 2373                  LJM    RCE8         SET REENTRY PROCESSOR ADDRESS          MTR       1968
                                                                                                   MTR       1969
2270         1004              RCE1.1   SHN    5-1                                                 NS2574       3
2271         0737                       MJN    RCE2.2       IF ACCESS TO A *DOWN* DEVICE ALLOWED   NS2480       2
2272         3020                       LDD    CN                                                  MTR       1972
2273         1012                       SHN    21-7                                                MTR       1973
2274         0631                       PJN    RCE2.0       IF DEVICE IS ACCESSIBLE                NS2543       1
2275         2000 0124                  LDK    INWL                                                NS2574       4
2277         6011                       CRD    CM+1                                                NS2543       3
2300         3014                       LDD    CM+1+3                                              NS2574       5
2301         1016                       SHN    21-3                                                NS2574       6
2302         0726              RCE2     MJN    RCE2.2       IF DEADSTART SEQUENCING NOT COMPLETE   NS2574       7
2303         3020                       LDD    CN                                                  NS2543       7
2304         1067                       SHN    0-10                                                NS2574       8
2305         1203                       LPN    3                                                   251L664    156
2306         1103                       LMN    3                                                   251L664    157
2307         0517                       NJN    RCE2.1       IF DEVICE NOT *DOWN*                   NS2480       3
2310         5066 7727                  MSTA   ACGL,PP                                             273L780     37
2314         6011                       CRD    CM+1                                                NS2480       5
2315         3015                       LDD    CM+1+4                                              NS2480       6
2316         1006                       SHN    21-GRDR+GRDR/12D*12D                                NS2480       7
2317         0703                       PJP    RCE5         IF NOT BEING REDEFINED                 MTR46        1
2322         1521                       LCN    /MSP/RDFE                                           NS2480       9
2323         0100 2362                  UJP    RCE6         SET ERROR CODE                         MTR46        2
                                                                                                   NS2543       8
2325         0320              RCE2.0   UJN    RCE3         CONTINUE                               NS2543       9
                                                                                                   NS2480      11
2326         3010              RCE2.1   LDD    CM                                                  NS2480      12
2327         1017                       SHN    21-2                                                MTR       1978
2330         0720              RCE2.2   MJN    RCE4         IF *NS* *SETMS* OPTION SELECTED        NS2480      13
2331         3064                       LDD    OR+4                                                MTR       1980
2332         2200 7600                  LPC    7600                                                MTR       1981
2334         1672                       ADK    TFSW                                                MTR       1982
2335         6011                       CRD    CM+1                                                MTR       1983
2336         1613                       ADK    SEPW-TFSW                                           MTR       1984
2337         6012                       CRD    CM+2                                                MTR       1985
2340         1757                       ADK    JCIW-SEPW                                           MTR       1986
2341         6013                       CRD    CM+3                                                MTR       1987
2342         3015                       LDD    CM+5                                                MTR       1988
2343         2177 0031                  SBK    LSSI+1                                              MTR       1989
2345         0624              RCE3     PJN    RCE7         IF SUBSYSTEM                           MTR       1990
2346         3012                       LDD    CM+2                                                MTR       1991
2347         1011                       SHN    21-10                                               MTR       1992
2350         0721              RCE4     MJN    RCE7         IF *UTL=* ENTRY POINT PRESENT          MTR       1993
2351         3011                       LDD    CM+1                                                MTR       1994
2352         1002                       CFI    EJT,,CM+1                                           NS2396       1
2353         2100 0001         RCEB     ADC    SCHE                                                MTR       1997
2355         6011                       CRD    CM+1                                                MTR       1998
2356         3013                       LDD    CM+3                                                MTR       1999
2357         1007                       SHN    21-12                                               MTR       2000
                         0              ERRNZ  UCTM-2       CODE ASSUMES VALUE                     MTR       2001
2360         0711                       MJN    RCE7         IF UNCONDITIONAL JOB TERMINATION MODE  MTR       2002
2361         1515              RCE5     LCN    /MSP/LNRE    SET ERROR CODE                         MTR       2003
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2362          3463              RCE6     STD    OR+3                                              MTR        2004
2363          3076                       LDD    OA            WRITE PARAMETERS                    MTR        2005
2364          1601                       ADN    1                                                 MTR        2006
2365          6204                       CWD    T4                                                MTR        2007
2366          1400                       LDN    0                                                 MTR        2008
2367          0100 2762                  LJM    RRX2          RETURN ERROR STATUS                 MTR        2009
                                                                                                  MTR        2010
2371          2000 3141         RCE7     LDC    CUI           SET REENTRY PROCESSOR ADDRESS       MTR        2011
2373          3461              RCE8     STD    OR+1                                              MTR        2012
2374          5030 3352                  LDM    TMSK,CS       SET UNIT MASK                       MTR        2013
2376          3463                       STD    OR+3                                              MTR        2014
2377          0316                       UJN    RCO1          CHECK FOR RESOURCES AVAILABLE       MTR        2015



                               **        RCO - *DSWM* ROUTINE TO REQUEST A CHANNEL ONLY.          MTR        2017
                               *                                                                  MTR        2018
                               *         FUNCTION 1 = REQUEST CHANNEL.                            MTR        2019
                               *                                                                  MTR        2020
                               *         THIS FUNCTION IS USED BY DRIVERS WHO DO NOT USE THE UNIT MTR        2021
                               *         INTERLOCK SCHEME.  THUS THE ONLY RESOURCE THEY NEED TO   MTR        2022
                               *         EXECUTE A DRIVER REQUEST IS THE CHANNEL.                 MTR        2023
                                                                                                  MTR        2024
                                                                                                  MTR        2025
2400                            RCO      SUBFUN DSWM,1        REQUEST CHANNEL ONLY PROCESSOR ENTRY MTR       2026
2400          3664                       AOD    OR+4          SET INITIAL SEEK FOR PRIORITY SEEK REQUEST MTR 2027
2401          0200 3267                  RJM    SCS           SET CHANNEL SELECTION PROCESSING    MTR        2028
2403          5066 7614                  LDM    TPPI,PP                                           273L780      38
2405          0514                       NJN    RCO2          IF ACTIVITY SET                     MTR        2030
2406          3620                       AOD    CN                                                MTR        2031
2407          5066 7727                  MSTA   DALL,PP                                           273L780      39
2413          6220                       CWD    CN                                                MTR        2033
2414          1401                       LDN    1                                                 MTR        2034
2415          5466 7614         RCO1     STM    TPPI,PP       ENTER HERE FROM *RCE*               273L780      40
2417          3076                       LDD    OA            WRITE REENTRY PARAMETERS            MTR        2036
2420          6260                       CWD    OR                                                MTR        2037
2421          0100 2521         RCO2     LJM    RER2          CHECK FOR RESOURCES AVAILABLE       MTR        2038



                               **        EMS - *DSWM* ROUTINE TO RELEASE IO RESOURCES.            MTR        2040
                               *                                                                  MTR        2041
                               *         FUNCTION 0 = END MASS STORAGE OPERATION.                 MTR        2042
                               *                                                                  MTR        2043
                               *         THIS ROUTINE RELEASES THE CHANNEL AND SOFTWARE UNIT RESERVE MTR     2044
                               *         WHEN PRESENT.                                            MTR        2045
                                                                                                  MTR        2046
                                                                                                  MTR        2047
2423                            EMS      SUBFUN DSWM,0        END MASS STORAGE PROCESSOR ENTRY    MTR        2048
2423          3004                       LDD    T4            INSURE VALID CHANNEL                MTR        2052
2424          1237                       LPN    37                                                MTR        2053
2425          3404                       STD    T4                                                MTR        2054
2426          1500                       LCN    0             SET NO UNIT ASSIGNED                273L780      41
2427          3430                       STD    CS                                                MTR        2056
2430          0200 6726                  RJM    CDA           CLEAR DEVICE ACTIVITY               MTR        2057
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2432          3076                     LDD    OA           WRITE PARAMETERS                           MTR       2058
2433          1601                     ADN    1                                                       MTR       2059
2434          6204                     CWD    T4                                                      MTR       2060
2435          3062                     LDD    OR+2         CHECK FOR MOVE                             273L780     42
2436          3340                     LMD    MM.0                                                    271L716     69
2437          0403                     NJP    RRX          IF NO MOVE REQUESTED                       MTR       2064
2442          2000 2741                LDC    CHD          SET CHANNEL DROP PROCESSOR                 MTR       2065
2444          3461                     STD    OR+1                                                    MTR       2066
2445          3076                     LDD    OA           WRITE REENTRY PARAMETERS                   MTR       2067
2446          6260                     CWD    OR                                                      MTR       2068
2447          0100 2511                LJM    RER          RETRY DROP ON REENTRY                      MTR       2069


                                **     WIP - *DSWM* ISD WRITE WAIT PROCESSOR.                         MTR       2071
                                *                                                                     MTR       2072
                                *      FUNCTION 20 = ISD WRITE IN PROGRESS.                           MTR       2073
                                *                                                                     MTR       2074
                                *      THIS FUNCTION GIVES UP THE CHANNEL DURING AN ISD WRITE         MTR       2075
                                *      OPERATION SO THAT OTHER PP-S MAY USE THE CHANNEL.  IT SETS     MTR       2076
                                *      *CHECK WRITE COMPLETE* IN THE SEEK PARAMETERS, ALLOWING *6DJ*  MTR       2077
                                *      TO PROPERLY CHECK FOR WRITE COMPLETION WHEN IT GETS THE        MTR       2078
                                *      CHANNEL BACK.  *WIP* MUST ALSO RESTORE THE UNIT NUMBER PART    MTR       2079
                                *      OF THE SEEK PARAMETERS SINCE THE CALLING PP MAY HAVE USED THE  MTR       2080
                                *      MESSAGE BUFFER FOR OTHER PURPOSES BETWEEN WRITING SECTORS.     MTR       2081
                                                                                                      MTR       2082
                                                                                                      MTR       2083
                                *WIP   SUBFUN DSWM,20      WAIT FOR WRITE IN PROGRESS                 MTR       2084
2451          5066 7572          WIP   LDM    TCMN,PP      RESTORE UNIT NUMBER SEEK PARAMETER         273L780     43
2453          2100 0300                ADC    300          SET *CHECK WRITE COMPLETE*                 MTR       2086
2455          3431                     STD    CS+1                                                    MTR       2087
2456          3076                     LDD    OA           REWRITE SEEK PARAMETER WORD                MTR       2088
2457          1602                     ADN    2                                                       MTR       2089
2460          6230                     CWD    CS                                                      MTR       2090
2461          2000 0102                LDC    102          SET SEEK AND WAIT FOR WRITE COMPLETE       MTR       2091
2463          0315                     UJN    SEK2         SET FLAGS                                  MTR       2092
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                                **      SEK - *DSWM* SEEK WAIT PROCESSOR.                                  MTR       2094
                                *                                                                          MTR       2095
                                *       FUNCTION 2 = SEEK IN PROGRESS.                                     MTR       2096
                                *                                                                          MTR       2097
                                *       THIS FUNCTION GIVES UP THE CHANNEL DURING A SEEK OPERATION         MTR       2098
                                *       SO THAT OTHER REQUESTS MAY USE THE CHANNEL.  THE DRIVE IS          MTR       2099
                                *       PROTECTED FROM OTHER REQUESTS BY TWO METHODS.                      MTR       2100
                                *                                                                          MTR       2101
                                *       FIRST, FOR A NON-SHARED DEVICE, THE SOFTWARE                       MTR       2102
                                *       UNIT RESERVE IN *DALL* INSURES THAT OTHER REQUESTS IN THIS         MTR       2103
                                *       MACHINE WILL NOT ACCESS THE SEEKING DRIVE.                         MTR       2104
                                *       THIS IS NEEDED BECAUSE THE DRIVER RELEASES THE DRIVE AFTER         MTR       2105
                                *       INITIATING THE SEEK TO ALLOW OTHER PP-S TO ACCESS OTHER            MTR       2106
                                *       DRIVES ON THE CHANNEL DURING THE SEEK OPERATION.  SINCE THE        MTR       2107
                                *       DRIVE IS RELEASED WHILE SEEKING, THE OPERATION CAN BE              MTR       2108
                                *       CONTINUED ON A CHANNEL DIFFERENT FROM THE ONE WHICH INITIATED      MTR       2109
                                *       THE SEEK.  THIS CAPABILITY GIVES A SIGNIFICANT PERFORMANCE         MTR       2110
                                *       GAIN FOR DUAL CHANNEL ACCESS TO NON-SHARED DEVICES.                MTR       2111
                                *                                                                          MTR       2112
                                *       SECOND, FOR A SHARED DEVICE, SINCE THE SOFTWARE UNIT               MTR       2113
                                *       INTERLOCK ONLY APPLIES TO ONE MACHINE, THE CONTROLLER AND          MTR       2114
                                *       UNIT RESERVES ARE MAINTAINED WHILE SEEKING SO THAT REQUESTS        MTR       2115
                                *       ON ANOTHER MACHINE DO NOT GAIN ACCESS TO THE DRIVE.                MTR       2116
                                *       THE RESERVES MUST BE HELD DURING AN ENTIRE I/O SEQUENCE            MTR       2117
                                *       (INCLUDING ERROR PROCESSING) ON INDEPENDENT SHARED DEVICES         MTR       2118
                                *       SINCE THEY PROVIDE THE INTERLOCK FOR UPDATING TABLES ON THE        MTR       2119
                                *       DEVICE.  MMF DOES NOT DEPEND ON THE RESERVES FOR INTERLOCKS,       MTR       2120
                                *       HOWEVER, THIS SCHEME IMPROVES PERFORMANCE BY ELIMINATING           MTR       2121
                                *       RESEEKS FROM OTHER MACHINES DURING AN ACCESS.                      MTR       2122
                                *                                                                          MTR       2123
                                *       ENTRY  (CN - CN+4) = MST WORD *DALL*.                              MTR       2124
                                *                                                                          MTR       2125
                                *                                                                          MTR       2126
 2464                            SEK    SUBFUN DSWM,2      SEEK WAIT PROCESSOR ENTRY                      MTR       2127
 2464   5604 7674                       AOM    TSEK,T4     INCREMENT TOTAL SEEK COUNT                     MTR       2128
 2466   3006                            LDD    T6                                                         MTR       2129
 2467   3222                            SBD    CN+2                                                       MTR       2130
 2470   0407                            ZJN    SEK1        IF NO CHANGE IN POSITION                       MTR       2131
 2471   3522                            RAD    CN+2                                                       MTR       2132
 2472   5066 7727                       MSTA   DALL,PP     UPDATE DEVICE ACTIVITY WORD                    273L780    44
 2476   6220                            CWD    CN                                                         MTR       2134
 2477   1402                    SEK1    LDN    2           SET SEEK WAIT                                  MTR       2135
 2500   3564                    SEK2    RAD    OR+4        CHECK FOR SHARED SEEK                          MTR       2136
 2501   1204                            LPN    4                                                          MTR       2137
 2502   0405                            ZJN    SEK3        IF NOT SHARED DEVICE                           MTR       2138
 2503   5604 7640                       AOM    TSCA,T4     INCREMENT SHARED SEEK CHANNEL ACTIVITY         MTR       2139
 2505   1410                            LDN    10                                                         MTR       2140
 2506   3564                            RAD    OR+4                                                       MTR       2141
 2507   0200 3267               SEK3    RJM    SCS         SET CHANNEL SELECTION PROCESSING               MTR       2142
                                *       UJN    RER         REASSIGN CHANNEL UPON REENTRY                  MTR       2143
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                                **      RER - *DSWM* REENTRY PROCESSING.                                MTR     2145
                                *                                                                     MTR     2146
                                *       THIS ROUTINE ASSIGNS THE RESOURCES REQUIRED FOR THE I/O       MTR     2147
                                *       OPERATION.  THE MAIN *DSWM* ROUTINE ALONG WITH THE            MTR     2148
                                *       FUNCTION PROCESSORS SETS UP THE RESOURCE REQUIREMENTS         MTR     2149
                                *       WHICH CAN THEN BE PROCESSED UPON INITIAL OR REENTRY.          MTR     2150
                                *                                                                     MTR     2151
                                *       NOTE - A LARGE PART OF *MTR-S* EXECUTION TIME IS SPENT IN     MTR     2152
                                *       THIS SUBROUTINE.  IT IS EXTREMELY IMPORTANT TO OPTIMIZE AND   MTR     2153
                                *       REDUCE OVERHEAD IN THIS CODE IN ORDER TO NOT MAKE THE *MTR*   MTR     2154
                                *       CYCLE TIME TOO LARGE.  A LARGE *MTR* CYCLE TIME AFFECTS       MTR     2155
                                *       OVERALL SYSTEM PERFORMANCE.                                   MTR     2156
                                                                                                      MTR     2157
                                                                                                      MTR     2158
                                *       ENTER HERE TO ALLOW ACCESS TO RESOURCES BY OTHER PPS BEFORE   MTR     2159
                                *       REASSIGNING TO THIS REQUEST.                                  MTR     2160
                                                                                                      MTR     2161
2511            3067             RER    LDD     PR          CHECK IF PRIORITY REQUEST                MTR     2162
2512            0403                    ZJN     RER1        IF NO PRIORITY SEEK REQUEST              MTR     2163
2513            0200 3225               RJM     PRR         PROCESS PRIORITY REQUEST                 MTR     2164
2515            0200 0343        RER1   RJM     TIM         UPDATE TIME                              MTR     2165
2517            0200 0104               RJM     MRP         RETURN TO MAIN LOOP                      251L664  159
                                                                                                      MTR     2169
                                *       ENTER HERE TO IMMEDIATELY CHECK RESOURCES.                    MTR     2170
                                                                                                      MTR     2171
2521            3062             RER2   LDD     OR+2        CHECK FOR MOVE                           273L780   45
2522            3340                    LMD     MM.0                                                 271L716   72
2523            0465                    ZJN     RER         IF MOVE REQUESTED, RETRY UPON REENTRY    NS2460     2
2524            0161 0000               LJM     0,OR+1      JUMP TO PROCESSOR                        MTR     2176


                                **      C1M - CHECK FOR ONE CONTROL MODULE CHANNEL FREE.              MTR     2178
                                *                                                                     MTR     2179
                                *       WHEN ATTEMPTING ASSIGNMENT OF A SPECIFIC CHANNEL FOR          MTR     2180
                                *       CONTROL MODULE ACCESS, ONE OF THE FOLLOWING CASES EXISTS.     MTR     2181
                                *       1)      NO CHANNEL IS PRESENTLY ASSIGNED TO THE REQUIRED      MTR     2182
                                *               CONTROL MODULE.                                       MTR     2183
                                *               THE REQUESTED CHANNEL MAY BE ASSIGNED IF IT IS FREE.  MTR     2184
                                *               THIS CHANNEL WILL THEN BECOME ASSIGNED TO THE CONTROL  MTR     2185
                                *               MODULE.                                               MTR     2186
                                *       2)      A CHANNEL IS PRESENTLY ASSIGNED TO THE CONTROL MODULE MTR     2187
                                *               AND IS THE SAME AS THE REQUESTED CHANNEL.             MTR     2188
                                *               THE REQUESTED CHANNEL MAY BE ASSIGNED IF IT IS FREE.  MTR     2189
                                *       3)      A CHANNEL IS PRESENTLY ASSIGNED TO THE CONTROL MODULE MTR     2190
                                *               AND IS DIFFERENT FROM THE REQUESTED CHANNEL.          MTR     2191
                                *               NO CHANNEL ASSIGNMENT IS POSSIBLE.  THE REQUEST MUST  MTR     2192
                                *               WAIT UNTIL ALL CONTROL MODULE REQUESTS ARE COMPLETE   MTR     2193
                                *               AT WHICH TIME CASE (1) EXISTS, AND AN ASSIGNMENT MAY  MTR     2194
                                *               BE ALLOWED.                                           MTR     2195
                                                                                                      MTR     2196
                                                                                                      MTR     2197
2526            5066 7572        C1M    LDM     TCMN,PP                                              273L780   46
2530            1074                    SHN     -3                                                   MTR     2199
2531            2100 7564               ADC     TCMA                                                 MTR     2200
2533            3401                    STD     T1                                                   MTR     2201
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2534        4001                LDI    T1                                          MTR        2202
2535        0417                ZJN    C2M1        IF CHANNEL NOT ASSIGNED TO CONTROL MODULE  MTR        2203
2536        1071                SHN    -6                                          MTR        2204
2537        3363                LMD    OR+3                                        MTR        2205
2540        0414                ZJN    C2M1        IF REQUEST FOR CHANNEL ASSIGNED TO C. M.   MTR        2206
2541        0347                UJN    RER         RETRY ASSIGNMENT ON REENTRY     MTR        2207


                          **    C2M - CHECK FOR ONE OF TWO CONTROL MODULE CHANNELS FREE.    MTR        2209
                          *                                                        MTR        2210
                          *     WHEN ATTEMPTING ASSIGNMENT OF ONE OF TWO CHANNELS FOR       MTR        2211
                          *     CONTROL MODULE ACCESS, ONE OF THE FOLLOWING CASES EXISTS.   MTR        2212
                          *     1)     NO CHANNEL IS PRESENTLY ASSIGNED TO THE REQUIRED     MTR        2213
                          *            CONTROL MODULE.                             MTR        2214
                          *            EITHER CHANNEL MAY BE ASSIGNED IF IT IS FREE AND THE  MTR        2215
                          *            SEEK LIMIT IS NOT REACHED.                  MTR        2216
                          *            THIS CHANNEL WILL THEN BECOME ASSIGNED TO THE CONTROL MTR        2217
                          *            MODULE.                                     MTR        2218
                          *     2)     A CHANNEL IS PRESENTLY ASSIGNED TO THE CONTROL MODULE. MTR        2219
                          *            THIS CHANNEL MAY BE ASSIGNED IF IT IS FREE AND THE    MTR        2220
                          *            SEEK LIMIT IS NOT REACHED.  IF THIS CHANNEL MAY NOT   MTR        2221
                          *            BE ASSIGNED, THE OTHER CHANNEL IS NOT CHECKED.        MTR        2222
                                                                                   MTR        2223
                                                                                   MTR        2224
2542        5066 7572      C2M  LDM    TCMN,PP     GET THE CONTROL MODULE NUMBER   273L780      47
2544        1074                SHN    -3                                          MTR        2226
2545        2100 7564           ADC    TCMA                                        MTR        2227
2547        3401                STD    T1                                          MTR        2228
2550        4001                LDI    T1                                          MTR        2229
2551        0404                ZJN    C2C         IF CHANNEL NOT ASSIGNED TO CONTROL MODULE  MTR        2230
2552        1071                SHN    -6                                          MTR        2231
2553        3463                STD    OR+3                                        MTR        2232
2554        0325           C2M1 UJN    C1C         CHECK FOR FREE CHANNEL          MTR        2233


                          **    C1C - CHECK FOR SINGLE CHANNEL FREE.               MTR        2235
                          *                                                        MTR        2236
                          *     IF THE REQUESTED CHANNEL IS FREE AND HAS NOT REACHED THE    MTR        2237
                          *     SHARED DEVICE SEEK LIMIT, IT IS ASSIGNED.          MTR        2238
                          *     IF THE CHANNEL IS BEING REASSIGNED TO A REQUEST    MTR        2239
                          *     WHICH IS SEEKING ON A SHARED DEVICE, THEN THE      MTR        2240
                          *     SHARED SEEK COUNTER FOR THE CHANNEL IS DECREMENTED.         MTR        2241
                          *                                                        MTR        2242
                          *     IF THE REQUESTED CHANNEL IS NOT FREE, THE CHANNEL  MTR        2243
                          *     REQUESTED BIT IS SET.  A PRIORITY SEEK REQUEST IS  MTR        2244
                          *     ALSO SET IF THE CHANNEL IS REQUESTED FOR AN INITIAL         MTR        2245
                          *     SEEK OPERATION.                                    MTR        2246
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                                **        C2C - CHECK FOR ONE OF TWO CHANNELS FREE.                          MTR       2251
                                *                                                                           MTR       2252
                                *       IF EITHER CHANNEL IS FREE AND HAS NOT REACHED THE                   MTR       2253
                                *       SHARED DEVICE SEEK LIMIT, IT IS ASSIGNED.                           MTR       2254
                                *                                                                           MTR       2255
                                *       IF NEITHER CHANNEL IS FREE, THE CHANNEL REQUESTED BIT               MTR       2256
                                *       IS SET FOR THE PRIMARY CHANNEL.  A PRIORITY SEEK REQUEST IS         MTR       2257
                                *       ALSO SET FOR EACH OF THE CHANNELS.  AN INITIAL SEEK PRIORITY        MTR31        1
                                *       REQUEST IS ONLY SET IF THE SEEK LIMIT HAS NOT BEEN REACHED.         MTR31        2
                                *       INITIAL SEEK REQUESTS HAVE PRIORITY OVER OTHER SEEKS.               MTR31        3
                                                                                                            MTR       2261
                                                                                                            MTR       2262
2555    3063                     C2C    LDD     OR+3                                                       MTR       2263
2556    1014                            SHN     14                                                         MTR       2264
2557    3463                            STD     OR+3                                                       MTR       2265
2560    1063                            SHN     -14                                                        MTR       2266
2561    3402                            STD     T2                                                         MTR       2267
2562    5002 7350                       LDM     TCHS,T2                                                    MTR       2268
2564    0517                            NJN     C2C3            IF PRIMARY CHANNEL NOT FREE                MTR31        4
                                                                                                            MTR       2270
                                *       CHECK SEEK LIMIT REACHED FOR PRIMARY CHANNEL.                       MTR       2271
                                                                                                            MTR       2272
                                        NSDJ    C2C1            (NON-SHARED DEVICE JUMP)                   MTR       2273
2565    3064                            LDD     OR+4                                                       MTR       2274
2566    1206                            LPN     6                                                          MTR       2275
2567    1104                            LMN     4                                                          MTR       2276
2570    0505                            NJN     C2C1            IF NOT SHARED DEVICE OR SEEK WAIT          MTR       2277
2571    5002 7674                       LDM     TSEK,T2                                                    MTR       2278
2573    1740                            ADK     -MSEK                                                      MTR31        5
2574    0607                            PJN     C2C3            IF SEEK LIMIT REACHED - TRY OTHER CHANNEL  MTR       2280
2575    3002                     C2C1   LDD     T2              SET PRIMARY CHANNEL                        MTR       2281
2576    3463                            STD     OR+3                                                       MTR       2282
2577    0100 2702                C2C2   LJM     C2C10           ASSIGN CHANNEL - CANNOT BE SHARED SEEK     MTR31        6
                                                                                                            MTR       2290
                                *       CHECK SINGLE CHANNEL, OR SECOND OF DUAL CHANNELS.                   MTR       2291
                                                                                                            MTR       2292
2601                             C1C    BSS     0               SINGLE CHANNEL REQUESTED PROCESSOR         MTR       2293
2601    3056                            LDD     FT              INDICATE SINGLE CHANNEL                    252L678     23
2602    3402                            STD     T2                                                         252L678     24
2603    5063 7350                C2C3   LDM     TCHS,OR+3                                                  MTR       2294
2605    0515                            NJN     C2C5            IF SECONDARY CHANNEL IS NOT FREE           MTR       2295
                                        NSDJ    C2C2            (NON-SHARED DEVICE JUMP)                   252L678     25
2606    3064                            LDD     OR+4                                                       MTR       2297
2607    1216                            LPN     16                                                         MTR       2298
2610    1104                            LMN     04                                                         MTR       2299
2611    0403                            NJP     C2C9            IF NOT SHARED DEVICE OR SEEK WAIT          MTR31        7
2614    1437                            LDK     MSEK-1                                                     MTR31        8
2615    5263 7674                       SBM     TSEK,OR+3                                                  MTR31        9
2617    0657                            PJN     C2C2            IF SEEK LIMIT NOT REACHED                  252L678     26
2620    0100 2511                       LJM     RER             RETRY UPON REENTRY                         MTR31       11
                                                                                                            MTR       2305
2622    2277 3777                C2C5   LPC     -4000           SET THE CHANNEL REQUESTED FLAG             MTR       2306
2624    3356                            LMD     FT                                                         MTR       2307
2625    3437                            STD     CF              SET FLAG FOR CHANNEL UPDATE                251L664    160
2626    5463 7350                       STM     TCHS,OR+3                                                  MTR       2308
                                                                                                            MTR       2309
                                *       SET PRIORITY REQUEST.                                               MTR       2310
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                                                                                        MTR       2311
2630         3002                  LDD    T2                                            252L678     27
2631         3356                  LMD    FT                                            252L678     28
2632         0505                  NJN    C2C5.1       IF NOT CHANNEL SPECIFIC REQUEST  MTR41        1
2633         5063 7350             LDM    TCHS,OR+3                                     MTR41        2
2635         1237                  LPN    37                                            MTR41        3
2636         0437                  ZJN    C2C8.1       IF CHANNEL NOT ASSIGNED          MTR41        4
2637         3064         C2C5.1   LDD    OR+4         SET PRIMARY CHANNEL REQUESTED    MTR41        5
2640         1201                  LPN    1                                             MTR       2313
2641         0406                  ZJN    C2C6         IF NOT INITIAL SEEK              MTR31       15
2642         5002 7674             LDM    TSEK,T2                                       MTR31       16
2644         1740                  ADK    -MSEK                                         MTR31       17
2645         0610                  PJN    C2C7.1       IF SEEK LIMIT REACHED            MTR31       18
2646         0304                  UJN    C2C7         CONTINUE PROCESSING              MTR31       19
                                                                                        MTR31       20
2647         5002 7530    C2C6     LDM    TCHR,T2                                       MTR31       21
2651         0504                  NJN    C2C7.1       IF REQUEST ALREADY SET           MTR31       22
2652         3066         C2C7     LDD    PP           SET CHANNEL REQUESTED            273L780     48
2653         5402 7530             STM    TCHR,T2                                       MTR31       24
2655         3064         C2C7.1   LDD    OR+4         SET SECOND CHANNEL               MTR31       25
2656         1201                  LPN    1                                             MTR31       26
2657         0406                  ZJN    C2C7.3       IF NOT INITIAL CHANNEL REQUEST   MTR31       27
2660         5063 7674             LDM    TSEK,OR+3                                     MTR31       28
2662         1740                  ADK    -MSEK                                         MTR31       29
2663         0610                  PJN    C2C8         IF SEEK LIMIT REACHED            MTR31       30
2664         0304                  UJN    C2C7.4       CONTINUE PROCESSING              MTR31       31
                                                                                        MTR31       32
2665         5063 7530    C2C7.3   LDM    TCHR,OR+3                                     MTR31       33
2667         0504                  NJN    C2C8         IF REQUEST ALREADY SET           MTR31       34
2670         3066         C2C7.4   LDD    PP           SET THIS PP AS REQUESTING CHANNEL 273L780    49
2671         5463 7530             STM    TCHR,OR+3                                     MTR       2316
2673         0100 2511    C2C8     LJM    RER          RETRY ASSIGNMENT UPON REENTRY    MTR       2317
                                                                                        MTR       2318
2675         3064         C2C8.1   LDD    OR+4                                          MTR41        6
2676         1210         C2C9     LPN    10                                            MTR       2319
2677         0403                  ZJN    C2C10        IF NO SHARED DEVICE SEEK         MTR       2320
2700         5763 7640             SOM    TSCA,OR+3                                     MTR       2321
                                                                                        MTR       2322
                         *         CHANNEL ASSIGNMENT ALLOWED.                          MTR       2323
                                                                                        MTR       2324
2702         3076         C2C10    LDD    OA           READ CHANNEL PARAMETER           MTR       2325
2703         1601                  ADN    1                                             MTR       2326
2704         6004                  CRD    T4                                            MTR       2327
2705         3063                  LDD    OR+3         ASSIGN CHANNEL                   MTR       2328
2706         3404                  STD    T4                                            MTR       2329
2707         3010                  LDD    CM                                            MTR       2330
2710         1311                  SCN    11                                            MTR       2331
2711         1101                  LMN    1                                             MTR       2332
2712         3410                  STD    CM                                            MTR       2333
2713         3076                  LDD    OA           REWRITE PARAMETERS               MTR       2334
2714         3437                  STD    CF           SET FLAG FOR CHANNEL UPDATE      251L664    161
2715         1601                  ADN    1                                             MTR       2335
2716         6204                  CWD    T4                                            MTR       2336
2717         5004 7350             LDM    TCHS,T4      RESERVE CHANNEL                  252L678     30
2721         2277 3777             LPC    -4000                                         252L678     31
2723         3366                  LMD    PP                                            273L780     50
2724         5404 7350             STM    TCHS,T4                                       MTR       2338
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                                        N8SJ    RRX         (NO ISD SUBSYSTEM JUMP)                    MTR       2339
          2726          3064          LDD     OR+4                                                   MTR       2340
          2727          1242          LPN     42                                                     MTR       2341
          2730          1140          LMN     40                                                     MTR       2342
          2731          0513          NJN     RRX         IF NOT ISD DEVICE OR SEEK WAIT ASSIGNMENT  MTR       2343
          2732          4601          AOI     T1                                                     MTR       2344
          2733          1101          LMN     1                                                      MTR       2345
          2734          0510          NJN     RRX         IF NOT FIRST ACTIVITY ON CONTROL MODULE    MTR       2346
          2735          3004          LDD     T4                                                     MTR       2347
          2736          1006          SHN     6                                                      MTR       2348
          2737          4501          RAI     T1                                                     MTR       2349
          2740          0304          UJN     RRX         EXIT REENTRY PROCESSING                    MTR       2350



                                *       CHD - CHANNEL DROP PROCESSOR.                                  MTR       2352
                                *                                                                      MTR       2353
                                *       COMPLETE THE CHANNEL DROP AFTER STORAGE MOVE COMPLETES.        MTR       2354
                                                                                                       MTR       2355
                                                                                                       MTR       2356
          2741          3076     CHD    LDD     OA          READ CHANNEL STATUS                        MTR       2357
          2742          1601            ADN     1                                                      MTR       2358
          2743          6004            CRD     T4                                                     MTR       2359
                                *       UJN     RRX         COMPLETE FUNCTION                          MTR       2360



                                **      RRX - EXIT *DSWM* REENTRY PROCESSING.                          MTR       2362
                                                                                                       MTR       2363
                                                                                                       MTR       2364
          2744          3010     RRX    LDD     CM          SET CHANNEL STATUS                         MTR       2365
          2745          3463            STD     OR+3                                                   MTR       2366
                                        NSDJ    RRX2        (NO SHARED DEVICES JUMP)                   MTR       2367
          2746          1201            LPN     1                                                      MTR       2368
          2747          0413            ZJN     RRX2        IF NO CHANNEL ASSIGNED UPON EXIT           MTR       2369
          2750          5004 7640       LDM     TSCA,T4                                                MTR       2370
          2752          0410            ZJN     RRX2        IF NO SHARED DEVICE ACTIVITY               MTR       2371
          2753          3064            LDD     OR+4                                                   MTR       2372
          2754          1240            LPN     40                                                     MTR       2373
          2755          0404            ZJN     RRX1        IF NOT ISD DEVICE                          MTR       2374
          2756          4001            LDI     T1                                                     MTR       2375
          2757          1276            LPN     76                                                     MTR48        1
          2760          0402            ZJN     RRX2        IF NO OTHER CONTROL MODULE ACTIVITY        MTR       2377
          2761          1410     RRX1   LDN     20-10       SET DRIVE RELEASE                          MTR       2378
          2762          1610     RRX2   ADN     10                                                     MTR       2379
                                *       LDN     10          (NO SHARED DEVICES)                        MTR       2380
                              2762 RRXA EQU     *-1                                                    MTR       2381
          2763          3461            STD     OR+1                                                   MTR       2382
          2764          1400            LDN     0           COMPLETE FUNCTION                          MTR       2383
          2765          3460            STD     OR                                                     MTR       2384
                                        N8SJ    RRX3        (NO ISD SUBSYSTEM JUMP)                    MTR       2385
          2766          3064            LDD     OR+4                                                   MTR       2386
          2767          2200 0100       LPC     100                                                    MTR       2387
          2771          0402            ZJN     RRX3        IF ISD WRITE IN PROGRESS                   MTR       2388
          2772          1511            LCN     12-1                                                   MTR       2389



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2773          1612             RRX3     ADN     12                                       MTR        2390
2774          3462                      STD     OR+2                                     MTR        2391
2775          3004                      LDD     T4           SET CHANNEL IN REPLY        MTR        2392
2776          1237                      LPN     37                                       MTR        2393
2777          3464                      STD     OR+4                                     MTR        2394
3000          3076                      LDD     OA                                       MTR        2395
3001          6260                      CWD     OR                                       MTR        2396
3002          2000 1375                 LDC     PPR          RESET REENTRY ADDRESS       251L664     162
3004          5466 7445                 STM     TREA,PP                                  251L664     163
3006          3067                      LDD     PR                                       MTR        2401
3007          0403                      ZJN     RRX4         IF NO PRIORITY REQUEST      MTR        2402
3010          0200 3225                 RJM     PRR          PROCESS REQUEST             MTR        2403
3012          0100 1407        RRX4     LJM     FNR          RETURN TO MAIN LOOP         MTR        2404


                              **        RSY - SELECT SYSTEM DEVICE.                      MTR        2406
                              *                                                          MTR        2407
                              *         THIS ROUTINE SELECTS A SYSTEM DEVICE BASED UPON THE    MTR  2408
                              *         FOLLOWING CRITERION.                             MTR        2409
                              *         1)      SELECT DEVICE WITH LEAST ACTIVITY.       MTR        2410
                              *         2)      IF ACTIVITY COUNTS EQUAL, SELECT DEVICE WHICH WILL   MTR  2411
                              *                 REQUIRE THE LEAST MOVE OF THE POSITIONER.   MTR     2412
                                                                                         MTR        2413
                                                                                         MTR        2414
3014          3076             RSY      LDD     OA           READ PARAMETERS FROM MESSAGE BUFFER  MTR  2415
3015          1601                      ADN     1                                        MTR        2416
3016          6004                      CRD     T4                                       MTR        2417
3017          0200 0343                 RJM     TIM                                      MTR        2418
3021          1500                      LCN     0                                        MTR        2419
3022          3411                      STD     CM+1         (CM+1) = LEAST ACTIVITY FOUND   MTR     2420
3023          3412                      STD     CM+2         (CM+2) = TABLE INDEX        MTR        2421
3024          0312                      UJN     RSY4         ENTER SEARCH LOOP           MTR        2422
                                                                                         MTR        2423
3025          3511             RSY1     RAD     CM+1         SET NEW LEAST ACTIVITY      MTR        2424
3026          3022                      LDD     CN+2                                     MTR        2425
3027          3206                      SBD     T6                                       MTR        2426
3030          0603                      PJN     RSY2         IF POSITIVE DISTANCE        MTR        2427
3031          2377 7777                 LMC     -0                                       MTR        2428
3033          3414             RSY2     STD     CM+4         (CM+4) = LEAST DISTANCE TO POSITION   MTR  2429
3034          3012             RSY3     LDD     CM+2         SET BEST EQUIPMENT          MTR        2430
3035          3413                      STD     CM+3         (CM+3) = *TSYD* INDEX OF EQUIPMENT FOUND   MTR  2431
                                                                                         MTR        2432
                              *         SEARCH SYSTEM DEVICES FOR FREE UNIT INTERLOCK.   MTR        2433
                                                                                         MTR        2434
3036          3612             RSY4     AOD     CM+2         INCREMENT TO NEXT SYSTEM DEVICE   MTR  2435
3037          5012 7522                 LDM     TSYM,CM+2                                MTR        2436
3041          0423                      ZJN     RSY6         IF END OF LIST              MTR        2437
3042          1003                      SHN     3                                        MTR        2438
3043          1612                      ADN     DALL                                     MTR        2439
3044          6020                      CRD     CN                                       MTR        2440
3045          3020                      LDD     CN                                       MTR        2441
3046          2200 7677                 LPC     7677         IGNORE LOW SPACE INDICATOR  MTR35         1
3050          3211                      SBD     CM+1                                     MTR        2442
3051          0753                      MJN     RSY1         IF LESS ACTIVITY            MTR        2443
3052          0563                      NJN     RSY4         IF MORE ACTIVITY            MTR        2444
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3053         3022                         LDD    CN+2                                                   MTR       2445
3054         3206                         SBD    T6                                                     MTR       2446
3055         0603                         PJN    RSY5        IF POSITIVE DISTANCE                       MTR       2447
3056         2377 7777                    LMC    -0                                                     MTR       2448
3060         3214                RSY5     SBD    CM+4                                                   MTR       2449
3061         0654                         PJN    RSY4        IF .GE. PREVIOUS DISTANCE                  MTR       2450
3062         3514                         RAD    CM+4                                                   MTR       2451
3063         0350                         UJN    RSY3        SET BEST EQUIPMENT                         MTR       2452
                                                                                                        MTR       2453
3064         5013 7510           RSY6     LDM    TSYD,CM+3                                              MTR       2454
3066         3205                         SBD    T5                                                     MTR       2455
3067         0503                         ZJP    RSY11       IF NO EQUIPMENT CHANGE                     MTR       2456
                                                                                                        MTR       2457
                                *         CHANGE EQUIPMENT DEPENDENT PARAMETERS.                        MTR       2458
                                                                                                        MTR       2459
3072         3505                         RAD    T5          SET NEW EQUIPMENT                          MTR       2460
                                          NSDJ   RSY7        (NO SHARED DEVICES JUMP)                   MTR       2461
3073         3064                         LDD    OR+4        RESET SHARED FLAG                          MTR       2462
3074         1304                         SCN    4                                                      MTR       2463
3075         5313 7515                    LMM    TSHS,CM+3                                              MTR       2464
3077         3464                         STD    OR+4                                                   MTR       2465
3100         3076                RSY7     LDD    OA          RESET UNIT NUMBER                          MTR       2466
3101         1602                         ADN    2                                                      MTR       2467
3102         6030                         CRD    CS                                                     MTR       2468
3103         5013 7522                    LDM    TSYM,CM+3   SET NEW MST                                MTR       2469
3105         5466 7727                    STM    TPMS,PP                                                273L780     51
3107         1003                         SHN    3                                                      MTR       2471
3110         1616                         ADN    DDLL                                                   MTR       2472
3111         6020                         CRD    CN          READ NEW UNIT LIST                         MTR       2473
3112         1451                         LDN    CN*2+11     SET BYTE POINTER = CN+4 - LU/2             MTR       2474
3113         3230                         SBD    CS                                                     MTR       2475
3114         1021                         SHN    21                                                     MTR       2476
3115         3402                         STD    T2                                                     MTR       2477
3116         1377                         SCN    77                                                     MTR       2478
3117         4302                         LMI    T2                                                     MTR       2479
3120         0702                         MJN    RSY8        IF FIRST UNIT IN BYTE                      MTR       2480
3121         1071                         SHN    -6                                                     MTR       2481
3122                             RSY8     BSS    0                                                      MTR       2482
3122         1277                RSYA     LPN    77                                                     MTR       2483
                                *RSYA     LPN    37          (33502 SYSTEM)                             MTR       2484
3123         0303                RSYB     UJN    RSY9        (NOT 33502 SYSTEM JUMP)                    MTR       2485
                                *RSYB     LMD    CS+1                                                   MTR       2486
3124         1237                         LPN    37                                                     MTR       2487
3125         3331                         LMD    CS+1                                                   MTR       2488
3126         3431                RSY9     STD    CS+1                                                   MTR       2489
                                          N8SJ   RSY10       (NO ISD SUBSYSTEM JUMP)                    MTR       2490
3127         5466 7572                    STM    TCMN,PP                                                273L780     52
3131         2300 0200                    LMC    200         RESTORE READ/SEEK PARAMETER                MTR       2492
3133         3431                         STD    CS+1                                                   MTR       2493
3134         3076                RSY10    LDD    OA          WRITE NEW EQUIPMENT NUMBER                 MTR       2494
3135         1601                         ADN    1                                                      MTR       2495
3136         6204                         CWD    T4                                                     MTR       2496
3137         1601                         ADN    1           WRITE NEW PHYSICAL UNIT NUMBER             MTR       2497
3140         6230                         CWD    CS                                                     MTR       2498
3141                             RSY11    BSS    0                                                      MTR       2499
                                *         UJN    CUI         CHECK UNIT INTERLOCK                       MTR       2500
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                                **        CUI - CHECK FOR UNIT INTERLOCK FREE.                                  MTR       2502
                                *                                                                              MTR       2503
                                *         NOTE THAT THE ACTIVITY COUNT IS NOT INCREMENTED UNTIL AFTER           MTR       2504
                                *         THE SYSTEM SELECTION HAS TAKEN PLACE.  THIS IS DONE TO INSURE         MTR       2505
                                *         EQUAL TREATMENT OF ALL SYSTEM DEVICES.  IT ALSO PREVENTS              MTR       2506
                                *         DEVICE ACTIVITY FROM BEING SET WHEN WAITING FOR STORAGE MOVE.         MTR       2507
                                *                                                                              MTR       2508
                                *         *CUI* SETS THIS PP AS REQUESTING THE UNIT, IF THE UNIT                MTR       2509
                                *         INTERLOCK IS BUSY AND THE REQUEST IS FOR LOGICAL UNIT ZERO.           MTR       2510
                                *                                                                              MTR       2511
                                *         A UNIT REQUEST WILL BE PROCESSED IMMEDIATELY UPON RELEASE OF          MTR       2512
                                *         THE UNIT, INSURING THE SEEK WILL BE INITIATED PRIOR TO                MTR       2513
                                *         ASSIGNING THE CHANNEL TO OTHER REQUESTS.  WITHOUT THIS LOGIC          MTR       2514
                                *         THE CHANNEL MAY BE GIVEN TO A REQUEST WHICH IS ON-CYLINDER            MTR       2515
                                *         THUS PREVENTING THE SEEK FROM BEING INITIATED AND OVERLAPING          MTR       2516
                                *         WITH I/O OPERATIONS.                                                  MTR       2517
                                                                                                              MTR       2518
                                                                                                              MTR       2519
 3141           5066 7727       CUI      MSTA   DALL,PP     ENTRY TO INCREMENT ACTIVITY COUNT                 273L780    53
 3145           6020                     CRD    CN                                                            MTR       2521
 3146           3620                     AOD    CN                                                            MTR       2522
 3147           3021                     LDD    CN+1                                                          MTR       2523
 3150           3363                     LMD    OR+3                                                          MTR       2524
 3151           3221                     SBD    CN+1                                                          MTR       2525
 3152           0633                     PJN    CUI4        IF UNIT INTERLOCK AVAILABLE                       MTR       2526
 3153           2000 3174                LDC    CUI3        RESET ENTRY TO CHECK UNIT INTERLOCK               MTR       2527
 3155           3461                     STD    OR+1                                                          MTR       2528
 3156           3076                     LDD    OA          WRITE UPDATED PROCESSOR ADDRESS                   MTR       2529
 3157           6260                     CWD    OR                                                            MTR       2530
 3160           3063            CUI1     LDD    OR+3                                                          MTR       2531
 3161           1064                     SHN    -13                                                           MTR       2532
 3162           0403                     ZJN    CUI2        IF NOT FIRST UNIT OF DEVICE                       MTR       2533
 3163           3066                     LDD    PP          SET THIS PP AS REQUESTING UNIT                    273L780    54
 3164           3423                     STD    CN+3                                                          MTR       2535
 3165           5066 7727        CUI2    MSTA   DALL,PP                                                      273L780    55
 3171           6220                     CWD    CN                                                            MTR       2537
 3172           0100 2511                LJM    RER         RECHECK INTERLOCK UPON REENTRY                    MTR       2538
                                                                                                              MTR       2539
 3174           5066 7727        CUI3    MSTA   DALL,PP                                                      273L780    56
 3200           6020                     CRD    CN                                                            MTR       2541
 3201           3021                     LDD    CN+1                                                          MTR       2542
 3202           3363                     LMD    OR+3                                                          MTR       2543
 3203           3221                     SBD    CN+1                                                          MTR       2544
 3204           0753                     MJN    CUI1        IF UNIT INTERLOCK SET                             MTR       2545
 3205           3521            CUI4     RAD    CN+1        SET UNIT INTERLOCK                                MTR       2546
 3206           3076                     LDD    OA          READ TRACK                                        MTR       2547
 3207           1601                     ADN    1                                                             MTR       2548
 3210           6004                     CRD    T4                                                            MTR       2549
 3211           3006                     LDD    T6          SET CURRENT POSITION                              MTR       2550
 3212           3422                     STD    CN+2                                                          MTR       2551
 3213           5066 7727                MSTA   DALL,PP     WRITE UPDATED UNIT INTERLOCK                      273L780    57
 3217           6220                     CWD    CN                                                            MTR       2553
 3220           0200 3267                RJM    SCS         SET CHANNEL SELECTION PROCESSING                  MTR       2554
 3222           0161 0000                LJM    0,OR+1      CHECK CHANNEL                                     MTR       2555
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                                          **        PRR - PROCESS PRIORITY REQUEST.                                        MTR        2557
                                          *                                                                                MTR        2558
                                          *         *PRR* IS ENTERED TWICE, FIRST, TO PROCESS A PRIORITY                   MTR        2559
                                          *         REQUEST, AND SECOND, UPON COMPLETION OF PROCESSING A                   MTR        2560
                                          *         PRIORITY REQUEST.                                                      MTR        2561
                                          *                                                                                MTR        2562
                                          *         ENTRY  (A) = (PR) = PRIORITY PP NUMBER ON INITIAL ENTRY.               MTR        2563
                                          *                (A) = (PR) = PP OR ADDRESS FOR SECOND ENTRY.                    MTR        2564
                                          *                                                                                MTR        2565
                                          *         EXIT   TO *RER2* TO PROCESS PRIORITY SEEK REQUEST.                     MTR        2566
                                          *                TO INITIAL RETURN ADDRESS FOR SECOND ENTRY.                     MTR        2567
                                          *                                                                                251L664     165
                                          *         USES   T1, PR.                                                         251L664     166
                                                                                                                           MTR        2568
                                                                                                                           MTR        2569
          3224          0100 3224          PRR      SUBR                ENTRY/EXIT                                         MTR        2570
          3226          3401                        STD    T1                                                              MTR        2572
          3227          1072                        SHN    -5                                                              251L664     167
          3230          0522                        NJN    PRR1         IF NOT INITIAL ENTRY                               MTR        2574
          3231          5000 3225                   LDM    PRR          SAVE EXIT ADDRESS                                  MTR        2575
          3233          5400 3262                   STM    PRRA                                                            MTR        2576
          3235          5001 7445                   LDM    TREA,T1                                                         251L664     168
          3237          2300 2521                   LMC    RER2                                                            MTR        2578
          3241          0516                        NJN    PRR2         IF NOT IN REENTRY PROCESSING                       MTR        2579
          3242          0200 0343                   RJM    TIM                                                             MTR        2580
          3244          3076                        LDD    OA           SET ORIGINAL OUTPUT REGISTER ADDRESS               MTR        2581
          3245          3467                        STD    PR                                                              MTR        2582
          3246          3001                        LDD    T1                                                              251L664     169
          3247          3466                        STD    PP                                                              251L664     170
          3250          0100 0127                   LJM    MTR3         PROCESS PRIORITY REQUEST                           251L664     171
                                                                                                                           MTR        2584
          3252          3067               PRR1     LDD    PR           RESET OUTPUT REGISTER ADDRESS                      MTR        2585
          3253          3476                        STD    OA                                                              MTR        2586
          3254          3265                        SBD    OF           RESET PP NUMBER                                    251L664     172
          3255          1074                        SHN    -3                                                              251L664     173
          3256          3466                        STD    PP                                                              251L664     174
          3257          1400               PRR2     LDN    0                                                               MTR        2587
          3260          3467                        STD    PR                                                              MTR        2588
          3261          0100 3261                   LJM    *            RETURN TO ORIGINAL ENTRY                           MTR        2589
                                   3262    PRRA     EQU    *-1                                                             MTR        2590
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                                **      SCS - SET *DSWM* CHANNEL SELECTION.                                 MTR       2592
                                *                                                                           MTR       2593
                                *       THIS ROUTINE SELECTS THE CHANNEL ASSIGNMENT PROCESSOR BASED         MTR       2594
                                *       UPON THE FOLLOWING TABLE.  THE TABLE CONTAINS ENTRIES FOR           MTR       2595
                                *       EACH OF THE POSSIBLE COMBINATIONS OF THE RELEVANT *DSWM*            MTR       2596
                                *       REENTRY FLAGS.  THE RELEVANT *DSWM* REENTRY FLAGS ARE -             MTR       2597
                                *                                                                           MTR       2598
                                *       BIT    5          ISD DEVICE.                                       MTR       2599
                                *       BIT    4          CHANNEL SELECTED BY CALLER.                       MTR       2600
                                *       BIT    3          SEEK ON SHARED DEVICE.                            MTR       2601
                                *                                                                           MTR       2602
                                *       FLAGS      PROCESSOR     CHANNEL(S)                                 MTR       2603
                                *       0X            C2C           CN+4                                    MTR       2604
                                *       1X            C1C           T4                                      MTR       2605
                                *       2X            C1C           T4                                      MTR       2606
                                *       3X            C1C           T4                                      MTR       2607
                                *       4X            C2M           CN+4                                    MTR       2608
                                *       5X            C1M           T4                                      MTR       2609
                                *       6X            C1M           T4                                      MTR       2610
                                *       7X            C1M           T4                                      MTR       2611
                                *                                                                           252L678     33
                                *       SELECTION OF THE *C2C* OR *C2M* PROCESSOR WILL BE MADE ONLY         252L678     34
                                *       IF NEITHER CHANNEL OF A DUAL ACCESS DEVICE IS BEING IDLED.          252L678     35
                                *                                                                           MTR       2612
                                *       ENTRY  (OR+4) = *DSWM* REENTRY PROCESSING FLAGS.                    MTR       2613
                                *              (CN+4) = CHANNELS FOR UNIT.                                  MTR       2614
                                *              (T4) = CURRENTLY SELECTED CHANNEL.                           MTR       2615
                                *                                                                           MTR       2616
                                *       EXIT   (OR+1) = CHANNEL ASSIGNMENT PROCESSOR.                       MTR       2617
                                *              (OR+3) = CHANNEL(S) FOR ASSIGNMENT PROCESSOR.                MTR       2618
                                *              (OR - OR+4) WRITTEN TO (OA).                                 MTR       2619
                                                                                                            MTR       2620
                                                                                                            MTR       2621
     3263       3463            SCS8    STD    OR+3                                                        252L678     36
     3264       3076            SCS     LDD    OA          WRITE PARAMETERS                                MTR       2632
     3265       6260            SCS     CWD    OR                                                          MTR       2633
                                                                                                            MTR       2634
     3266       0100 3266       SCS     SUBR               ENTRY/EXIT                                   MTR       2635
     3270       3064            SCS     LDD    OR+4                                                        MTR       2636
     3271       1270            SCS     LPN    70                                                          MTR       2637
     3272       0420            SCS     ZJN    SCS5        IF NO SPECIAL PROCESSING, FLAGS = 0X            252L678     37
     3273       1740            SCS     SBN    40                                                          MTR       2639
     3274       0710            SCS     MJN    SCS1        IF NOT ISD DEVICE, FLAGS = 1X, 2X, 3X           MTR       2640
     3275       0414            SCS     ZJN    SCS4        IF NO CHANNEL SELECTION, FLAGS = 4X             252L678     38
     3276       2000 2526       SCS0    LDC    C1M         FLAGS = 5X, 6X, 7X                              252L678     39
     3300       0306            SCS     UJN    SCS2        SELECT SINGLE CONTROL MODULE CHANNEL            MTR       2643
                                                                                                            252L678     40
     3301       3064            SCS0.1  LDD    OR+4                                                        252L678     41
     3302       1240            SCS     LPN    40                                                          252L678     42
     3303       0572            SCS     NJN    SCS0        IF ISD                                          252L678     43
     3304       2000 2601       SCS1    LDC    C1C                                                         252L678     44
     3306       3461            SCS2    STD    OR+1        SET SINGLE CHANNEL PROCESSOR                    252L678     45
     3307       3004            SCS     LDD    T4                                                          252L678     46
     3310       0352            SCS3    UJN    SCS8        STORE OUTPUT REGISTER AND RETURN                252L678     47
                                                                                                            252L678     48
     3311       1513            SCS4    LCN    C2C-C2M                                                     252L678     49
     3312       2100 2555       SCS5    ADC    C2C         CHANNEL SELECTION PROCESSOR                     252L678     50
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3314         3461                     STD    OR+1                                           252L678      51
3315         3024                     LDD    CN+4                                           252L678      52
3316         1014                     SHN    14                                             252L678      53
3317         3401                     STD    T1                                             252L678      54
3320         1063                     SHN    -14                                            252L678      55
3321         3404              SCS6   STD    T4                                             252L678      56
3322         3301                     LMD    T1                                             252L678      57
3323         0455                     ZJN    SCS0.1       IF SINGLE CHANNEL ACCESS          252L678      58
3324         5001 7350                LDM    TCHS,T1                                        252L678      59
3326         1013                     SHN    21-6                                           252L678      60
3327         0754                     MJN    SCS1         IF CHANNEL BEING IDLED            252L678      61
3330         5004 7350                LDM    TCHS,T4                                        252L678      62
3332         1013                     SHN    21-6                                           252L678      63
3333         0603                     PJN    SCS7         IF CHANNEL NOT BEING IDLED        252L678      64
3334         3001                     LDD    T1                                             252L678      65
3335         0363                     UJN    SCS6         SELECT OTHER CHANNEL              252L678      66
                                                                                            252L678      67
3336         3024              SCS7   LDD    CN+4         SET CHANNELS FOR SELECTION        252L678      68
3337         0350                     UJN    SCS3         STORE OUTPUT REGISTER AND RETURN  252L678      69



3340                           TDSWM  BSS    0            TABLE OF *DSWM* SUBFUNCTION PROCESSORS     MTR        2645
                         12           DUP    MXDSWM,1                                       MTR        2646
                                      CON    DSW15                                          NS2726        2
                               TDSWM  HERE                                                  MTR        2648
3352                                  ORG    TDSWM+MXDSWM                                   MTR        2649



                              **      TMSK - TABLE OF SINGLE BIT MASKS                      MTR        2651
                                                                                            MTR        2652
3352                           TMSK   BSS    0                                              MTR        2653
3352         4000                     CON    4000                                           MTR        2654
3353         2000                     CON    2000                                           MTR        2655
3354         1000                     CON    1000                                           MTR        2656
3355         0400                     CON    0400                                           MTR        2657
3356         0200                     CON    0200                                           MTR        2658
3357         0100                     CON    0100                                           MTR        2659
3360         0040                     CON    0040                                           MTR        2660
3361         0020                     CON    0020                                           MTR        2661
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                                ***       HLTM - HALT PP WHILE IN SYSTEM DEBUG MODE.                    MTR      2708
                                *                                                                       MTR      2709
                                *         ENTRY                                                         MTR      2710
                                *T, OR    12/  HLTM,12/,12/,12/,12/                                     MTR      2711
                                *                                                                       MTR      2712
                                *         EXIT   IF SYSTEM DEBUG MODE DISABLED                          MTR      2713
                                *T, OR    60/0                                                          MTR      2714
                                *                                                                       MTR      2715
                                *         EXIT   IF SYSTEM DEBUG MODE ENABLED                           MTR      2716
                                *T, OR    12/  HLTM,12/,12/,12/,12/                                     MTR      2717
                                                                                                        MTR      2718
                                                                                                        MTR      2719
     3362       0014                      PPR    HLTM                                                   MTR      2720
                                                                                                        MTR      2721
     3362       1445                      LDK    SSTL        CHECK SYSTEM DEBUG DISABLED FLAG           MTR      2722
     3363       6010                      CRD    CM                                                     MTR      2723
     3364       3013                      LDD    CM+3                                                   MTR      2724
     3365       1020                      SHN    21-1                                                   MTR      2725
     3366       0617                      PJN    PRL1        IF SYSTEM DEBUG ENABLED                    MTR      2726
                                                                                                        MTR      2727
     3367       2000 0036          HLT1   LDC    MS2W+***    CLEAR PP HUNG MESSAGE AT SYSTEM CP         271L716    73
                           3370     HLTA   EQU    *-1                                                    271L716    74
     3371       6277                      CWD    ZR                                                     MTR      2731
     3372       0315                      UJN    PRL2        RETURN CLEARING OUTPUT REGISTER            MTR      2732
                                ***       PRLM - PAUSE FOR STORAGE RELOCATION.                          MTR      2734
                                *                                                                       MTR      2735
                                *         ENTRY                                                         MTR      2736
                                *T, OR    12/  PRLM,12/,12/,12/,12/                                     MTR      2737
                                *                                                                       MTR      2738
                                *         EXIT                                                          MTR      2739
                                *T, OR    12/  0, 48/                                                   253L688    45
                                                                                                        MTR      2741
                                                                                                        MTR      2742
     3373       0015                      PPR    PRLM                                                   MTR      2743
                                                                                                        MTR      2744
     3373       3044                      LDD    MM.4                                                   271L716    75
     3374       0413                      ZJN    PRL2        IF NO MOVE IN PROGRESS                     MTR      2746
     3375       3066                      LDD    PP          GET ASSIGNED CP/PCP                        273L780    58
     3376       1004                      SHN    PPXES                                                  273L780    59
     3377       2100 0000                 TADC   ACPP,PPX                                               273L780    60
     3401       6010                      CRD    CM                                                     MTR      2749
     3402       3010                      LDD    CM          CHECK CP/PCP ASSIGNMENT                    273L780    61
     3403       3340                      LMD    MM.0                                                   271L716    76
     3404       0503                      NJN    PRL2        IF NOT AT MOVE                             MTR      2754
     3405       0100 1407          PRL1   LJM    FNR         EXIT                                       MTR      2755
                                                                                                        MTR      2756
     3407       0100 1413          PRL2   LJM    FNC         EXIT TO CLEAR OUTPUT REGISTER              253L688    46
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                                 ***       RCHM - REQUEST CHANNEL.                                     MTR        2759
                                 *                                                                     MTR        2760
                                 *         REQUEST ASSIGNMENT OF 1 OF 2 POSSIBLE CHANNELS.             252L678      72
                                 *                                                                     MTR        2762
                                 *         ENTRY                                                       MTR        2763
                                 *T, OR    12/  RCHM,1/R,5/  ,1/C,5/  CH0,6/  ,1/C,5/  CH1,24/         NS2496        2
                                 *         R      SET IF CALLER WANTS IMMEDIATE RETURN IF CHANNEL(S)   NS2496        3
                                 *                DOWN.                                                NS2496        4
                                 *         C      SET IF CONCURRENT CHANNEL IS SPECIFIED BY CHX.       251L664     177
                                 *         CHX    CHANNEL.                                             251L664     178
                                 *                                                                     MTR        2766
                                 *         EXIT                                                        MTR        2767
                                 *T, OR    12/  0,1/R,11/  CH,36/                                      NS2496        5
                                 *         R      SET IF CHANNEL(S) DOWN AND CALLER REQUESTED IMMEDIATE NS2496       6
                                 *                RETURN.  THE *CH* FIELDS ARE UNCHANGED IN THIS CASE. NS2496        7
                                 *         CH     CHANNEL ASSIGNED.                                    252L678      75
                                                                                                       MTR        2770
                                                                                                       MTR        2771
 3411          0016                        PPR    RCHM                                                 MTR        2772
                                                                                                       MTR        2773
 3411          3066                        LDD    PP          GET ASSIGNED CP/PCP                      273L780      62
 3412          1004                        SHN    PPXES                                                273L780      63
 3413          2100 0000                   TADC   ACPP,PPX                                             273L780      64
 3415          6010                        CRD    CM                                                   MTR        2775
 3416          3010                        LDD    CM          CHECK FOR MOVE                           273L780      65
 3417          3340                        LMD    MM.0                                                 271L716      77
 3420          0464                        ZJN    PRL1        IF MOVE REQUEST                          MTR        2784
 3421          3061                        LDD    OR+1                                                 MTR        2785
 3422          1277                        LPN    77                                                   NS2496        8
 3423          0200 7303                   RJM    TCH                                                  MTR        2788
 3425          0503                        NJN    RCH2        IF CHANNEL NOT AVAILABLE                 NS2496        9
 3426          0100 1571          RCH1     LJM    CCH4        RESERVE THE CHANNEL                      NS2496       10
                                                                                                       NS2496       11
 3430          1056               RCH2     SHN    0-21                                                 NS2496       12
 3431          3401                        STD    T1          SAVE CHANNEL STATUS                      NS2496       13
 3432          3062                        LDD    OR+2                                                 NS2496       14
 3433          0511                        NJN    RCH4        IF SECOND CHANNEL SPECIFIED              NS2496       15
 3434          3601                        AOD    T1                                                   NS2496       16
 3435          1076               RCH3     SHN    -1                                                   NS2496       17
 3436          0446                        ZJN    PRL1        IF AT LEAST 1 CHANNEL UP                 NS2496       18
 3437          3061                        LDD    OR+1                                                 NS2496       19
 3440          3256                        SBD    FT                                                   NS2496       20
 3441          0743                        MJN    PRL1        IF REPLY NOT REQUESTED                   NS2496       21
 3442          0100 1413                   LJM    FNC         RETURN REJECT STATUS                     271L716      78
                                                                                                       NS2496       23
 3444          0200 7303          RCH4     RJM    TCH                                                  NS2496       24
 3446          0457                        ZJN    RCH1        IF CHANNEL AVAILABLE                     NS2496       25
 3447          1056                        SHN    0-21                                                 NS2496       26
 3450          3501                        RAD    T1                                                   NS2496       27
 3451          0363                        UJN    RCH3        CHECK FOR BOTH CHANNELS DOWN             NS2496       28
```

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                                ***       RCXM - PERFORM EM TRANSFER DURING ROLLIN/ROLLOUT.              271L716    80
                                *                                                                       271L716    81
                                *         *RCXM* REQUESTS ARE ISSUED BY *1RI* AND *1RO* DURING THE      271L716    82
                                *         ROLLIN/ROLLOUT OF USER EM.  THE ISSUING PP PLACES THE REQUEST 271L716    83
                                *         IN ITS OUTPUT REGISTER AND PERFORMS I/O ASYNCHRONOUSLY WITH   271L716    84
                                *         THE COMPLETION OF THE REQUEST.  *MTR* CHANGES THE REQUEST TO  271L716    85
                                *         AN *ECXM* REQUEST AND PASSES IT ON TO *CPUMTR*.  THE          271L716    86
                                *         APPROPRIATE REQUEST BIT WILL BE SET IN *CPUMTR-S* *PR*        271L716    87
                                *         PROGRAM MODE REQUEST WORD.                                    271L716    88
                                *                                                                       271L716    89
                                *         ENTRY                                                         271L716    90
                                *T, OR    12/ECXM, 1/C, 11/, 12/CPN, 5/, 1/T, 18/ADDR                   271L716    91
                                *         C       SET IF ALTERNATE CP/PCP SPECIFIED.                    271L716    92
                                *         CPN     ALTERNATE CP/PCP NUMBER IF *C* SELECTED.              271L716    93
                                *         T       FUNCTION TYPE -                                       271L716    94
                                *                 0    READ.                                            271L716    95
                                *                 1    WRITE.                                           271L716    96
                                *         ADDR    RESPONSE ADDRESS.                                     271L716    97
                                *                                                                       271L716    98
                                *         EXIT                                                          271L716    99
                                *T, OR    60/0                                                          271L716   100
                                *T, ADDR  12/0, 12/ST, 36/0                                             271L716   101
                                *         ST = STATUS.                                                  271L716   102
                                *              0      NO ERROR IN TRANSFER.                             271L716   103
                                *              7777   ERROR IN TRANSFER.                               271L716   104
                                                                                                        271L716   105
                                                                                                        271L716   106
          3452          0007                PPR     RCXM                                              271L716   107
                                                                                                        271L716   108
          3452          2000 2035           LDC     ECXM+2000   CHANGE FUNCTION TO PROGRAM MODE *ECXM* 271L716   109
          3454          3460                STD     OR                                                271L716   110
          3455          3076                LDD     OA          WRITE OUTPUT REGISTER                 271L716   111
          3456          6260                CWD     OR                                                271L716   112
          3457          3265                SBD     OF          COMPUTE PROGRAM MODE REQUEST STACK BIT 271L716   113
          3460          1074                SHN     -3                                                271L716   114
          3461          1613                ADN     11D                                               271L716   115
          3462          3422                STD     CN+2                                              271L716   116
          3463          1404                LDN     EPRF        ENTER PROGRAM MODE REQUEST            271L716   117
          3464          0200 5112           RJM     CPR                                               271L716   118
          3466          0100 1407           LJM     FNR         RETURN WITHOUT CLEARING PP OR         271L716   119
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                                    ***       SFLM - SET FL INCREASE REJECTED.                       MTR       2804
                                    *                                                                MTR       2805
                                    *         ENTRY                                                  MTR       2806
                                    *T, OR    12/ SFLM,12/ FN,12/ CP,12/,12/                         MTR       2807
                                    *                                                                MTR       2808
                                    *         FN      FUNCTION                                       MTR       2809
                                    *                 1 = SET CM INCREASE REJECTED.                  MTR       2810
                                    *                 2 = SET ECS INCREASE REJECTED.                 MTR       2811
                                    *         CP      CONTROL POINT NUMBER.                          MTR       2812
                                    *                                                                MTR       2813
                                    *         EXIT                                                   MTR       2814
                                    *T, OR    12/ 0,48/                                              MTR       2815
                                                                                                     MTR       2816
                                                                                                     MTR       2817
          3470          0010                  PPR     SFLM                                           MTR       2818
                                                                                                     MTR       2819
                                                                                                     MTR       2820
          3470          3062                  LDD     OR+2                                           MTR       2821
          3471          3246                  SBD     NC                                             MTR       2822
          3472          0626                  PJN     SFR2            IF ILLEGAL CP NUMBER           MTR       2823
          3473          3146                  ADD     NC                                             MTR       2824
          3474          1007                  SHN     7                                              MTR       2825
          3475          1665                  ADN     FLIW                                           MTR       2826
          3476          3463                  STD     OR+3                                           MTR       2827
          3477          6010                  CRD     CM                                             MTR       2828
          3500          3013                  LDD     CM+3                                           MTR       2829
          3501          3114                  ADD     CM+4                                           MTR       2830
          3502          0414                  ZJN     SFR1            IF INCREASE NO LONGER PENDING  MTR       2831
          3503          1500                  LCN     0                                              MTR       2832
          3504          3361                  LMD     OR+1            SET MASK                       MTR       2833
          3505          5400 3511             STM     SFRA                                           MTR       2834
          3507          3011                  LDD     CM+1            SET CORRECT BIT                MTR       2835
          3510          2200 3510             LPC     *                                              MTR       2836
                                    *         LPC     7776            (SET CM INCREASE REJECT)       MTR       2837
                                    *         LPC     7775            (SET ECS INCREASE REJECT)      MTR       2838
                             3511      SFRA   EQU     *-1                                            MTR       2839
          3512          3361                  LMD     OR+1                                           MTR       2840
          3513          3411                  STD     CM+1                                           MTR       2841
          3514          3063                  LDD     OR+3            REWRITE FL INCREASE CONTROL WORD MTR     2842
          3515          6210                  CWD     CM                                             MTR       2843
          3516          0100 1413      SFR1   LJM     FNC             COMPLETE FUNCTION              MTR       2844
                                                                                                     MTR       2845
          3520          0200 1303      SFR2   RJM     HNG             HANG PP                        251L664    179
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                                          ***       RSTM - REQUEST STORAGE.                                   MTR        2848
                                          *                                                                   MTR        2849
                                          *         REQUEST CM OR ECS STORAGE ASSIGNMENT AT CONTROL POINT.    MTR        2850
                                          *         CM AND ECS STORAGE REQUESTS ARE DEFINED TO BE             MTR        2851
                                          *         .GE. 0 AND .LE. 3777B.                                    MTR        2852
                                          *                                                                   MTR        2853
                                          *         A *HUNG PP* WILL BE GENERATED IF ANY OF THE FOLLOWING OCCURS. MTR    2854
                                          *         1) REQUEST FOR ECS AND USER ECS IS NOT DEFINED.           MTR        2855
                                          *         2) REQUEST FOR NEGATIVE FL FOR ECS.                       MTR        2856
                                          *         3) CMR REQUEST FOR NEGATIVE FL.                           273L780      66
                                          *         4) FL REQUEST GREATER THAN 3777B.                         MTR        2858
                                          *         5) A SPECIAL REQUEST WAS MADE BY A PP OTHER THAN *VER*.   MTR        2859
                                          *         6) REQUEST IS FOR AN INVALID CONTROL POINT.               MTR        2860
                                          *                                                                   MTR        2861
                                          *         THERE ARE SEVERAL CHECKS IN MEMORY ALLOCATION WHICH WILL  MTR        2862
                                          *         STOP *MTR* IF SOMETHING IS WRONG.  THIS TYPE OF LOGIC IS  MTR        2863
                                          *         NEEDED TO PRESERVE CONDITIONS AND ENSURE SYSTEM INTEGRITY. MTR       2864
                                          *                                                                   MTR        2865
                                          *         ENTRY                                                     MTR        2866
                                          *                                                                   MTR        2867
                                          *T, OR    12/ RSTM,12/ FL,12/ F,12/ PN,12/                          271L716     121
                                          *         FL      FIELD LENGTH DESIRED (CM FL/100, ECS FL/*UESB*).  271L716     122
                                          *                 IF NEGATIVE, AMOUNT OF CM TO RETURN TO SYSTEM     271L716     123
                                          *                   (SPECIAL *VER* REQUEST ONLY).                   271L716     124
                                          *                                                                   MTR        2875
                                          *         F       FLAG BITS.                                        MTR        2876
                                          *                 BIT  0 = TYPE OF STORAGE REQUEST (1 = XM).        271L716     125
                                          *                      1 = UNUSED.                                  271L716     126
                                          *                      2 = UNUSED.                                  271L716     127
                                          *                      3 = UNUSED.                                  271L716     128
                                          *                      4 = UNUSED.                                  271L716     129
                                          *                      5 = CLEAR STORAGE REQUEST COMPLETE.          271L716     130
                                          *                      6 = SET INCREASE IN *FLIW* IF NOT AVAILABLE. 271L716     131
                                          *                      7 = CHANGE EXECUTION FL (*VER* ONLY).        271L716     132
                                          *                      8 = CM REQUEST IS FOR NEGATIVE FL.           271L716     133
                                          *                      9 = CHANGE CMR SIZE.                         273L780      67
                                          *                     10 = TRANSFER FL FROM CP TO PCP (PSEUDO-ROLLOUT).  273L780  68
                                          *                     11 = TRANSFER FL FROM PCP TO CP (PSEUDO-ROLLIN).   273L780  69
                                          *                                                                   271L716     137
                                          *         PN      PSEUDO-CONTROL POINT NUMBER IF CP/PCP TRANSFER (BIT 10 273L780   70
                                          *                   OR BIT 11 SET).                                 273L780      71
                                          *                                                                   MTR        2882
                                          *         EXIT                                                      MTR        2883
                                          *                                                                   MTR        2884
                                          *T, OR    60/  0                                                    MTR        2885
                                          *         REQUEST HAS BEEN HONORED.                                 MTR        2886
                                          *                                                                   MTR        2887
                                          *T, OR    12/  0,12/  FL,12/,12/,12/                                MTR        2888
                                          *         STORAGE IS NOT AVAILABLE.                                 MTR        2889
                                                                                                              MTR        2890
                                                                                                              MTR        2891
          3522          0017                        PPR    RSTM                                               MTR        2892
                                                                                                              MTR        2893
          3522          3265                        SBD    OF          GET ASSIGNED CP OR PCP                 273L780      72
          3523          1001                        SHN    PPXES-PPCES                                        273L780      73
          3524          2100 0000                   TADC   ACPP,PPX                                           273L780      74
          3526          6010                        CRD    CM                                                 MTR        2895
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3527  3044            LDD   MM.4                                  271L716  139
3530  0403            NJP   FNR          IF MOVE IN PROGRESS     271L716  140
3533  3010            LDD   CM           SET ASSIGNED CP/PCP NUMBER 273L780  75
3534  3474            STD   CP                                    273L780   76
3535  3406            STD   T6                                    271L716  142
3536  0425            ZJN   RST2         IF INVALID CP/PCP NUMBER 273L780   77
3537  5200 6657       SBM   UFLA                                  273L780   78
3541  0622            PJN   RST2         IF INVALID CP/PCP NUMBER 273L780   79
3542  3062            LDD   OR+2                                  271L716  146
3543  1201            LPN   1            SET STORAGE TYPE        271L716  147
3544  3405            STD   T5                                    271L716  148
3545  1702      RSTA  SBN   2                                     MTR     2911
      *           *   SBN   1            (USER ECS UNDEFINED)    MTR     2912
3546  0615            PJN   RST2         IF ILLEGAL REQUEST      271L716  149
3547  3062            LDD   OR+2                                  271L716  150
3550  1066            SHN   0-11                                  271L716  151
3551  0413            ZJN   RST3         IF NOT CP/PCP FL TRANSFER OR CMR REQUEST 273L780  80
3552  1301            SCN   1                                     271L716  153
3553  0504            NJN   RST1         IF PSEUDO-ROLLIN OR PSEUDO-ROLLOUT 271L716  154
3554  3474            STD   CP           SET CMR MCT ORDINAL     273L780   81
3555  3406            STD   T6                                    273L780   82
3556  0306            UJN   RST3         SET FL CONTROL WORD ADDRESS = CMRL 273L780  83
                                                                  273L780   84
3557  3063      RST1  LDD   OR+3                                  271L716  157
3560  3415            STD   T8           SAVE PCP NUMBER         271L716  158
3561  5200 6657       SBM   UFLA                                  271L716  159
3563  0633      RST2  PJN   RST4         IF INVALID PCP NUMBER   271L716  160
3564  5005 6714 RST3  LDM   MAFA,T5                                271L716  161
3566  3463            STD   OR+3         SET FL CONTROL WORD ADDRESS 271L716  162
3567  3074            LDD   CP                                    271L716  163
3570  0200 6470       RJM   SCP          READ FL CONTROL WORD    271L716  164
3572  3163            ADD   OR+3                                  271L716  165
3573  6030            CRD   CS                                    MTR     2917
3574  3062            LDD   OR+2         SET BYTE INDEX          MTR     2918
3575  1071            SHN   -6                                    MTR     2919
3576  1204            LPN   4                                     MTR     2920
3577  1104            LMN   4                                     MTR     2921
3600  3464            STD   OR+4                                  MTR     2922
3601  0517            NJN   RST5         IF NOT NEGATIVE FL REQUEST 271L716  166
3602  3005            LDD   T5                                    271L716  167
3603  0513            NJN   RST4         IF XM REQUEST           271L716  168
3604  3074            LDD   CP                                    271L716  169
3605  0411            ZJN   RST4         IF CMR REQUEST          273L780   85
3606  0200 6560       RJM   STA                                   271L716  171
3610  6010            CRD   CM           GET MCT ENTRY FOR CP    271L716  172
3611  3010            LDD   CM                                    271L716  173
3612  3406            STD   T6           SET MCT ORDINAL TO BACKWARD LINK 271L716  174
3613  3061            LDD   OR+1                                  MTR     2928
3614  1713            SBN   MNFL+1                                MTR     2929
3615  0712            MJN   RST6         IF VALID NFL REQUEST    271L716  175
                                                                  271L716  176
3616  0200 1303 RST4  RJM   HNG          HANG PP                 271L716  177
                                                                  271L716  178
3620  3062      RST5  LDD   OR+2         CHECK FLAG BITS         271L716  179
3621  1012            SHN   21-7                                  271L716  180
3622  0737            MJN   RST8         IF SPECIAL REQUEST      271L716  181
3623  3030            LDD   CS                                    271L716  182
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3624          3161                      ADD    OR+1                                MTR        2942
3625          1064                      SHN    -13                                 MTR        2943
3626          0567                      NJN    RST4        IF REQUEST .GT. 3777    271L716     183
3627          3005               RST6   LDD    T5                                  271L716     184
3630          0414               RSTB   ZJN    RST7        IF NOT AN ECS REQUEST   271L716     185
                                *       UJN    RST7        (SINGLE CPU OR CPU-1 FOR NOS/VE ONLY)  271L716     186
                                *       UJN    RST7        (810/830 ALLOW USER XM ON EITHER CPU)  271L716     187
                                *       UJN    RST7        (865/875 ALLOW ECS ON EITHER CPU)      271L716     188
3631          3046                      LDD    NC                                  271L716     189
3632          3274                      SBD    CP                                  271L716     190
3633          0711                      MJN    RST7        IF PCP                  271L716     191
3634          1401                      LDN    1                                   271L716     192
3635          3414                      STD    CM+4        SET IMPLICIT CPU 0 SELECTION           271L716     193
3636          1401                      LDN    CPUS                                271L716     194
3637          3411                      STD    CM+1        CHANGE JOB CONTROL PARAMETERS          271L716     195
3640          2000 0105                 MONITOR  SJCM                              271L716     196
3644          3076               RST7   LDD    OA          STORE OUTPUT REGISTER   271L716     197
3645          6260                      CWD    OR                                  271L716     198
3646          3062                      LDD    OR+2        CHECK FLAG BITS         271L716     199
3647          1065                      SHN    0-12                                271L716     200
3650          0516                      NJN    RST10       IF PSEUDO CONTROL POINT OPERATION      271L716     201
3651          3061                      LDD    OR+1        CHECK INCREASE          MTR        2961
3652          5264 0030                 SBM    CS,OR+4                             MTR        2962
3654          0514                      NJN    RST12       IF FL CHANGE            271L716     202
3655          0200 6035                 RJM    CFL         CLEAR FL INCREASE REQUEST              271L716     203
3657          0100 1405                 LJM    FNZ         CLEAR OUTPUT REGISTER   271L716     204
                                                                                   271L716     205
3661          0200 6423          RST8   RJM    PVE         CHECK SPECIAL REQUEST FROM *VER*       271L716     206
3663          0627                      PJN    RST17       IF INCREASE             271L716     207
3664          0100 3736          RST9   LJM    RST22       PROCESS DECREASE        271L716     208
                                                                                   271L716     209
3666          0100 3724          RST10  LJM    RST19       PROCESS PCP REQUEST     271L716     210
                                                                                   271L716     211
3670          3407               RST12  STD    T7          SAVE INCREMENT          271L716     212
3671          0621                      PJN    RST17       IF INCREASE             271L716     213
                                                                                   MTR        2969
                                *       PROCESS STORAGE DECREASE.                  MTR        2970
                                                                                   MTR        2971
3672          3074                      LDD    CP                                  271L716     214
3673          0470                      ZJN    RST9        IF CMR REQUEST          273L780      86
3674          1101                      LMN    1                                   271L716     216
3675          0503                      NJN    RST15       IF NOT FIRST CP         271L716     217
3676          3064                      LDD    OR+4                                271L716     218
3677          0464                      ZJN    RST9        IF NEGATIVE FL REQUEST  271L716     219
3700          3074               RST15  LDD    CP                                  271L716     220
3701          1700               RSTE   SBN    **          CHECK CONTROL POINT     271L716     221
                                *       SBN    (NC)-1                              271L716     222
3702          0503                      NJN    RST16       IF NOT LAST CONTROL POINT              271L716     223
3703          3064                      LDD    OR+4                                271L716     224
3704          0557                      NJN    RST9        IF NOT NEGATIVE FL REQUEST             271L716     225
3705          3062               RST16  LDD    OR+2                                271L716     226
                          3705   RSTC   EQU    RST16                               271L716     227
                                *       UJN    RST20       (MEMORY CLEARING NOT ENABLED)          271L716     228
3706          1240                      LPN    40                                  271L716     229
3707          0517                      NJN    RST20       IF STORAGE CLEARED      271L716     230
3710          0100 3756                 LJM    RST26       SET UP *CSTM* REQUEST   271L716     231
                                                                                   271L716     232
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                                        *         PROCESS STORAGE INCREASE.                                 271L716    233
                                                                                                            271L716    234
 3712          3006                      RST17    LDD     T6                                                271L716    235
 3713          0200 6444                          RJM     RSB          FETCH UNASSIGNED MEMORY BLOCK        271L716    236
 3715          3207                               SBD     T7                                                271L716    237
 3716          0610                               PJN     RST20        IF INCREASE POSSIBLE WITH NO MOVE    271L716    238
 3717          0200 6611                          RJM     UFL          CHECK UNASSIGNED FL                  271L716    239
 3721          0711                               MJN     RST21        IF MEMORY NOT AVAILABLE              271L716    240
 3722          0200 6101                          RJM     EMO          EVALUATE MOVE OPTIONS                271L716    241
 3724          0200 6063                 RST19    RJM     CRA          CHANGE REFERENCE ADDRESS             271L716    242
 3726          0200 6344                 RST20    RJM     MFL          MODIFY FIELD LENGTH                  271L716    243
 3730          0100 1405                          LJM     FNZ          CLEAR OUTPUT REGISTER                271L716    244
                                                                                                            271L716    245
 3732          0200 6515                 RST21    RJM     SFL          SET FL INCREASE                      271L716    246
 3734          0100 1413                          LJM     FNC          COMPLETE FUNCTION                    MTR       3013
                                                                                                            MTR       3014
                                        *         MOVE CP 1 ON CMR DECREASE.                                273L780     87
                                        *         MOVE LAST CONTROL POINT ON DECREASE.                      MTR       3016
                                        *         MOVE CP 1 ON CP 1 NEGATIVE FL DECREASE.                   MTR       3017
                                                                                                            MTR       3018
 3736          3074                      RST22    LDD     CP           SET REQUESTING CP                    271L716    247
 3737          3443                               STD     MM.3                                              271L716    248
 3740          0502                               NJN     RST23        IF NOT CMR REQUEST                   273L780     88
 3741          1401                               LDN     1                                                 271L716    250
 3742          3440                      RST23    STD     MM.0         SET CP/PCP FOR MOVE                  271L716    251
 3743          5400 6007                          STM     AMVB                                              271L716    252
 3745          1101                               LMN     1                                                 271L716    253
 3746          0402                               ZJN     RST24        IF CMR REQUEST OR CP 1               273L780     89
 3747          1500                               LCN     0                                                 271L716    255
 3750          3307                      RST24    LMD     T7           SET MOVE INCREMENT                   271L716    256
 3751          3441                               STD     MM.1                                              271L716    257
 3752          0200 6344                          RJM     MFL          MODIFY FIELD LENGTH                  271L716    258
 3754          0100 6125                          LJM     EMO3         INITIATE MOVE                        271L716    259
                                                                                                            271L716    260
 3756          3076                      RST26    LDD     OA           SAVE *RSTM* REQUEST IN MB+5          271L716    261
 3757          1606                               ADN     6                                                 MTR       3037
 3760          6260                               CWD     OR                                                MTR       3038
 3761          2000 0400                          LDC     400          SET SPECIAL *CSTM* REQUEST           MTR       3039
 3763          3461                               STD     OR+1                                              MTR       3040
 3764          2000 4031                          LDC     CSTM+4000                                         MTR       3041
 3766          3460                               STD     OR                                                MTR       3042
 3767          3076                               LDD     OA                                                MTR       3043
 3770          6260                               CWD     OR                                                MTR       3044
 3771          0100 1407                          LJM     FNR          WAIT FOR *CSTM* TO COMPLETE          MTR       3045
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***       SEQM - SET EQUIPMENT PARAMETERS.                                  MTR       3048
*                                                                           MTR       3049
*         ENTRY.                                                            MTR       3050
*T, OR    12/ SEQM,12/ P0,12/ SF,12/ P1,12/ P2                              251L664    181
*         WHERE -                                                           MTR       3052
*         P0     EST ORDINAL FOR ALL SUBFUNCTIONS EXCEPT CCNS, ICNS.        MTR       3053
*                FOR SF = DNCS, IF *P0* = 0 THEN UNCONFIGURED CHANNEL       252L678    80
*                IS BEING GLOBALLY DOWNED.                                  252L678    81
*         P0     CONTROL POINT NUMBER FOR FUNCTIONS CCNS, ICNS.             MTR       3054
*                (IF 4000B + CONTROL POINT NUMBER, *P2* = ALTERNATE         MTR       3055
*                EJT ORDINAL).                                              MTR       3056
*         SF     SUBFUNCTION CODE.                                          MTR       3057
*                ONES =  0 = ON EQUIPMENT.                                  MTR       3058
*                IDES =  1 = IDLE EQUIPMENT.                                MTR       3059
*                OFES =  2 = OFF EQUIPMENT.                                 MTR       3060
*                DWES =  3 = DOWN EQUIPMENT.                                MTR       3061
*                SB0S =  4 = SET BYTE 0 OF EST.                             MTR       3062
*                SB1S =  5 = SET BYTE 1 OF EST.                             MTR       3063
*                SB2S =  6 = SET BYTE 2 OF EST.                             MTR       3064
*                SB3S =  7 = SET BYTE 3 OF EST.                             MTR       3065
*                SB4S = 10 = SET BYTE 4 OF EST.                             MTR       3066
*                DNCS = 11 = DOWN CHANNEL.                                  MTR       3067
*                UPCS = 12 = UP CHANNEL.                                    MTR       3068
*                       13 = RESERVED.                                      MTR45        1
*                CCNS = 14 = RELEASE CHANNEL FROM MAINTENANCE JOB.          MTR45        2
*                ICNS = 15 = ASSIGN CHANNEL TO MAINTENANCE JOB.             MTR45        3
*                       16 = RESERVED.                                      MTR45        4
*                       17 = RESERVED.                                      MTR45        5
*                SMNS = 20 = SET EQUIPMENT MNEMONIC.                        MTR45        6
*                CSES = 21 = CLEAR SUSPECT FLAG.                            MTR45        7
*                SSES = 22 = SET SUSPECT FLAG.                              MTR45        8
*                CRES = 23 = CLEAR RESTRICT NEW ACTIVITY FLAG.              MTR45        9
*                SRES = 24 = SET RESTRICT NEW ACTIVITY FLAG.                MTR45       10
*                       25 = RESERVED.                                      MTR45       11
*                CKPS = 26 = CHECKPOINT SYSTEM.                             MTR45       12
*                                                                           MTR       3081
*         P1     EQUIPMENT MNEMONIC FOR SUBFUNCTION SMNS.                   MTR       3082
*         P1     MASK FOR SUBFUNCTIONS SB0S - SB4S.                         MTR       3083
*         P1     6/ 0,6/ CH  FOR SF = DNCS, UPCS, CCNS AND ICNS.            252L678    90
*                CH = CHANNEL, INCLUDING CONCURRENCY FLAG.                  252L678    91
*         P2     VALUE FOR SUBFUNCTIONS SB0S - SB4S.                        MTR       3086
*         P2     MUX CHANNEL INDICATOR FOR SUBFUNCTIONS DNCS, UPCS.         MTR       3087
*         P2     ALTERNATE EJT ORDINAL TO ASSIGN/RELEASE CHANNEL            MTR       3088
*                TO/FROM FOR FUNCTIONS CCNS, ICNS, IF *P0* = 4000B +        MTR       3089
*                CONTROL POINT NUMBER.                                      MTR       3090
*                                                                           MTR       3095
*         EXIT.                                                             MTR       3096
*                                                                           MTR       3097
*T, OR    12/  0,48/  UNCHANGED.                                            MTR       3098
*                REQUEST HAS BEEN HONORED.                                  NS2454       2
*                                                                           MTR       3099
*T, OR    60/ 0 FOR SUBFUNCTIONS ONES, IDES AND OFES WHEN THE DEVICE IS     MTR       3100
*                DOWN AND ASSIGNED TO A DIAGNOSTIC.                         MTR       3101
*                                                                           MTR       3102
*T, OR    60/ 0 FOR SUBFUNCTION DWES WHEN ATTEMPTING TO DOWN THE LAST       MTR       3103
*                SYSTEM DEVICE.                                             MTR       3104
*                                                                           MTR       3105
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                                *T, OR    12/ 0,12/ ST,36/ UNCHANGED   FOR SUBFUNCTION DNCS WHEN UNABLE NS2454      3
                                *                                      TO PROCESS REQUEST NORMALLY.     NS2454      4
                                *            ST = 0  IF ONLY ONE NON-DOWN ACCESS REMAINS ON A           252L678     92
                                *                    NON-DOWN DEVICE.                                   252L678     93
                                *                                                                       NS2454      9
                                *T, OR    60/ 0 FOR SUBFUNCTION UPCS WHEN -                            NS2454     10
                                *                  A MAINTENANCE USER IS ACTIVE ON THE CHANNEL.          MTR       3110
                                *                                                                       MTR       3114
                                *         HANG CONDITIONS -                                             MTR       3115
                                *                                                                       MTR       3116
                                *         MUX CHANNEL AND CONCURRENT CHANNEL SPECIFIED ON               251L664    193
                                *         UP/DOWN CHANNEL REQUEST (SUBFUNCTIONS DNCS, UPCS)            251L664    194
                                *         THE VALUE OF THE CHANNEL DESCRIPTOR (1/C,5/CH)               251L664    195
                                *         EXCEEDS 51B (SUBFUNCTIONS DNCS, UPCS, CCNS, ICNS).           251L664    196
                                *         FOR SUBFUNCTION CCNS IF CHANNEL NOT ASSIGNED                  MTR       3119
                                *         TO CALLER (OR ALTERNATE EJT ORDINAL).                         MTR       3120
                                                                                                        MTR       3121
                                                                                                        MTR       3122
     3773       0020                    PPR    SEQM                                                     MTR       3123
                                                                                                        MTR       3124
     3773       3066                    LDD    PP          GET ASSIGNED CP/PCP                          273L780     90
     3774       1004                    SHN    PPXES                                                    273L780     91
     3775       2100 0000               TADC   ACPP,PPX                                                 273L780     92
     3777       6010                    CRD    CM                                                       MTR40        3
     4000       3010                    LDD    CM          CHECK FOR MOVE                               273L780     93
     4001       3340                    LMD    MM.0                                                     271L716    262
     4002       0503                    ZJP    FNR         IF MOVE IN PROGRESS                          MTR40        8
     4005       3062                    LDD    OR+2        CHECK SUBFUNCTION                            MTR       3125
     4006       1714                    SBN    CCNS                                                     MTR       3126
     4007       0430                    ZJN    SEQ4        IF MAINTENANCE JOB REQUEST                   MTR24        1
     4010       1701                    SBN    ICNS-CCNS                                                MTR24        2
     4011       0426                    ZJN    SEQ4        IF MAINTENANCE JOB REQUEST                   MTR24        3
     4012       1712                    SBN    TSEQL-ICNS                                               MTR24        4
     4013       0703                    MJN    SEQ2        IF VALID SUBFUNCTION                         MTR24        5
     4014       0200 1303          SEQ1 RJM    HNG         HANG PP                                      251L664    199
                                                                                                        MTR24        7
     4016       3061               SEQ2 LDD    OR+1        FETCH EST ENTRY                              MTR24        8
     4017       0200 7346               SFA    EST                                                      MTR       3141
                                        ADK    EQDE                                                     MTR       3142
     4021       6030                    CRD    CS                                                       NS2454      11
     4022       3062                    LDD    OR+2                                                     MTR24        9
     4023       1711                    SBN    DNCS                                                     MTR24       10
     4024       0507                    NJN    SEQ3        IF NOT DOWN CHANNEL REQUEST                  MTR24       11
     4025       3061                    LDD    OR+1                                                     MTR24       12
     4026       0505                    NJN    SEQ3        IF EST ORDINAL SPECIFIED                     MTR24       13
     4027       3056                    LDD    FT                                                       252L678     94
     4030       3411                    STD    CM+1                                                     252L678     95
     4031       0100 4365               LJM    DNC10       SET GLOBAL DOWN FLAG                         252L678     96
                                                                                                        MTR24       15
     4033       2000 0000          SEQ3 LDC    0           VALIDATE EST ORDINAL                         271L716    263
                           4034     SEQA EQU    *-1                                                      271L716    264
     4035       3261                    SBD    OR+1                                                     271L716    265
     4036       0755                    MJN    SEQ1        IF INVALID ORDINAL                           271L716    266
     4037       5062 4453          SEQ4 LDM    TSEQM,OR+2  SET PROCESSOR ADDRESS                        MTR24       19
     4041       3415                    STD    T8                                                       MTR       3150
     4042       3063                    LDD    OR+3        GET MASK                                     MTR       3151
     4043       0115 0000               LJM    0,T8        JUMP TO PROCESSOR                            MTR       3152
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                                                                                                   MTR       3153


                                         ***        SST - SET EQUIPMENT STATE.                     MTR       3155
                                         *          ON, IDLE, OFF, DOWN EQUIPMENT.                 MTR       3156
                                                                                                   MTR       3157
                                                                                                   MTR       3161
          4045                            SST       SUBFUN SEQM,DWES   DOWN EQUIPMENT              251L664    203
          4045          3030                        LDD    CS                                      NS2454      12
          4046          1006                        SHN    21-13                                   MTR       3164
          4047          0703                        PJP    SST4        IF NOT MASS STORAGE         251L664    204
          4052          1001                        SHN    13-12                                   MTR       3166
          4053          0626                        PJN    SST3        IF NOT SYSTEM DEVICE        251L664    205
          4054          1500                        LCN    0                                       MTR       3168
          4055          3401                        STD    T1                                      MTR       3169
          4056          3402                        STD    T2                                      MTR       3170
          4057          3602                      SST1     AOD    T2          INCREMENT NON-DOWN SYSTEM DEVICE COUNT     251L664    206
          4060          3601                      SST1.1   AOD    T1          ADVANCE SYSTEM DEVICE TABLE INDEX          251L664    207
          4061          5001 7522                   LDM    TSYM,T1                                 MTR       3173
          4063          0411                        ZJN    SST2        IF END OF SYSTEM DEVICE LIST                     251L664    208
          4064          1003                        SHN    3                                       MTR       3175
          4065          1612                        ADK    DALL                                    MTR       3176
          4066          6020                        CRD    CN                                      NS2454      13
          4067          3020                        LDD    CN                                      NS2454      14
          4070          1067                        SHN    0-10                                    MTR       3179
          4071          1103                        LMN    3                                       MTR       3180
          4072          0564                        NJN    SST1        IF NOT DOWN, COUNT IT       251L664    209
          4073          0364                        UJN    SST1.1      AVOID COUNTING DOWN DEVICE  251L664    210
                                                                                                   MTR       3183
          4074          3002                      SST2     LDD    T2                               251L664    211
          4075          1076                        SHN    -1                                      MTR       3185
          4076          0503                        ZJP    FNZ         IF ONLY ONE NON-DOWN SYSTEM DEVICE REMAINS MTR    3186
          4101          3061                      SST3     LDD    OR+1                             251L670      1
          4102          3411                        STD    CM+1                                    251L670      2
          4103          1453                        MONITOR  CDAM      CHECK DEVICE ACTIVITY       251L670      3
          4106          3011                        LDD    CM+1                                    251L670      4
          4107          0403                        NJP    FNR         IF ACTIVITY REMAINS         MTR       3193
                                                                                                   251L664    213
          4112                                    SST4     SUBFUN SEQM,(ONES,IDES,OFES)            251L664    214
          4112          3030                        LDD    CS          SET NEW DOWN BIT            NS2454      20
          4113          1303                        SCN    3                                       251L664    215
          4114          3362                        LMD    OR+2                                    MTR       3207
          4115          3430                        STD    CS                                      NS2454      21
          4116          3062                        LDD    OR+2        BITS TO SET 2/ STATE, 1/ SUSPECT, 1/     MTR       3210
          4117          1002                        SHN    2                                       MTR       3211
          4120          3362                        LMD    OR+2                                    252L678     97
          4121          1216                        LPN    16                                      252L678     98
          4122          1014                        SHN    14                                      MTR       3213
          4123          1116                        LMN    16                                      MTR       3214
          4124          0317                        UJN    SST9        SET STATE IN MST            MTR       3215
                                                                                                   MTR       3216
                                         *          SET/CLEAR SUSPECT BIT.                         MTR       3217
                                                                                                   MTR       3218
          4125                                    SST5     SUBFUN SEQM,SSES                        MTR       3219
          4125          2002 0002                   LDC    20002                                   MTR       3220
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4127         0314                   UJN    SST9        SET SUSPECT BIT                            MTR       3221
                                                                                                  MTR       3222
4130                        SST6    SUBFUN SEQM,CSES   CLEAR SUSPECT BIT                          MTR       3223
4130         3030                   LDD    CS                                                     NS2454      22
4131         1202                   LPN    2                                                      251L664    217
4132         0403                   NJP    FNC         IF OFF OR DOWN, DO NOT CLEAR SUSPECT       251L664    218
4135         1402                   LDN    2                                                      MTR       3227
4136         0305                   UJN    SST9        ADJUST BITS IN MST                         MTR       3228
                                                                                                  MTR       3229
                           *        SET/CLEAR RESTRICT NEW ACTIVITY BIT.                          MTR       3230
                                                                                                  MTR       3231
4137                        SST7    SUBFUN SEQM,SRES   SET RESTRICT NEW ACTIVITY BIT              MTR       3232
4137         2001 0001              LDC    10001                                                  MTR       3233
4141         0302                   UJN    SST9        SET BIT IN MST                             MTR       3234
                                                                                                  MTR       3235
4142                        SST8    SUBFUN SEQM,CRES   CLEAR RESTRICT NEW ACTIVITY BIT            MTR       3236
4142         1401                   LDN    1                                                      MTR       3237
4143         3414           SST9    STD    CM+4        SET BITS TO CHANGE                         MTR       3238
4144         1063                   SHN    -14                                                    MTR       3239
4145         3412                   STD    CM+2        NEW BIT VALUES                             MTR       3240
4146         3030                   LDD    CS                                                     NS2454      23
4147         1006                   SHN    21-13                                                  MTR       3246
4150         0627                   PJN    SMN1        IF NOT MASS STORAGE                        NS2454      24
4151         1414                   LDN    SSTS        SET EQUIPMENT STATE BITS VIA CPUMTR        MTR       3248
4152         3413                   STD    CM+3                                                   MTR       3249
4153         3061                   LDD    OR+1        SET EQUIPMENT                              MTR       3250
4154         3411                   STD    CM+1                                                   MTR       3251
4155         1442                   MONITOR  SMDM                                                 253L688     47
4160         3011                   LDD    CM+1                                                   MTR       3253
4161         0416                   ZJN    SMN1        IF DEVICE NOT ASSIGNED TO DIAGNOSTIC       252L678     99
4162         0100 1405              LJM    FNZ         REJECT FUNCTION                            252L678    100



                           ***      SEB - SET EST BYTES.                                          MTR       3262
                                                                                                  MTR       3263
                                                                                                  MTR       3264
4164                        SEB     SUBFUN SEQM,(SB0S,SB1S,SB2S,SB3S,SB4S)  SET BYTES OF EST      MTR       3265
4164         5400 4171              STM    SEBA        SET CLEARING MASK                          MTR       3266
4166         5062 0024              LDM    CS-SB0S,OR+2                                           NS2454      27
4170         2200 0000              LPC    0                                                      MTR       3268
                      4171  SEBA    EQU    *-1                                                    MTR       3269
4172         3364                   LMD    OR+4        MERGE IN NEW BITS                          MTR       3270
4173         5462 0024              STM    CS-SB0S,OR+2                                           NS2454      28
4175         0302                   UJN    SMN1        WRITE EST TO MEMORY                        MTR       3272
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                                   ***      SMN - SET EQUIPMENT MNEMONIC.                               MTR       3274
                                                                                                        MTR       3275
                                                                                                        MTR       3276
          4176                      SMN      SUBFUN SEQM,SMNS                                           MTR       3277
          4176         3433                  STD    CS+3                                                NS2454      29
          4177         3061         SMN1     SFA    EST,OR+1    UPDATE EST ENTRY                        252L678    101
                                             ADK    EQDE                                                252L678    102
          4202         6230                  CWD    CS                                                  252L678    103
          4203         0100 1413             LJM    FNC         COMPLETE FUNCTION                       252L678    104


                                   ***      UPC - UP CHANNEL.                                           252L678    106
                                                                                                        MTR       3285
                                                                                                        MTR       3286
          4205                      UPC      SUBFUN  SEQM,UPCS  UP CHANNEL                              252L678    107
          4205         3064                  LDD    OR+4                                                252L678    108
          4206         0516                  NJN    UPC2        IF MUX CHANNEL                          252L678    109
          4207         3063                  LDD    OR+3                                                252L678    110
          4210         0200 7327             RJM    VCN         VERIFY CHANNEL NUMBER                   252L678    111
          4212         5063 7350             LDM    TCHS,OR+3                                           MTR       3290
          4214         1240                  LPN    40                                                  MTR       3291
          4215         0407                  ZJN    UPC2        IF NOT GLOBALLY DOWN                    252L678    112
          4216         3063                  LDD    OR+3                                                MTR       3293
          4217         0200 7143             RJM    GCE                                                 MTR       3294
          4221         0403                  ZJN    UPC2        IF CHANNEL NOT ASSIGNED TO JOB          252L678    113
          4222         0100 1405    UPC1     LJM    FNZ         REJECT FUNCTION                         252L678    114
                                                                                                        252L678    115
          4224         1400         UPC2     LDN    UPSS                                                252L678    116
          4225         0200 7267             RJM    RCS         REQUEST CHANNEL STATE CHANGE            252L678    117
          4227         0472                  ZJN    UPC1        IF FUNCTION REJECTED                    252L678    118
          4230         3064                  LDD    OR+4                                                252L678    119
          4231         0507                  NJN    UPC3        IF MUX CHANNEL                          252L678    120
          4232         3637                  AOD    CF          SET CHANNEL TABLE UPDATE FLAG           252L678    121
          4233         5063 7350             LDM    TCHS,OR+3   ENSURE GLOBAL DOWN BIT CLEAR            252L678    122
          4235         1340                  SCN    40                                                  252L678    123
          4236         5463 7350             STM    TCHS,OR+3                                           252L678    124
          4240         0100 1413    UPC3     LJM    FNC         COMPLETE FUNCTION                       252L678    125


                                   ***      DNC - DOWN CHANNEL.                                         252L678    127
                                                                                                        252L678    128
                                                                                                        252L678    129
          4242                      DNC      SUBFUN SEQM,DNCS   DOWN CHANNEL                            252L678    130
          4242         3064                  LDD    OR+4                                                252L678    131
          4243         0506                  NJN    DNC1        IF MUX CHANNEL                          252L678    132
          4244         3063                  LDD    OR+3                                                252L678    133
          4245         0200 7327             RJM    VCN         VERIFY CHANNEL NUMBER                   252L678    134
                                                                                                        252L678    135
                                   *        CHECK FOR DOWNING LAST ACCESS TO NON-DOWN DEVICE.           252L678    136
                                                                                                        252L678    137
          4247         3030                  LDD    CS                                                  252L678    138
          4250         1006                  SHN    21-13                                               252L678    139
          4251         0703         DNC1     PJP    DNC9        IF NOT MASS STORAGE                     252L678    140
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4254         1402                        LDN    2                                        252L678    141
4255         3401                        STD    T1                                       252L678    142
4256         3701               DNC2     SOD    T1                                       252L678    143
4257         0607                        PJN    DNC3        IF NOT END OF CHECK          252L678    144
4260         3030                        LDD    CS                                       252L678    145
4261         1203                        LPN    3                                        252L678    146
4262         1103                        LMN    3                                        252L678    147
4263         0415                        ZJN    DNC4        IF DEVICE IS DOWN            252L678    148
4264         0100 1405                   LJM    FNZ         REJECT FUNCTION              252L678    149
                                                                                         252L678    150
4266         5001 0031          DNC3     LDM    CS+1,T1                                  252L678    151
4270         1006                        SHN    21-13                                    252L678    152
4271         0664                        PJN    DNC2        IF ACCESS NOT PRESENT OR DISABLED 252L678    153
4272         1001                        SHN    13-12                                    252L678    154
4273         0762                        MJN    DNC2        IF CHANNEL DOWN              252L678    155
4274         1070                        SHN    12-21                                    252L678    156
4275         1277                        LPN    77                                       252L678    157
4276         3363                        LMD    OR+3                                     252L678    158
4277         0456                        ZJN    DNC2        IF NOT ALTERNATE PATH        252L678    159
4300         3034               DNC4     LDD    CS+4        READ *STLL* FROM MST         MTR56        1
4301         1003                        SHN    3                                        MTR56        2
4302         1615                        ADN    STLL                                     MTR56        3
4303         6010                        CRD    CM                                       MTR56        4
4304         3011                        LDD    CM+1        CHECK *1MV* ACTIVE ON DEVICE MTR56        5
4305         1012                        SHN    21-7                                     MTR56        6
4306         0734                        MJN    DNC7        IF *1MV* ACTIVE, LEAVE REQUEST PENDING MTR56  7
4307         5002 7350                   LDM    TCHS,T2     SET IDLEDOWN FLAG IN CHANNEL TABLE MTR56  8
4311         2277 7677                   LPC    -100                                     252L678    161
4313         3371                        LMD    HN                                       252L678    162
4314         5402 7350                   STM    TCHS,T2                                  252L678    163
4316         3437                        STD    CF          SET CHANNEL TABLE UPDATE FLAG 252L678   164
                                                                                         252L678    165
                               *         REQUEST *CPUMTR* TO SET CHANNEL STATE = *IDLE*. 252L678    166
                                                                                         252L678    167
4317         1404                        LDK    SICS        REQUEST CHANNEL STATE CHANGE 252L678    168
4320         0200 7267                   RJM    RCS                                      252L678    169
                                                                                         252L678    170
                               *         CHECK FOR ACTIVITY ON 834/836 DEVICE THROUGH CHANNEL BEING 252L678 171
                               *         DOWNED.                                         252L678    172
                                                                                         252L678    173
4322         3033                        LDD    CS+3                                     252L678    174
4323         2300 0407                   LMC    2RDG                                     MTR56        9
4325         0403                        ZJN    DNC5        IF 836 DEVICE                252L678    177
4326         1103                        LMN    1RD&1RG                                  252L678    178
4327         0515                        NJN    DNC8        IF NOT 834 DEVICE            252L678    179
4330         1410               DNC5     LDN    10          CHECK *TCMA* ENTRIES         252L678    180
4331         3401                        STD    T1                                       252L678    181
4332         3701               DNC6     SOD    T1                                       252L678    182
4333         0711                        MJN    DNC8        IF ALL *TCMA* ENTRIES CHECKED 252L678   183
4334         5001 7564                   LDM    TCMA,T1                                  252L678    184
4336         0473                        ZJN    DNC6        IF NO ACTIVITY ON THIS CONTROL MODULE 252L678 185
4337         1071                        SHN    -6                                       252L678    186
4340         3363                        LMD    OR+3                                     252L678    187
4341         0570                        NJN    DNC6        IF ACTIVITY THROUGH DIFFERENT CHANNEL 252L678 188
4342         0100 1407          DNC7     LJM    FNR         LEAVE REQUEST PENDING        252L678    189
                                                                                         252L678    190
                               *         CHECK FOR SEEK PENDING THROUGH THIS CHANNEL ON A SHARED 252L678 191
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                                   *         NONBUFFERED DEVICE.                                          MTR55        1
                                                                                                          252L678    193
         4344     3030              DNC8     LDD   CS                                                     252L678    194
         4345     2200 1060                  LPC   1060                                                   MTR55        2
         4347     1014                       SHN   21-5                                                   MTR55        3
         4350     0711                       MJN   DNC9         IF BUFFERED DEVICE                        MTR55        4
         4351     0410                       ZJN   DNC9         IF NOT A SHARED DEVICE                    252L678    196
         4352     5063 7350                  LDM   TCHS,OR+3                                              252L678    197
         4354     1237                       LPN   37                                                     252L678    198
         4355     0564                       NJN   DNC7         IF CHANNEL IS ASSIGNED                    252L678    199
         4356     5063 7640                  LDM   TSCA,OR+3                                              252L678    200
         4360     0561                       NJN   DNC7         IF SEEK PENDING THROUGH THIS CHANNEL      252L678    201
                                                                                                          252L678    202
                                   *         REQUEST *CPUMTR* TO SET THE CHANNEL STATE = *DOWN*.          252L678    203
                                                                                                          252L678    204
         4361     1401              DNC9     LDK   DWSS         REQUEST CHANNEL STATE CHANGE              252L678    205
         4362     0200 7267                  RJM   RCS                                                    252L678    206
         4364     0455                       ZJN   DNC7         IF REQUEST WAS REJECTED                   252L678    207
         4365     3064              DNC10    LDD   OR+4                                                   252L678    208
         4366     0515                       NJN   DNC11        IF MUX CHANNEL                            252L678    209
                                                                                                          252L678    210
                                   *         CLEAR THE IDLEDOWN AND GLOBAL DOWN FLAGS IN THE CHANNEL      252L678    211
                                   *         TABLE.                                                       252L678    212
                                                                                                          252L678    213
         4367     5063 7350                  LDM   TCHS,OR+3                                              252L678    214
         4371     2277 7637                  LPC   -140                                                   252L678    215
         4373     5463 7350                  STM   TCHS,OR+3                                              252L678    216
                                                                                                          252L678    217
                                   *         SET THE GLOBAL DOWN FLAG IF THE CHANNEL IS GLOBALLY DOWN.    252L678    218
                                                                                                          252L678    219
         4375     3011                       LDD   CM+1                                                   252L678    220
         4376     3437                       STD   CF           SET CHANNEL UPDATE FLAG                   252L678    221
         4377     1064                       SHN   0-13                                                   252L678    222
         4400     1005                       SHN   5-0                                                    252L678    223
         4401     5563 7350                  RAM   TCHS,OR+3                                              252L678    224
         4403     0100 1413         DNC11    LJM   FNC          COMPLETE THE FUNCTION                     252L678    225



                                   ***       AMC - ASSIGN/RELEASE CHANNEL TO/FROM MAINTENANCE JOB.        252L678    227
                                                                                                          252L678    228
                                                                                                          MTR       3366
         4405                       AMC      SUBFUN SEQM,(CCNS,ICNS)                                      MTR       3367
                                   *         LDD   OR+3         GET CHANNEL ASSIGNMENT STATUS             252L678    229
         4405     0200 7143                  RJM   GCE                                                    252L678    230
         4407     3061                       LDD   OR+1         CHECK FOR ALTERNATE EJT ORDINAL           MTR       3369
         4410     1006                       SHN   21-13                                                  MTR       3370
         4411     0603                       PJN   AMC1         IF NO ALTERNATE EJT ORDINAL               MTR       3371
         4412     3064                       LDD   OR+4                                                   MTR       3372
         4413     3420                       STD   CN                                                     NS2454      70
         4414     3062              AMC1     LDD   OR+2                                                   MTR       3374
         4415     1115                       LMN   ICNS                                                   MTR       3375
         4416     0520                       NJN   AMC5         IF RELEASE CHANNEL                        252L678    231
         4417     5063 7350                  LDM   TCHS,OR+3                                              MTR       3377
         4421     1140                       LMN   40                                                     MTR       3378
         4422     0403                       ZJN   AMC3         IF CHANNEL GLOBALLY DOWN                  252L678    232
```

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4423         0100 1405           AMC2     LJM    FNZ          REJECT FUNCTION                        252L678     233
                                                                                                     252L678     234
4425         4001                AMC3     LDI    T1                                                  252L678     235
4426         0574                         NJN    AMC2         IF CHANNEL ASSIGNED TO A JOB           252L678     236
4427         3020                         LDD    CN           INSERT NEW EST ORDINAL                 252L678     237
4430         4401                AMC4     STI    T1                                                  252L678     238
4431         2000 0000                    LDC    0            WRITE CHANNEL ASSIGNMENT TABLE         MTR        3384
                        4432     SEQB     EQU    *-1                                                 MTR        3385
4433         3100                         ADD    T0           ADD CORRECT WORD INDEX                 MTR        3386
4434         6210                         CWD    CM                                                  MTR        3387
4435         0314                         UJN    CKP1         COMPLETE FUNCTION                      252L678     239
                                                                                                     252L678     240
4436         3020                AMC5     LDD    CN           CHECK EST ORDINAL                      252L678     241
4437         4301                         LMI    T1                                                  252L678     242
4440         0467                         ZJN    AMC4         IF CHANNEL ASSIGNED TO THIS JOB        252L678     243
4441         0200 1303                    RJM    HNG          HANG PP                                252L678     244


                                 ***      CKP - FORCE SYSTEM CHECKPOINT.                             252L678     246
                                                                                                     252L678     247
                                                                                                     243L647      18
4443                             CKP      SUBFUN SEQM,CKPS                                           243L647      19
4443         5000 1004                    LDM    PHED+2       SET *1MB* FUNCTION FLAG                252L678     248
4445         1320                         SCN    SPCP                                                252L678     249
4446         1120                         LMN    SPCP                                                252L678     250
4447         5400 1004                    STM    PHED+2                                              252L678     251
4451         0100 1413           CKP1     LJM    FNC          COMPLETE FUNCTION                      252L678     252


4453                             TSEQM    BSS    0                                                   MTR        3488
                          27              DUP    MXSEQM,1                                            MTR        3489
                                          CON    HNG1                                                251L664     289
                          27     TSEQL    EQU    MXSEQM                                              MTR        3491
                                 TSEQM    HERE                                                       MTR        3492
4502                                      ORG    TSEQM+MXSEQM                                        MTR        3493
```

```
          ***       DSRM - DSD REQUESTS.                                      MTR        3495
          *                                                                   MTR        3496
          *         NOTE - THIS FUNCTION WILL BE HONORED ONLY FROM *DSD*, OR IF   MTR        3497
          *                REQUEST *SET EMERGENCY STEP* AND BIT 57 OF *SCRL* SET. MTR        3498
          *                REQUEST 02 - SET DATE AND TIME - WILL BE ACCEPTED FROM MTR        3499
          *                NON-DSD PROGRAMS TO SUPPORT *PLATO* MMF MODE.      MTR        3500
          *                                                                   MTR        3501
          *         ENTRY                                                     MTR        3502
          *T, OR    12/  DSRM,6/  P,6/  SF,36/  P                             NS2726        3
          *         P = PARAMETERS                                            MTR        3504
          *         SF = SUBFUNCTION CODE                                     NS2726        4
          *                                                                   MTR        3511
          *         EXIT   (CM - CM+4) = (SCRL).                              MTR        3512
          *                                                                   MTR        3513
          *         USES   T7.                                                MTR        3514
          *                                                                   NS2726        5
          *         SUBFUNCTION MSPS - SET MONITOR STEP.                      NS2726        6
          *                                                                   NS2726        7
          *         ENTRY                                                     NS2726        8
          *T, OR    12/  DSRM,6/  BN,6/  MSPS,12/  EO,12/  FN,12/  BV         NS2726        9
          *         BN = BYTE NUMBER TO STEP ON.                              NS2726       10
          *         EO = EJT ORDINAL.  ZERO IF ALL EXECUTING JOBS.            NS2726       11
          *         FN = FUNCTION TO STEP.  ZERO IF ALL FUNCTIONS.            NS2726       12
          *         BV = BYTE VALUE TO STEP ON.                               NS2726       13
          *         IF B = 0, THEN                                            NS2726       14
          *            V = 2/,1/  F,2/,7/  FN                                 NS2726       15
          *            WHERE F = 1 IF FN IS *CPUMTR* FUNCTION.                NS2726       16
          *                                                                   NS2726       17
          *         EXIT                                                      NS2726       18
          *T, OR    60/  0                                                    NS2726       19
          *                                                                   NS2726       20
          *         SUBFUNCTION STPS - STEP MONITOR.                          NS2726       21
          *                                                                   NS2726       22
          *         ENTRY                                                     NS2726       23
          *T, OR    12/  DSRM,6/  ,6/  STPS,36/                               NS2726       24
          *                                                                   NS2726       25
          *         EXIT                                                      NS2726       26
          *T, OR    60/  0                                                    NS2726       27
          *                                                                   NS2726       28
          *         SUBFUNCTION EDTS - ENTER DATE AND TIME.                   NS2726       29
          *                                                                   NS2726       30
          *         ENTRY                                                     NS2726       31
          *T, OR    12/  DSRM,6/  ,6/  EDTS,12/  ADDR,24/                     NS2726       32
          *                                                                   NS2726       33
          *         ADDR   ADDRESS + 1 OF MESSAGE BUFFER                      NS2726       34
          *                                                                   NS2726       35
          *T, MB+1  60/  JULIAN DATE                                          NS2726       36
          *T, MB+2  60/  PACKED DATE AND TIME                                 NS2726       37
          *T, MB+3  60/  TIME                                                 NS2726       38
          *T, MB+4  60/  DATE                                                 NS2726       39
          *T, MB+5  12/  DAY LIMIT, 48/  UNUSED                               NS2726       40
          *                                                                   NS2726       41
          *         EXIT                                                      NS2726       42
          *                                                                   NS2726       43
          *T, OR    60/  0                                                    NS2726       44
          *                                                                   NS2726       45
          *         SUBFUNCTION ESPS - SET EMERGENCY STEP.                    NS2726       46
```

```
                                  *                                                        NS2726      47
                                  *         ENTRY                                          NS2726      48
                                  *T, OR    12/  DSRM,6/  BN,6/  MSPS,12/  0,12/  FN,12/  BV   NS2726      49
                                  *         BN = BYTE NUMBER TO STEP ON.                   NS2726      50
                                  *         FN = FUNCTION TO STEP.                         NS2726      51
                                  *         BV = BYTE VALUE TO STEP ON.                    NS2726      52
                                  *         IF B = 0, THEN                                 NS2726      53
                                  *            V = 2/,1/  F,2/,7/  FN                      NS2726      54
                                  *            WHERE F = 1 IF FN IS *CPUMTR* FUNCTION.     NS2726      55
                                  *                                                        NS2726      56
                                  *         EXIT                                           NS2726      57
                                  *T, OR    60/  0                                         NS2726      58
                                  *                                                        NS2726      59
                                  *         SUBFUNCTION CSPS - CLEAR MONITOR STEP.         NS2726      60
                                  *                                                        NS2726      61
                                  *         ENTRY                                          NS2726      62
                                  *T, OR    12/  DSRM,6/  ,6/ CSPS,36/                     NS2726      63
                                  *                                                        NS2726      64
                                  *         EXIT                                           NS2726      65
                                  *T, OR    60/  0                                         NS2726      66
                                  *                                                        NS2726      67
                                  *         SUBFUNCTION SKCS - SET K DISPLAY COMPLETE BIT. NS2726      68
                                  *                                                        NS2726      69
                                  *         ENTRY                                          NS2726      70
                                  *T, OR    12/  DSRM,6/ SF,6/ SKCS,12/  CPA,12/           NS2726      71
                                  *                                                        NS2726      72
                                  *         SF = LEFT/RIGHT SCREEN FLAG                    NS2726      73
                                  *            = 0 IF LEFT SCREEN                          NS2726      74
                                  *            = 1 IF RIGHT SCREEN                         NS2726      75
                                  *         CPA = CONTROL POINT ADDRESS                    NS2726      76
                                  *                                                        NS2726      77
                                  *         EXIT                                           NS2726      78
                                  *T, OR    60/  0                                         NS2726      79
                                                                                           MTR       3515
                                                                                           MTR       3516
          4502          0006                PPR    DSRM                                    MTR       3517
                                                                                           MTR       3518
          4502          3057                LDD    SC                                      NS2373       1
          4503          6010                CRD    CM                                      NS2373       2
          4504          3066                LDD    PP                                      273L780     94
          4505          1701                SBN    1            CHECK REQUESTER            273L780     95
          4506          0412                ZJN    DSR1         IF *DSD*                   MTR       3521
          4507          3061                LDD    OR+1         CHECK FOR TIME SET         MTR       3522
          4510          1702                SBN    2                                       NS2373       4
          4511          0407                ZJN    DSR1         IF TIME SET                NS2373       5
          4512          0717                MJN    DSR2         IF NOT VALID *1MB* REQUEST NS2373       6
          4513          1703                SBN    5-2                                     NS2373       7
          4514          0615                PJN    DSR2         IF NOT VALID *1MB* REQUEST NS2373       8
          4515          3010                LDD    CM                                      MTR       3529
          4516          1010                SHN    21-11                                   MTR       3530
          4517          0612                PJN    DSR2         IF NOT *1MB* REQUEST       MTR       3531
          4520          3061      DSR1      LDD    OR+1                                    MTR       3532
          4521          1277                LPN    77                                      MTR       3533
          4522          3407                STD    T7                                      MTR       3534
          4523          5007 4701           LDM    TDSRM,T7      SET REQUEST PROCESSOR     NS2726      80
          4525          3407                STD    T7                                      MTR       3536
                                                                                           NS2373       9
```

```
                                *       EXIT TO PROCESSOR WITH                                  NS2373    10
                                *            (A) = 0.                                           NS2373    11
                                *            (CM - CM+4) = *SCRL*.                              NS2373    12
                                                                                                NS2373    13
 4526           1400                        LDN    0                                           NS2373    14
 4527           0107 0000                   LJM    0,T7        ENTER PROCESSOR                 MTR       3537
                                                                                                MTR       3538
 4531           0200 1303       DSR2        RJM    HNG         HANG PP                         251L664    290
```

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                                **      SES - SET EMERGENCY STEP.                               NS2373    16
                                *                                                               NS2373    17
                                *       EXIT   TO *MSP*.                                        NS2373    18
                                                                                                NS2373    19
                                                                                                NS2373    20
 4533                            SES    SUBFUN DSRM,ESPS                                        NS2726    81
 4533           1401                    LDN    1           SET EMERGENCY STEP FLAG             NS2726    82
                                *       UJN    MSP         EXIT TO *MSPS* PROCESSOR            NS2726    83
```

```
                                **      MSP - SET MONITOR STEP.                                 MTR       3541
                                *                                                               MTR       3542
                                *       EXIT   TO *FNZ* TO CLEAR OUTPUT REGISTER.               NS2726     84
                                *                                                               MTR       3551
                                *       USES   CM, CN+2.                                        NS2726     85
                                *                                                               NS2726     86
                                *       CALLS  CPR.                                             NS2726     87
                                *                                                               NS2726     88
                                *       MACROS ISTORE.                                          NS2726     89
                                                                                                MTR       3554
                                                                                                MTR       3555
 4534                            MSP    SUBFUN DSRM,MSPS                                        NS2726     90
 4534           1601                    ADN    1           SET STEP FLAG POSITION              NS2726     91
 4535           1007                    SHN    7                                               NS2373     24
 4536           3400                    STD    T0                                              NS2373     25
 4537           2377 7777               LMC    -0          STEP FLAG MASK                      NS2373     26
 4541           5400 4545               STM    MSPA                                            NS2373     27
 4543           3010                    LDD    CM                                              NS2373     28
 4544           2200 0000               LPC    0                                               NS2373     29
                       4545     MSPA    EQU    *-1                                             NS2373     30
 4546           3300                    LMD    T0          SET STEP FLAG                       NS2373     31
 4547           3410                    STD    CM                                              NS2373     32
 4550           3057                    LDD    SC                                              NS2373     33
 4551           6210                    CWD    CM                                              NS2373     34
 4552           3062                    LDD    OR+2        SET EJT ORDINAL                     NS2373     35
 4553           5400 7010               STM    CFSA                                            MTR       3557
 4555           3063                    LDD    OR+3        SET FUNCTION TO TRAP                MTR       3558
 4556           5400 7034               STM    CFSB                                            MTR       3559
 4560           3061                    LDD    OR+1        SET BYTE NUMBER TO STEP             MTR       3560
 4561           1071                    SHN    -6                                              MTR       3561
 4562           5400 7043               STM    CFSC                                            MTR       3562
 4564           3064                    LDD    OR+4        SET BYTE VALUE TO STEP              MTR       3563
 4565           5400 7045               STM    CFSD                                            MTR       3564
```

```
4567  2000 0000          ISTORE MTRB,(UJN MTR1)  FORCE CHECK OF CPP OUTPUT REGISTERS  MTR27    2
4573  2000 0000          ISTORE PPRA,(UJN  MSC)  SET TRANSFER TO *MSC*               251L664  291
4577  5400 1430          STM    MSCA                                                 MTR      3572

4601  1400               LDN    0           SET STEP MODE                            NS2726   92
4602  3422               STD    CN+2                                                 NS2726   93
4603  1410               LDN    MSCF        CHANGE STEP MODE CONTROL                 NS2726   94
4604  0200 5112          RJM    CPR                                                  MTR      3574
4606  0100 1405          LJM    FNZ         EXIT TO CLEAR OUTPUT REGISTER            MTR      3575

                    **    CMS - CLEAR MONITOR STEP MODE.                            MTR      3577
                    *                                                               MTR      3578
                    *     EXIT   STEP MODE CLEARED.                                 NS2726   95
                    *            TO *STP* TO CLEAR OUTPUT REGISTER.                 NS2726   96
                    *                                                               NS2726   97
                    *     USES   CM, CN+2, T7, OR - OR+4.                           NS2726   98
                    *                                                               NS2726   99
                    *     CALLS  CPR.                                               NS2726   100
                    *                                                               NS2726   101
                    *     MACROS ISTORE.                                            NS2726   102
                                                                                    MTR      3581
                                                                                    MTR      3582
4610                CMS   SUBFUN DSRM,CSPS                                        NS2726   103
4610  3010               LDD    CM          CLEAR STEP SET                           NS2726   104
4611  2200 6177          LPC    6177                                                 NS2373   37
4613  3410               STD    CM                                                   NS2373   38
4614  3057               LDD    SC                                                   NS2373   39
4615  6210               CWD    CM                                                   NS2373   40
4616  2000 0000          CMSA   ISTORE MTRB,(NJN MTR1)  RESET CONDITIONAL CPP CHECKING  MTR27    3
                    *     ISTORE MTRB,(UJN MTR2)  (NO CPP-S PRESENT)                MTR27    4
4622  2000 0000          ISTORE PPRA,(SBN CPUM)  RESET *PPR* PROCESSING            NS2418   31

4626  1401               LDN    1           CLEAR STEP MODE                          NS2726   105
4627  3422               STD    CN+2                                                 NS2726   106
4630  1410               LDN    MSCF        CHANGE STEP MODE CONTROL                 NS2726   107
4631  0200 5112          RJM    CPR                                                  MTR      3586
4633  3065               LDD    OF          SET PP 2                                 MTR      3587
4634  1620               ADN    20                                                   MTR      3588
4635  3407               STD    T7                                                   MTR      3589
4636  3007               CMS1   LDD    T7          READ OUTPUT REGISTER               MTR      3590
4637  6060               CRD    OR                                                   MTR      3591
4640  3060               LDD    OR                                                   MTR      3592
4641  1010               SHN    21-11                                                MTR      3593
4642  0607               PJN    CMS2        IF *MTR* FUNCTION OR NOT STEPPED         MTR      3594
4643  1003               SHN    11-6                                                 MTR      3595
4644  1064               SHN    6-21                                                 MTR      3596
4645  3356               LMD    FT                                                   NS2373   42
4646  3460               STD    OR                                                   MTR      3597
4647  3007               LDD    T7                                                   MTR      3598
4650  6260               CWD    OR                                                   MTR      3599
4651  1410               CMS2   LDN    10          ADVANCE PP                         MTR      3601
4652  3507               RAD    T7                                                   MTR      3602
4653  3265               SBD    OF                                                   MTR      3603
4654  1074               SHN    -3                                                   MTR      3604
4655  3345               LMD    NP                                                   MTR      3605
4656  0557               NJN    CMS1        IF NOT LAST PP                           MTR      3606
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                                *         UJN    STP          EXIT TO CLEAR OUTPUT REGISTER                NS2373     43


                                **        STP - STEP MONITOR.                                               MTR       3616
                                *                                                                           MTR       3617
                                *         EXIT   STEP MODE SET IF ENTERED FROM *STPS* SUBFUNCTION.          NS2726     109
                                *                STEP MODE CLEARED IF ENTERED FROM *CSPS* SUBFUNCTION.      NS2726     110
                                *                TO *FNZ* TO CLEAR OUTPUT REGISTER.                         NS2726     111
                                                                                                            MTR       3620
                                                                                                            MTR       3621
          4657                   STP     SUBFUN DSRM,STPS                                                  NS2726     112
          4657        5400 1430          STM    MSCA                                                       NS2726     113
          4661        0100 1405  STP1     LJM    FNZ          EXIT TO CLEAR OUTPUT REGISTER                MTR       3624


                                **        EDT - ENTER DATE AND TIME.                                        MTR       3626
                                *                                                                           MTR       3627
                                *         EXIT   *ADTF* FUNCTION ISSUED TO *CPUMTR* TO ALTER DATE AND       NS2726     115
                                *                  TIME.                                                    NS2726     116
                                *                TO *STP1* TO CLEAR OUTPUT REGISTER.                        NS2726     117
                                *                                                                           MTR       3629
                                *         USES   CN.                                                        NS2726     118
                                *                                                                           MTR       3631
                                *         CALLS  CPR.                                                       NS2726     119
                                                                                                            MTR       3643
                                                                                                            MTR       3644
          4663                   EDT     SUBFUN DSRM,EDTS                                                  NS2726     120
          4663        3062               LDD    OR+2         SET BUFFER ADDRESS                            NS2726     121
          4664        3420               STD    CN                                                         253L688     49
          4665        1417               LDN    ADTF         CALL *CPUMTR* TO ENTER DATE AND TIME          253L688     50
          4666        0200 5112          RJM    CPR                                                        MTR       3657
          4670        0370               UJN    STP1         EXIT TO CLEAR OUTPUT REGISTER                 MTR       3658


                                **        SKC - SET K DISPLAY COMPLETE BIT.                                 NS2726     123
                                *                                                                           NS2726     124
                                *         EXIT   *SKCF* FUNCTION ISSUED TO *CPUMTR* TO SET K DISPLAY        NS2726     125
                                *                  COMPLETE BIT.                                            NS2726     126
                                *                TO *STP1* TO CLEAR OUTPUT REGISTER.                        NS2726     127
                                *                                                                           NS2726     128
                                *         USES   CN+1, CN+2.                                                NS2726     129
                                *                                                                           NS2726     130
                                *         CALLS  CPR.                                                       NS2726     131
                                                                                                            MTR       3674
                                                                                                            MTR       3681
          4671                   SKC     SUBFUN DSRM,SKCS                                                  NS2726     132
          4671        3061               LDD    OR+1         SET LEFT/RIGHT SCREEN FLAG                    NS2726     133
          4672        3421               STD    CN+1                                                       NS2726     134
          4673        3062               LDD    OR+2         SET CP ADDRESS                                NS2726     135
          4674        3422               STD    CN+2                                                       NS2726     136
          4675        1420               LDN    SKCF         CALL *CPUMTR* TO SET COMPLETE BIT             NS2726     137
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4676         0200 5112                   RJM    CPR                                         NS2726     138
4700         0360                        UJN    STP1         EXIT TO CLEAR OUTPUT REGISTER  NS2726     139

4701                             TDSRM   BSS    0                                           NS2726     141
                          6              DUP    MXDSRM,1                                    NS2726     142
                                         CON    HNG1                                        NS2726     143
                          6      TDSRL   EQU    MXDSRM                                      NS2726     144
                                 TDSRM   HERE                                               NS2726     145
4707                                     ORG    TDSRM+MXDSRM                                NS2726     146
                                                                                            MTR       3682
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                                **        CCP - CHECK CENTRAL PROGRAM.                                    MTR       3693
                                *                                                                         MTR       3694
                                *         THE CONTENTS OF THE CPU OUTPUT REGISTER, (RA+1), ARE CHECKED   MTR       3695
                                *         AND *CPUMTR* IS REQUESTED TO PROCESS THE REQUEST.              MTR       3696
                                *         UPDATES CPU ASSIGNMENTS AMD PRIORITIES.                        MTR       3697
                                *                                                                        MTR       3698
                                *         USES   CM - CM+4, CS - CS+4, OR - OR+4, T1, T7.                MTR       3699
                                *                                                                        MTR       3700
                                *         CALLS  AVC, CPR, MST.                                          MTR       3701
                                                                                                         MTR       3702
                                                                                                         MTR       3703
 4707          1467              CCP6     LDN    SMRL        CHECK STORAGE MOVE COMPLETE                 MTR       3704
 4710          6010                       CRD    CM                                                      MTR       3705
 4711          3010                       LDD    CM                                                      MTR       3706
 4712          0514                       NJN    CCP1        IF MOVE NOT COMPLETE                        MTR       3707
 4713          0200 5531         CCP7     RJM    MST.        PROCESS COMPLETION                          MTR       3708
 4715          0311                       UJN    CCP1        CHECK RA+1                                  MTR       3709
                                                                                                         MTR       3710
 4716                            CCP8     BSS    0           SET OTHER CPU                               MTR       3711
 4716          5000 4730         CCPD     LDM    CCPB                                                    MTR       3712
                                *         UJN    CCPX        (SINGLE CPU)                                MTR       3713
                          0               ERRNZ  ACPL-ACPL/2*2  *ACPL* MUST BE EVEN                     MTR       3714
 4720          1101                       LMN    1                                                       MTR       3715
 4721          5400 4730                  STM    CCPB                                                    MTR       3716
                                                                                                         MTR       3717
 4723          0100 4723         CCP      SUBR                ENTRY/EXIT                              MTR       3718
                                                                                                         MTR       3719
                                *         CHECK STORAGE MOVE STATUS.                                     MTR       3720
                                                                                                         MTR       3721
 4725          0000              CCPA     CON    0                                                       MTR       3722
                                *         UJN    CCP6        (STORAGE MOVE IN PROGRESS)                  MTR       3723
 4726          0200 0254         CCP1     RJM    AVC         ADVANCE CLOCK                               MTR       3724
 4730          1460              CCPB     LDN    ACPL        READ ADDRESS OF ACTIVE RA                   MTR       3725
                                *         LDN    ACPL+1      (CHECKING CPU 1)                            MTR       3726
 4731          3407                       STD    T7                                                      MTR       3727
 4732          6010                       CRD    CM                                                      MTR       3728
 4733          3010                       LDD    CM                                                      MTR       3729
 4734          0461                       ZJN    CCP8        IF NO RA+1 TO CHECK                         MTR       3730
 4735          0306              CCPC     UJN    CCP2        READ RA+1                                   MTR       3731
                                                                                                         MTR       3732
                                *         SHN    6           (CME PRESENT)                               MTR       3733
                                                                                                         MTR       3734
 4736          3461                       STD    OR+1                                                    MTR       3735
 4737          1006                       SHN    6                                                       MTR       3736
 4740          3460                       STD    OR                                                      MTR       3737
 4741          2460                       LRD    OR                                                      MTR       3738
 4742          1440                       LDN    40                                                      MTR       3739
 4743          1014              CCP2     SHN    14                                                      MTR       3740
 4744          3111                       ADD    CM+1                                                    MTR       3741
 4745          1601                       ADN    1           READ RA+1                                   MTR       3742
 4746          6060                       CRD    OR                                                      MTR       3743
 4747          3060                       LDD    OR                                                      MTR       3744
 4750          0412                       ZJN    CCP4        IF (RA+1) = 0                               MTR       3745
                                                                                                         MTR       3746
                                *         REQUEST *CPUMTR* TO PROCESS (RA+1) REQUEST.                    MTR       3747
                                                                                                         MTR       3748
 4751          1466                       LDN    ZERL                                                    271L716    267
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4752          6020                     CRD    CN                                   271L716    268
                            0          ERRNZ  CCPF         CODE REQUIRES VALUE     271L750     16
4753          3007                     LDD    T7           REQUEST (RA+1) CHECK    MTR       3753
4754          1760                     SBN    ACPL                                 MTR       3754
4755          1014                     SHN    14                                   MTR       3755
4756          0200 5112                RJM    CPR                                  MTR       3756
4760          0100 4716       CCP3     LJM    CCP8         SET OTHER CPU           MTR       3757
                                                                                   MTR       3758
4762          3012            CCP4     LDD    CM+2                                 MTR       3759
4763          3113                     ADD    CM+3                                 MTR       3760
4764          0473                     ZJN    CCP3         IF NO SUB-CONTROL POINT MTR       3761
4765          3051                     LDD    TM+2         CHECK FOR LIMIT         MTR       3762
4766          3212                     SBD    CM+2                                 MTR       3763
4767          0506                     NJN    CCP5         IF LIMIT PASSED OR NOT REACHED MTR 3764
4770          3052                     LDD    TM+3                                 MTR       3765
4771          3213                     SBD    CM+3                                 MTR       3766
4772          0503                     NJN    CCP5         IF LIMIT PASSED OR NOT REACHED MTR 3767
4773          3053                     LDD    TM+4                                 MTR       3768
4774          3214                     SBD    CM+4                                 MTR       3769
4775          0762            CCP5     MJN    CCP3         IF LIMIT NOT REACHED    MTR       3770
4776          3007                     LDD    T7           SET CPU NUMBER          MTR       3771
4777          1760                     SBN    ACPL                                 MTR       3772
5000          1014                     SHN    14                                   MTR       3773
5001          1603                     ADN    CSLF         CHECK SUB-CONTROL POINT LIMIT MTR  3774
5002          0200 5112                RJM    CPR                                  MTR       3775
5004          0353                     UJN    CCP3         SET NEXT CPU            MTR       3776


                             **        CCS - CHECK FOR CPU SWITCH.                 MTR       3778
                             *                                                     MTR       3779
                             *         EXIT   CPU SWITCH INITIATED AS NEEDED.      271L750     17
                             *                                                     MTR       3784
                             *         USES   T7, CM - CM+4, CN - CN+4.            271L750     18
                             *                                                     271L716    270
                             *         CALLS  CPR.                                 271L716    271
                                                                                   271L716    272
                                                                                   271L716    273
                             *         REQUEST CPU SWITCH.  *CSWF* IS ISSUED IF A SWITCH REQUEST WAS 271L750 19
                             *         DETECTED IN *CSWL* SO THAT *CPR* WILL NOT RETRY IF THE  271L750  20
                             *         EXCHANGE REQUEST IS REJECTED.  IF THE CPU IS ALREADY IN 271L750  21
                             *         MONITOR MODE, *CPUMTR* WILL MOST LIKELY DETECT THE *CSWL* 271L750 22
                             *         REQUEST ON EXIT FROM MONITOR MODE.          271L750     23
                                                                                   271L716    280
5005          1401            CCS8     LDN    CSWF         SET SWITCH CPU FUNCTION 271L750     24
5006          1006            CCS9     SHN    6                                    271L750     25
5007          3107                     ADD    T7                                   271L750     26
5010          1014                     SHN    14                                   271L750     27
5011          0200 5112                RJM    CPR          REQUEST CPU SWITCH      271L750     28
                                                                                   271L750     29
5013          0100 5013       CCS      SUBR                ENTRY/EXIT              271L716    281
                                                                                   271L750     30
                             *         CHECK CPU SWITCH REQUEST AND CPU SLICE EXPIRED.  271L750  31
                                                                                   271L750     32
5015          5000 5103                LDM    CCSB         TOGGLE CPU NUMBER IF DUAL CPU 271L750 33
5017          1103            CCSA     LMN    3                                    271L750     34
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                              *      LMN    0           (SINGLE CPU)                   271L750     35
5020          5400 5103              STM    CCSB                                       271L750     36
5022          1201                   LPN    1           SET CPU NUMBER                 271L750     37
5023          3407                   STD    T7                                         271L750     38
5024          1662                   ADN    CSWL                                       271L750     39
5025          6020                   CRD    CN                                         271L750     40
5026          1677                   ADN    TSCL-CSWL                                  271L750     41
5027          6010                   CRD    CM                                         271L716    286
5030          3020                   LDD    CN                                         271L750     42
5031          1006                   SHN    21-13                                      271L750     43
5032          0752                   MJN    CCS8        IF CPU SWITCH REQUESTED        271L750     44
5033          3051                   LDD    TM+2        CHECK CPU SLICE LIMIT          271L750     45
5034          3222                   SBD    CN+2                                       271L750     46
5035          0506                   NJN    CCS1        IF LIMIT PASSED OR NOT REACHED 271L750     47
5036          3052                   LDD    TM+3                                       271L750     48
5037          3223                   SBD    CN+3                                       271L750     49
5040          0503                   NJN    CCS1        IF LIMIT PASSED OR NOT REACHED 271L750     50
5041          3053                   LDD    TM+4                                       271L716    297
5042          3224                   SBD    CN+4                                       271L750     51
5043          0703            CCS1   MJN    CCS3        IF NOT TIME TO SWITCH CPU      271L750     52
5044          1412            CCS2   LDN    TCSF        SET TIME SLICE CPU SWITCH FUNCTION 271L750  53
5045          0340                   UJN    CCS9        SWITCH CPU                     271L750     54
                                                                                       271L750     55
                              *      CHECK RECALL SLICE EXPIRED.                       271L750     56
                                                                                       271L750     57
5046          3010            CCS3   LDD    CM          CHECK RECALL FLAG              271L750     58
5047          1021                   SHN    21-0                                       271L750     59
5050          0642            CCS4   PJN    CCSX        IF RECALL SLICE NOT IN EFFECT  271L750     60
5051          3051                   LDD    TM+2        CHECK RECALL CPU SLICE LIMIT   271L750     61
5052          3212                   SBD    CM+2                                       271L750     62
5053          0506                   NJN    CCS5        IF LIMIT PASSED OR NOT REACHED 271L750     63
5054          3052                   LDD    TM+3                                       271L750     64
5055          3213                   SBD    CM+3                                       271L750     65
5056          0503                   NJN    CCS5        IF LIMIT PASSED OR NOT REACHED 271L750     66
5057          3053                   LDD    TM+4                                       271L750     67
5060          3214                   SBD    CM+4                                       271L750     68
5061          0726            CCS5   MJN    CCS7        IF RECALL CPU SLICE NOT EXPIRED 271L750    69
5062          2000 0160              LDC    WQRL        GET *WQ* POINTER               271L750     70
5064          6020                   CRD    CN                                         271L750     71
5065          3023            CCS6   LDD    CN+3                                       271L750     72
5066          1277                   LPN    77                                         271L716    325
5067          1014                   SHN    14                                         271L716    326
5070          3324                   LMD    CN+4                                       271L750     73
5071          0456                   ZJN    CCS4        IF JOB WAS REMOVED FROM *WQ*   271L750     74
5072          6020                   CRD    CN                                         271L750     75
5073          2000 0161              LDC    TSCL        GET PRIORITY OF JOB IN THIS CPU 271L750    76
5075          3107                   ADD    T7                                         271L750     77
5076          6010                   CRD    CM                                         271L750     78
5077          3020                   LDD    CN          COMPARE PRIORITIES AND FLAGS   271L750     79
5100          3210                   SBD    CM                                         271L750     80
5101          0706                   MJN    CCS7        IF PRIORITY/FLAGS DO NOT ALLOW CPU SWITCH 271L750  81
5102          3022                   LDD    CN+2        CHECK CPU SELECTION AND BYPASS FLAG 271L750 82
5103          1206            CCSB   LPN    6                                          271L750     83
                              *      LPN    5           (CHECKING CPU 1)               271L750     84
5104          0560                   NJN    CCS6        IF CANNOT ASSIGN CPU TO JOB    271L750     85
5105          0100 5044              LJM    CCS2        SWITCH CPU                     271L750     86
                                                                                       271L716    346
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5107          0100 5013           CCS7      LJM     CCSX          RETURN                            271L750      87


                                 **         CPR - CPUMTR REQUEST PROCESSOR.                            MTR         3853
                                 *                                                                     MTR         3854
                                 *          *CPUMTR* WILL TYPICALLY BE IN MONITOR MODE ON EXIT.        MTR         3855
                                 *                                                                     MTR         3856
                                 *          ENTRY  (A) BITS 0 - 11 = REQUEST.                          MTR         3857
                                 *                 (A) BITS 12 - 17 = CPU NUMBER.                      MTR         3858
                                 *                 (CN - CN+3) = PARAMETERS.                           271L716      395
                                 *                                                                     MTR         3860
                                 *          EXIT   (MTRJ) = MAXIMUM WAIT TO MONITOR EXCHANGE TIME.     251L664      294
                                 *                                                                     MTR         3862
                                 *          USES   CN+3, CN+4, T1, T2, CM - CM+4.                      273L780       96
                                 *                                                                     MTR         3864
                                 *          CALLS  TIM, WXP.                                           MTR         3865
                                 *                                                                     271L750       88
                                 *          MACROS ISTORE.                                             273L780       97
                                                                                                       MTR         3866
                                                                                                       MTR         3867
5111          0100 5111           CPR       SUBR                  ENTRY/EXIT                        MTR         3868
5113          3424                          STD     CN+4          SET REQUEST                       MTR         3869
5114          1063                CPRB      SHN     -14                                             MTR         3870
                                 *          UJN     CPR1          (1 CPU ONLY)                      MTR         3871
5115          2300 2610                     LMC     MXNI          SET *MXN* INSTRUCTION             MTR         3872
5117          5400 5201                     STM     MXN                                             MTR         3873
5121          1207                          LPN     7             SET (A0)                          MTR         3874
5122          1006                          SHN     6                                               MTR         3875
5123          5400 7506                     STM     CPRA+3                                          MTR         3876
5125          0200 5245           CPR1      RJM     WXP           WAIT EXCHANGE PACKAGE READY       MTR         3877
5127          3023                          LDD     CN+3                                            271L716      396
5130          1377                          SCN     77            CLEAR UNUSED FIELD                271L716      397
5131          3423                          STD     CN+3                                            MTR         3879
5132          0200 0343                     RJM     TIM           MAKE SURE *TIMB* EXCHANGE SWITCH RESET     MTR         3880
5134          1426                          LDN     PPXL          SET *PP EXCHANGE PENDING* FLAG    MTR         3888
5135          6271                          CWD     HN                                              MTR         3889
5136          7014                          IAN     14            SAVE CURRENT CLOCK VALUE          271L750      90
5137          3401                          STD     T1                                              MTR         3891
                                                                                                       MTR53         1
                                 *          ENTER REQUEST.  SINCE THE MICROCODE FOR RUNNING DUAL-CPU   MTR53         2
                                 *          *NOS* ON A CACHE MACHINE CHECKS (B0) TO DETERMINE IF THE   MTR53         3
                                 *          EXCHANGE PACKAGE IS READY, THE WORD CONTAINING (B0) *MUST* MTR53         4
                                 *          BE THE LAST WORD STORED INTO THE EXCHANGE PACKAGE.         MTR53         5
                                 *          OTHERWISE, IF A *PURGE ALTERNATE CACHE* REQUEST WAS BEING  MTR53         6
                                 *          PROCESSED BY MICROCODE AT THE SAME TIME THAT *MTR* WAS     MTR53         7
                                 *          PREPARING THE EXCHANGE PACKAGE, THE EXCHANGE COULD OCCUR   MTR53         8
                                 *          BEFORE THE EXCHANGE PACKAGE WAS READY.                     MTR53         9
                                                                                                       MTR53        10
5140          2000 0010                     TLDC    /EXPACS/MXP+10,XBP  STORE (X0)                      MTR53        11
5142          6220                          CWD     CN                                              MTR53        12
5143          1710                          SBN     10            STORE (P), (A0), (B0)             MTR53        13
5144          6370 7503                     CWM     CPRA,ON                                         MTR53        14
                                                                                                       MTR         3892
                                 *          EXCHANGE CPU.  TO EXCHANGE CPU 1 ON A DUAL CPU CACHE MACHINE,  271L750      91
                                 *          AN EXTERNAL INTERRUPT (*INPN*) IS USED INSTEAD OF AN *MXN*.    271L750      92
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                                *       SINCE THE *INPN* DOES NOT WAIT FOR THE EXCHANGE TO SUCCEED    271L750     93
                                *       OR FAIL BEFORE COMPLETING, *MTR* MUST WAIT 25 MICROSECONDS    271L750     94
                                *       BEFORE CHECKING THE EXCHANGE PACKAGE.  SINCE THE EXCHANGE MAY MTR49       1
                                *       OCCUR AFTER AN EVEN LONGER INTERVAL IN SOME CASES, *MTR* MUST MTR49       2
                                *       NEVER ABANDON AN ATTEMPT TO EXCHANGE CPU 1.  SINCE THE *INPN* MTR49       3
                                *       WILL INTERRUPT A UEM BLOCK COPY EVEN IN MONITOR MODE, *MTR*   MTR49       4
                                *       MUST DELAY 125 MICROSECONDS AFTER AN APPARENT FAILED EXCHANGE MTR49       5
                                *       BEFORE RETRYING, IF CPU 1 IS CURRENTLY IN MONITOR MODE.       MTR49       6
                                                                                                      MTR      3894
5146    0331                     CPR2   UJN    CPR3        EXCHANGE CPU                               271L750     99
                                *       LDM    CPRA+3      (DUAL CPU CACHE MACHINE)                   271L750    100
5147    7506                            CON    CPRA+3                                                 271L750    101
                         5146   CPRC    EQU    *-2                                                    271L750    102
5150    0427                            ZJN    CPR3        IF EXCHANGING CPU 0                        271L750    103
5151    2604                            INPN   4           INTERRUPT PROCESSOR 1 ON PORT 2            MTR54       2
5152    1400                    CPRE    LDN    **          WAIT 25 MICROSECONDS BEFORE CHECKING       271L750    107
5153    1701                            SBN    1                                                      271L750    108
5154    0576                            NJN    *-1         IF DELAY NOT COMPLETE                      271L750    109
5155    2000 0000                       TLDC   /EXPACS/MXP+0,XBP                                      273L780    100
5157    6010                            CRD    CM                                                     271L750    111
5160    3014                            LDD    CM+4                                                   271L750    112
5161    0423                            ZJN    CPR4        IF EXCHANGE TAKEN                          271L750    113
5162    2000 0005               CPRG    LDC    **+CMST+1   CHECK FOR CPU 1 IN MONITOR MODE            271L750    114
5164    6010                            CRD    CM                                                     271L750    115
5165    3011                            LDD    CM+1                                                   271L750    116
5166    3112                            ADD    CM+2                                                   271L750    117
5167    3113                            ADD    CM+3                                                   271L750    118
5170    3114                            ADD    CM+4                                                   271L750    119
5171    0417                            ZJN    CPR5        IF CPU 1 NOT IN MONITOR MODE               271L750    120
5172    2000 0000               CPRH    LDC    **          WAIT 125 MICROSECONDS BEFORE RETRYING      271L750    124
5174    1701                            SBN    1                                                      271L750    125
5175    0576                            NJN    *-1         IF DELAY NOT COMPLETE                      271L750    126
5176    0312                            UJN    CPR5        UPDATE TIME AND RETRY                      271L750    127
                                                                                                      271L750    128
5177    2000 0000               CPR3    TLDC   /EXPACS/MXP+0,XBP  EXCHANGE CPU                        273L780    101
5201    2610                    MXN     MXN    0                                                      MTR      3896
5202    6010                            CRD    CM          READ (P), (A0), (B0)                       MTR      3897
5203    3014                            LDD    CM+4                                                   MTR      3898
5204    0436                    CPR4    ZJN    CPR10       IF EXCHANGE TAKEN                          271L750    130
                                *       ZJN    CPR9        IF EXCHANGE TAKEN (CME MACHINE)            271L750    131
                         5204   CPRF    EQU    *-1                                                    271L750    132
5205    3024                            LDD    CN+4                                                   MTR      3902
5206    1702                            SBN    NXWF                                                   271L750    133
5207    0733                            MJN    CPR10       IF NO WAIT FOR EXCHANGE REQUIRED           MTR49       7
5210    0200 0343               CPR5    RJM    TIM         UPDATE TIME                                271L750    135
5212    7014                            IAN    14                                                     MTR      3905
5213    3201                            SBD    T1                                                     MTR      3906
5214    3402                            STD    T2                                                     MTR      3907
5215    0602                            PJN    CPR6        IF NO ROLL OVER                            271L750    136
5216    3602                            AOD    T2                                                     MTR      3909
5217    2177 6027               CPR6    ADC    -MLSC                                                  271L750    137
5221    0705                            MJN    CPR7        IF NOT ONE MILLISECOND                     271L750    138
5222    1401                            LDN    1           HAVE CPUMTR NOTE EXCHANGE REQUEST          271L750    139
5223    3414                            STD    CM+4                                                   271L750    140
5224    1476                            LDN    CPSL                                                   271L750    141
5225    6210                            CWD    CM                                                     MTR      3913
5226    3002                    CPR7    LDD    T2          CHECK FOR MAXIMUM EXCHANGE WAIT            271L750    142
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5227         5200 0210                 SBM    MTRJ                                        271L750    143
5231         0703                      MJN    CPR8         IF NOT MAXIMUM                 271L750    144
5232         5500 0210                 RAM    MTRJ         UPDATE WORST-CASE *MXN* TIME   271L750    145
5234         0100 5146        CPR8     LJM    CPR2         RETRY EXCHANGE                 271L750    146
                                                                                          MTR       3919
5236         2000 0000        CPR9     ISTORE TIMB,(UJN TIM6)  SET UP EXCHANGE PACKAGE CHECK  271L750    147
5242         0100 5111        CPR10    LJM    CPRX         EXIT                           271L750    148


                             **        WXP - WAIT EXCHANGE PACKAGE READY.                 MTR       3925
                             *                                                            MTR       3926
                             *         INSURES *CPUMTR* HAS EXITED FROM MONITOR MODE ON LAST CPR   MTR       3927
                             *         REQUEST.  ALSO ADVANCES TIME WHILE WAITING.        MTR       3928
                             *                                                            MTR       3929
                             *         EXIT   (A) = 0.                                    MTR       3930
                             *                                                            MTR       3931
                             *         USES   CM - CM+4.                                  MTR       3932
                             *                                                            MTR       3933
                             *         CALLS  TIM.                                        MTR       3934
                                                                                          MTR       3935
                                                                                          MTR       3936
5244         0100 5244        WXP      SUBR                ENTRY/EXIT                     MTR       3937
5246         0200 0343        WXP1     RJM    TIM                                         MTR       3938
5250         2000 0006                 TLDC   /EXPACS/MXP+6,XBP  READ (MA), (A6), (B6)    273L780    102
5252         6010                      CRD    CM                                          MTR       3940
5253         3010                      LDD    CM                                          MTR       3941
5254         3111                      ADD    CM+1                                        MTR       3942
5255         0466                      ZJN    WXPX         IF PACKAGE READY               MTR       3943
5256         0367                      UJN    WXP1         LOOP                           MTR       3944
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                                ***       MEMORY ALLOCATION.                                              MTR       3946
                                *                                                                         MTR       3947
                                *         CENTRAL MEMORY IS ALLOCATED TO EACH CONTROL POINT IN            MTR       3948
                                *         CONTIGUOUS BLOCKS FOR EACH JOB.  UNALLOCATED MEMORY             MTR       3949
                                *         GENERALLY RESIDES BETWEEN JOBS.  IF A JOB REQUIRES MORE         MTR       3950
                                *         MEMORY THAN IS AVAILABLE ABOVE IT-S CURRENT MEMORY, A           MTR       3951
                                *         STORAGE MOVE IS REQUIRED.  THE JOBS ARE MOVED ONE AT A          MTR       3952
                                *         TIME TO MOVE THE REQUIRED AMOUNT OF UNALLOCATED MEMORY          MTR       3953
                                *         TO THE REQUESTING JOB.                                          MTR       3954


                                **        MST - MOVE STORAGE.                                             MTR       3956
                                *                                                                         MTR       3957
                                *         *MST* WILL LOOP MOVING CONTROL POINTS UNTIL THE MOVE IS         MTR       3958
                                *         COMPLETE, A CONTROL POINT CANNOT BE MOVED DUE TO PP ACTIVITY,   MTR       3959
                                *         OR UNTIL 10B CONTROL POINTS HAVE BEEN MOVED.  IF ANY OF         MTR       3960
                                *         THESE CONDITIONS ARE ENCOUNTERED AN EXIT IS MADE SO THAT THE    MTR       3961
                                *         THE ROUTINE WILL BE REENTERED.                                  MTR       3962
                                *                                                                         MTR       3963
                                *         ENTRY  (MM - MM+4) = MOVE PARAMETERS.                           MTR       3964
                                *                (OR+1) = REQUESTED FIELD LENGTH.                         MTR       3965
                                *                (OR+2) = XX00 IF CM REQUEST.                             MTR       3966
                                *                       = XX01 IF ECS REQUEST.                            MTR       3967
                                *                (OR+3) = *CMRL*/*FLSW* IF CM REQUEST.                    MTR       3968
                                *                       = *ECRL*/*ECSW* IF ECS REQUEST.                   MTR       3969
                                *                (OR+4) = 4 IF POSITIVE FL/ECS REQUEST.                   MTR       3970
                                *                       = 0 IF NEGATIVE FL REQUEST.                       MTR       3971
                                *                                                                         MTR       3972
                                *         USES   CP, T1, T5, MM+1, CM - CM+6, CN - CN+3, CS - CS+4,       273L780    104
                                *                OR - OR+4.                                               273L780    105
                                *                                                                         271L716    402
                                *         CALLS  AMV, AVC, CPR, ISR, MRP, PHE, SCP, STA, TIM.             271L716    403
                                *                                                                         271L716    404
                                *         MACROS MONITOR.                                                 271L716    405
                                                                                                          MTR       3976
                                                                                                          MTR       3977
          5257         0200 0104         MSTX     RJM    MRP          RETURN TO MAIN LOOP                 251L664    295
          5261         5000 4725                  LDM    CCPA                                             MTR       3981
          5263         0573                       NJN    MSTX         IF MOVE NOT COMPLETE                MTR       3982
                                                                                                          MTR       3983
                                *         CHECK IF PP-S PAUSED.                                           MTR       3984
                                                                                                          MTR       3985
          5264         0200 0343         MST      RJM    TIM          UPDATE TIME                         MTR       3986
          5266         3040                       LDD    MM.0                                             271L716    406
          5267         3474                       STD    CP           SET CP FOR MOVE                     271L716    407
          5270         0200 6470                  RJM    SCP                                              271L716    408
          5272         1620                       ADN    STSW         GET CP STATUS                       271L716    409
          5273         6030                       CRD    CS                                               271L716    410
          5274         3062                       LDD    OR+2         SET STORAGE TYPE                    271L716    411
          5275         1201                       LPN    1                                                271L716    412
          5276         3405                       STD    T5                                               271L716    413
          5277         3030                       LDD    CS           CHECK CP STATUS                     271L716    414
          5300         1237                       LPN    37                                               271L716    415
          5301         0423                       ZJN    MST3         IF NO PP-S ASSIGNED                 271L716    416
          5302         1101                       LMN    1                                                271L716    417
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5303          1014                            SHN    14                                          271L716     418
5304          3374                            LMD    CP            CHECK IF MOVE OF REQUESTING CP   271L716     419
5305          3343                            LMD    MM.3                                        271L716     420
5306          0505                            NJN    MST1          IF NOT ONLY REQUESTING PP       271L716     421
5307          3062                            LDD    OR+2                                        271L716     422
5310          2200 0200                       LPC    200                                         271L716     423
5312          0412                            ZJN    MST3          IF NOT SPECIAL REQUEST          271L716     424
5313          1420                  MST1      LDN    PPXE          SET PP1 *ACPP* OFFSET           273L780     106
5314          3401                            STD    T1                                          271L716     426
5315          1420                  MST2      LDN    PPXE          ADVANCE TO NEXT PP              273L780     107
5316          3501                            RAD    T1                                          MTR        4005
5317          2100 0000                       TADC   ACPP,PPX      READ CP/PCP ASSIGNMENT          273L780     108
5321          6010                            CRD    CM                                          MTR        4006
5322          2300 0000                       TLMC   ACPP,PPX      (LAST *ACPP* WORD + *PPXE*)     273L780     109
                            5323    MSTA      EQU    *-1                                         MTR        4008
5324          0425                  MST3      ZJN    MST6          IF END OF SCAN                  271L716     435
5325          3010                            LDD    CM                                          273L780     110
5326          3340                            LMD    MM.0                                        271L716     438
5327          0565                            NJN    MST2          IF PP NOT ACCESSING MOVE CP/PCP  273L780     111
                                                                                                 MTR        4014
                                   **         IMPORTANT NOTE -                                   MTR        4015
                                   *                                                             MTR        4016
                                   *          ALL MONITOR FUNCTIONS SHOULD BE CONSIDERED STORAGE MOVABLE    MTR        4017
                                   *          WHILE THE REQUEST IS PENDING.  THEREFORE, PP ROUTINES         MTR        4018
                                   *          SHOULD RECOMPUTE ANY ABSOLUTE ADDRESSES AFTER ISSUING ANY     MTR        4019
                                   *          MONITOR FUNCTION.  THIS WILL ALLOW FOR THE FUTURE GOAL OF     MTR        4020
                                   *          ACTUALLY ACHIEVING THIS OBJECTIVE.                 MTR        4021
                                                                                                 MTR        4022
5330          3001                            LDD    T1            SET PP COMMUNICATION AREA OFFSET 273L780     112
5331          1076                            SHN    PPCES-PPXES                                 273L780     113
5332          3165                            ADD    OF            READ OUTPUT REGISTER            273L780     114
5333          6010                            CRD    CM                                          MTR        4025
5334          3010                            LDD    CM                                          MTR        4026
5335          0410                            ZJN    MST5          IF NO FUNCTION                  271L716     441
5336          1011                            SHN    21-10                                       271L716     442
5337          0755                            MJN    MST2          IF STORAGE MOVE ALLOWED         271L716     443
5340          1066                            SHN    10-21                                       271L716     444
5341          1711                            SBN    SMAM                                        271L716     445
5342          0703                            MJN    MST5          IF NON-MOVABLE *MTR* FUNCTION   271L716     446
5343          1714                            SBN    SMEM-SMAM                                   271L716     447
5344          0750                            MJN    MST2          IF MOVABLE FUNCTION             271L716     448
5345          0200 0254             MST5      RJM    AVC                                         271L716     449
5347          0100 5257                       LJM    MSTX          RETURN                          271L716     450
                                                                                                 MTR        4041
                                   *          CP READY TO MOVE.                                  MTR        4042
                                                                                                 MTR        4043
5351          3040                  MST6      LDD    MM.0          SET CP/PCP ADDRESS              271L716     451
5352          0200 6470                       RJM    SCP                                         271L716     452
5354          3163                            ADD    OR+3          GET FL CONTROL WORD             271L716     453
5355          6030                            CRD    CS                                          271L716     454
5356          3263                            SBD    OR+3                                        271L716     455
5357          1625                            ADN    ECSW          CHECK *ECXM* INTERLOCK          NS2384        1
5360          6010                            CRD    CM                                          NS2384        2
5361          3011                            LDD    CM+1                                        NS2384        3
5362          1006                            SHN    21-13                                       NS2384        4
5363          0761                            MJN    MST5          IF *ECXM* IN PROGRESS           271L716     456
5364          3040                            LDD    MM.0                                        271L716     457
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5365          0200 6560                RJM   STA         FETCH MEMORY TABLE ENTRY                271L716   458
5367          6010                     CRD   CM                                                  271L716   459
5370          3011                     LDD   CM+1         CHECK FORWARD LINK                      271L716   460
5371          3346                     LMD   NC                                                  271L716   461
5372          0515                     NJN   MST9        IF NOT LAST CP                          271L716   462
5373          3041                     LDD   MM.1                                                271L716   463
5374          1006                     SHN   21-13                                               271L716   464
5375          0612                     PJN   MST9        IF UPWARD MOVE                          271L716   465
5376          3062                     LDD   OR+2                                                MTR      4054
5377          1012                     SHN   21-7                                                MTR      4055
5400          0603                     PJN   MST7        IF NOT SPECIAL REQUEST                  271L716   466
5401          1400                     LDN   0                                                   271L716   467
5402          0303                     UJN   MST8        SAVE INCREMENT                          271L716   468
                                                                                                 271L716   469
5403          5064 0030          MST7  LDM   CS,OR+4     MOVE DOWN BY INCREASE                   271L716   470
5405          3261               MST8  SBD   OR+1                                                271L716   471
5406          3441                     STD   MM.1                                                271L716   472
5407          3034               MST9  LDD   CS+4        CHECK CURRENT FL                        271L716   473
5410          3130                     ADD   CS                                                  271L716   474
5411          0522                     NJN   MST11        IF FL .NE. 0                            271L716   475
                                                                                                 MTR      4066
                                 *     UPDATE RA FOR CONTROL POINT IF FL = 0.                     MTR      4067
                                                                                                 MTR      4068
5412          3423                     STD   CN+3                                                271L716   476
5413          3041                     LDD   MM.1        SET MEMORY INCREMENT                    271L716   477
5414          3420                     STD   CN                                                  271L716   478
5415          3005                     LDD   T5          STORAGE TYPE                            271L716   479
5416          3421                     STD   CN+1                                                271L716   480
5417          1407                     LDN   MRAF        MODIFY REFERENCE ADDRESS                271L716   481
5420          0200 6265                RJM   ISR                                                 271L716   482
5422          0200 5744                RJM   AMV         ADVANCE MOVE                            271L716   483
5424          3044                     LDD   MM.4                                                271L716   484
5425          0404                     ZJN   MST10       IF MOVE COMPLETED                       271L716   485
5426          6060                     CRD   OR                                                  MTR      4073
5427          0100 5264                LJM   MST         LOOP                                    MTR      4074
                                                                                                 MTR      4075
5431          0100 1407          MST10 LJM   FNR         EXIT                                    271L716   486
                                                                                                 MTR      4077
                                 *     INITIATE STORAGE MOVE.                                     MTR      4078
                                                                                                 MTR      4079
5433          1400               MST11 LDN   0           PRESET NO CPU STATUS                    271L716   487
5434          3411                     STD   CM+1                                                271L716   488
5435          3040                     LDD   MM.0        CHECK CP AT MOVE                        271L716   489
5436          3246                     SBD   NC                                                  271L716   490
5437          0627                     PJN   MST13       IF PSEUDO CONTROL POINT                 271L716   491
5440          1467                     LDN   SMRL                                                271L716   492
5441          6270                     CWD   CP-4        SET *JAV* INTERLOCK                     271L716   493
5442          1456                     MONITOR  DCPM                                             271L716   494
5445          3011                     LDD   CM+1        SAVE CPU STATUS FROM *DCPM*             MTR      4085
5446          5400 5464                STM   MSTE                                                MTR      4086
5450          3074                     LDD   CP          GET CPA ERROR FLAG                      MTR      4087
5451          1007                     SHN   7                                                   271L716   495
5452          1620                     ADN   STSW                                                MTR      4088
5453          6030                     CRD   CS                                                  MTR      4089
5454          3031                     LDD   CS+1                                                MTR      4090
5455          1237                     LPN   37                                                  MTR      4091
5456          1144                     LMN   PEET                                                MTR      4092
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         5457          0504                          NJN    MST12        IF NOT PARITY ERROR                   271L716    496
         5460          0200 0653          MSTC       RJM    PHE          VALIDATE PARITY ERROR                 MTR       4094
                                        *            UJN    *+2          (NO S/C REGISTER OR SIMULATOR)        MTR       4095
         5462          0536                          NJN    MST15        IF ERROR IN SCR                       271L716    497
         5463          2000 0000          MST12      LDC    0            SET CPU STATUS                        271L716    498
                                  5464    MSTE       EQU    *-1                                                MTR       4100
         5465          3411                          STD    CM+1                                               MTR       4101
         5466          3041               MST13      LDD    MM.1         SET MOVE INCREMENT                    271L716    499
         5467          3410                          STD    CM                                                 271L716    500
         5470          2000 0000                     LDC    0            SET/CLEAR BLOCK MOVE                  271L716    501
                                  5471    MSTG       EQU    *-1                                                271L716    502
         5472          3412                          STD    CM+2                                               271L716    503
         5473          1400                          LDN    0            CLEAR BLOCK MOVE INDICATOR            271L716    504
         5474          5400 5471                     STM    MSTG                                               271L716    505
         5476          3005                          LDD    T5           INSERT MEMORY TYPE                    271L716    506
         5477          3413                          STD    CM+3                                               271L716    507
         5500          3074                          LDD    CP           SET CONTROL POINT NUMBER              271L716    508
         5501          3414                          STD    CM+4                                               MTR       4108
         5502          1467                          LDN    SMRL         STORE MOVE REQUEST                    MTR       4109
         5503          6210                          CWD    CM                                                 MTR       4110
         5504          2000 0000                     LDC    0            SET MOVE IN PROGRESS FLAG             MTR       4111
         5505                                        ORG    *-1                                                MTR       4112
       L 4725                                        LOC    CCPA                                               MTR       4113
       L 4725          0361                          UJN    CCP6         STORAGE MOVE IN PROGRESS              MTR       4114
         5506                                        LOC    *O                                                 MTR       4115
         5506          5400 4725                     STM    CCPA                                               MTR       4116
         5510          5013 6716                     LDM    MAFC,CM+3    REQUEST STORAGE MOVE                  MTR       4117
         5512          3422                          STD    CN+2                                               MTR       4118
         5513          1404                          LDN    EPRF         ENTER PROGRAM MODE REQUEST            MTR       4119
         5514          0200 5112                     RJM    CPR                                                MTR       4120
         5516          0100 5257                     LJM    MSTX         RETURN                                MTR       4121
                                                                                                               MTR       4122
                                        *            SET STORAGE UNAVAILABLE WHEN FATAL ERROR SET.             MTR       4123
                                                                                                               MTR       4124
         5520          2000 1413          MST15      LDC    FNC          SET RETURN FOR COMPLETING MOVE        271L716    509
         5522          5400 5744                     STM    AMV                                                MTR       4126
         5524          1467                          LDN    SMRL         CLEAR *SMRL*                          MTR       4127
         5525          6277                          CWD    ZR                                                 MTR       4128
         5526          0100 5724                     LJM    AMV10        COMPLETE MOVE                         271L716    510
                                                                                                               MTR       4130
                                        *            COMPLETE MOVE PROCESSING.                                 MTR       4131
                                        *                                                                      MTR       4132
                                        *            ENTRY  (CM - CM+4) = (SMRL).                              MTR       4133
                                                                                                               MTR       4134
         5530          0100 5530          MSTX.      LJM    *            RETURN EXIT COMPLETION CODE           MTR       4135
                                                                                                               MTR       4136
                                  5531    MST.       EQU    *-1                                                MTR       4137
         5532          3011                          LDD    CM+1                                               271L716    511
         5533          0416                          ZJN    MST16        IF NO ERROR ON MOVE                   271L716    512
         5534          3040                          LDD    MM.0                                               271L716    513
         5535          0200 6470                     RJM    SCP          SET CP / PCP ADDRESS                  271L716    514
         5537          1672                          ADN    TFSW                                               271L716    515
         5540          6012                          CRD    CM+2         (CM+2) = EJT ORDINAL                  271L716    516
         5541          1400                          LDN    0                                                  271L716    517
         5542          3474                          STD    CP           INDICATE REQUEST FROM CP 0            271L716    518
         5543          2000 4030                     LDC    4000+ECET                                          271L716    519
         5545          3411                          STD    CM+1         SET ERROR FLAG                        271L716    520
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5546          1454                       MONITOR  CEFM                                     271L716     521
                                *        LDN    0          CLEAR MOVE IN PROGRESS FLAG     271L716     522
5551          5400 4725          MST16   STM    CCPA                                       271L716     523
5553          3040                       LDD    MM.0       SET MOVE CP / PCP               271L716     524
5554          3474                       STD    CP                                         271L716     525
5555          3044                       LDD    MM.4       RE-READ OUTPUT REGISTER         271L716     526
5556          6060                       CRD    OR                                         271L716     527
5557          3062                       LDD    OR+2       RESET STORAGE TYPE              271L716     528
5560          1201                       LPN    1                                          271L716     529
5561          3405                       STD    T5                                         271L716     530
5562          0200 5744                  RJM    AMV        ADVANCE MOVE                    MTR        4150
5564          0343                       UJN    MSTX.      RETURN                          MTR        4151


                                **       AMF - ADJUST MACHINE FL.                          271L716     532
                                *                                                          271L716     533
                                *        ENTRY  (A) = 10, TO UPDATE *MABL*, *ACML*, AND MCT OF LAST CP.271L716     534
                                *               (A) = 11, TO UPDATE MCT OF LAST CP ONLY.   271L716     535
                                *               (OR+1) = MEMORY DECREMENT (IF POSITIVE).   271L716     536
                                *               (OR+1) = MEMORY INCREMENT (IF NEGATIVE).   271L716     537
                                *                                                          271L716     538
                                *        USES   CN, CN+1.                                  271L716     539
                                *                                                          271L716     540
                                *        CALLS  CPR, WXP.                                  271L716     541
                                                                                           271L716     542
                                                                                           271L716     543
5565          0100 5565          AMF     SUBR              ENTRY/EXIT                      271L716     544
5567          3421                       STD    CN+1       SAVE REQUEST TYPE               271L716     545
5570          3061                       LDD    OR+1       SET MEMORY INCREMENT/DECREMENT  271L716     546
5571          3420                       STD    CN                                         271L716     547
5572          1406                       LDN    MFLF       MODIFY MACHINE FL               271L716     548
5573          0200 5112                  RJM    CPR        ISSUE REQUEST                   271L716     549
5575          0200 5245                  RJM    WXP        WAIT FOR REQUEST TO COMPLETE    271L716     550
5577          0365                       UJN    AMFX       RETURN                          271L716     551
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                                **        AMM - ACCUMULATE MEMORY TO MOVE.                                271L716   553
                                *                                                                         271L716   554
                                *         ENTRY  (A) = ADDRESS OF ORDINAL OF MCT ENTRY.                   271L716   555
                                *                (T3) = UNASSIGNED MEMORY ACCUMULATOR.                    271L716   556
                                *                (T5) = 0 IF CM REQUEST.                                  271L716   557
                                *                     = 1 IF XM REQUEST.                                  271L716   558
                                *                (T7) = AMOUNT OF MEMORY REQUIRED.                        271L716   559
                                *                (OR+3) = *FLSW* IF CM REQUEST.                           271L716   560
                                *                       = *ECSW* IF XM REQUEST.                           271L716   561
                                *                (MM+1) = MOVE COUNT ACCUMULATOR.                         271L716   562
                                *                (MM+4) = ASSIGNED MEMORY ACCUMULATOR.                    271L716   563
                                *                                                                         271L716   564
                                *         EXIT   (A) = INITIAL MOVE INCREMENT.                            271L716   565
                                *                (MM+3) = ASSIGNED MEMORY TO MOVE.                        271L716   566
                                *                (CS) = FIRST CP/PCP FOR LOWER MOVE.                      271L716   567
                                *                (CS+1) = FIRST CP/PCP FOR UPPER MOVE.                    271L716   568
                                *                (CS+2) = FIRST LOWER MOVE INCREMENT.                     271L716   569
                                *                (CS+3) = FIRST UPPER MOVE INCREMENT.                     271L716   570
                                *                (CS+4) = NUMBER OF CP/PCP-S TO MOVE.                     271L716   571
                                *                                                                         271L716   572
                                *         USES   BA, PA, MM+1, MM+2, MM+4, T3, CN - CN+4.                 271L716   573
                                *                                                                         271L716   574
                                *         CALLS  RSB, SCP, TIM.                                           271L716   575
                                                                                                          271L716   576
                                                                                                          271L716   577
5600            3034             AMM5     LDD    CS+4          RESET MOVE COUNT FOR REENTRY               271L716   578
5601            3441                      STD    MM+1                                                     271L716   579
5602            3043                      LDD    MM+3          RESET MOVE BLOCKS FOR REENTRY              271L716   580
5603            3444                      STD    MM+4                                                     271L716   581
5604            1400                      LDN    0             INDICATE SEARCH INCOMPLETE                 271L716   582
                                                                                                          271L716   583
5605            0100 5605        AMM      SUBR                 ENTRY/EXIT                                 271L716   584
5607            3427                      STD    PA                                                       271L716   585
5610            1201                      LPN    1                                                        271L716   586
5611            1610                      ADN    CM            SET ADDRESS OF BACKWARD/FORWARD LINK       271L716   587
5612            3426                      STD    BA                                                       271L716   588
5613            4027             AMM1     LDI    PA            SET CP/PCP AREA ADDRESS                    271L716   589
5614            0200 6470                 RJM    SCP                                                      271L716   590
5616            3163                      ADD    OR+3          GET FL CONTROL WORD                        271L716   591
5617            6020                      CRD    CN                                                       271L716   592
5620            3024                      LDD    CN+4          ACCUMULATE MEMORY TO MOVE                  271L716   593
5621            3120                      ADD    CN                                                       271L716   594
5622            0410                      ZJN    AMM4          IF NO ASSIGNED MEMORY                      271L716   595
5623            3544                      RAD    MM+4                                                     271L716   596
5624            1063                      SHN    -14                                                      271L716   597
5625            0403                      ZJN    AMM2          IF NO OVERFLOW                             271L716   598
5626            1500                      LCN    0                                                        271L716   599
5627            3444                      STD    MM+4          SET MAXIMUM MEMORY                         271L716   600
5630            3641             AMM2     AOD    MM+1                                                     271L716   601
5631            0761             AMM3     MJN    AMM1          IF MORE MEMORY REQUIRED                    271L716   602
5632            4027             AMM4     LDI    PA                                                       271L716   603
5633            0444                      ZJN    AMM5          IF END OF MCT SCAN                         271L716   604
5634            3442                      STD    MM+2                                                     271L716   605
5635            4026                      LDI    BA            SAVE LINK                                  271L716   606
5636            5400 5643                 STM    AMMA                                                     271L716   607
5640            0200 0343                 RJM    TIM           UPDATE CLOCK                               271L716   608
5642            2000 0000                 LDC    **            READ MCT ENTRY                             271L716   609
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                        5643      AMMA      EQU    *-1                                        271L716    610
5644          0200 6444                     RJM    RSB                                        271L716    611
5646          0444                          ZJN    AMM1         IF NO UNASSIGNED MEMORY FOUND 271L716    612
                                                                                              271L716    613
                                *           ACCUMULATE UNASSIGNED MEMORY.                     271L716    614
                                                                                              271L716    615
5647          3042                          LDD    MM+2         SET CP/PCP FOR MOVE           271L716    616
5650          5426 0020                     STM    CS-CM,BA                                   271L716    617
5652          3041                          LDD    MM+1         SAVE MOVE COUNT               271L716    618
5653          3434                          STD    CS+4                                       271L716    619
5654          3044                          LDD    MM+4         SAVE BLOCKS TO MOVE           271L716    620
5655          3443                          STD    MM+3                                       271L716    621
5656          3000                          LDD    T0           SAVE BLOCK SIZE               271L716    622
5657          5426 0022                     STM    CS+2-CM,BA                                 271L716    623
5661          3503                          RAD    T3           ACCUMULATE UNASSIGNED MEMORY  271L716    624
5662          3207                          SBD    T7                                         271L716    625
5663          0745                          MJN    AMM3         IF MORE MEMORY REQUIRED       271L716    626
5664          3200                          SBD    T0                                         271L716    627
5665          2377 7777                     LMC    -0           SET PARTIAL BLOCK             271L716    628
5667          5426 0022                     STM    CS+2-CM,BA                                 271L716    629
5671          0100 5605                     LJM    AMMX         RETURN                        271L716    630



                                **          AMV - ADVANCE MOVE.                               MTR       4187
                                *                                                             MTR       4188
                                *           ENTRY  (T5) = 0 IF CM REQUEST.                    273L780    115
                                *                       = 1 IF XM REQUEST.                    271L716    633
                                *                  (OR+1) = REQUESTED MEMORY.                 271L716    634
                                *                  (OR+2) = *RSTM* FLAGS.                     271L716    635
                                *                  (OR+3) = *CMRL*/*FLSW* IF CM REQUEST.      MTR       4194
                                *                         = *ECRL*/*ECSW* IF ECS REQUEST.     MTR       4195
                                *                  (OR+4) = 4 IF POSITIVE FL/ECS REQUEST.     MTR       4196
                                *                         = 0 IF NEGATIVE FL REQUEST.         MTR       4197
                                *                  (MM - MM+4) = MOVE PARAMETERS.             271L716    636
                                *                                                             MTR       4198
                                *           EXIT   (MM - MM+4) UPDATED.                       MTR       4199
                                *                  *MABL* AND *ACML* ADJUSTED, IF SPECIAL *VER* REQUEST.  271L716    637
                                *                                                             MTR       4200
                                *           USES   CP, T4, CN - CN+4, CS - CS+4, MM - MM+4.   273L780    116
                                *                                                             271L716    639
                                *           CALLS  AMF, MFL, RSB, SCP.                        271L716    640
                                                                                              MTR       4204
                                                                                              MTR       4205
5673          3043               AMV8       LDD    MM.3         REQUESTING CP NUMBER          271L716    641
5674          3474                          STD    CP                                         271L716    642
5675          0200 6470                     RJM    SCP          SET CP ADDRESS                271L716    643
5677          3163                          ADD    OR+3                                       MTR       4210
5700          6030                          CRD    CS                                         MTR       4211
5701          0200 6344                     RJM    MFL                                        MTR       4212
5703          3062                          LDD    OR+2                                       271L716    644
5704          1012                          SHN    21-7                                       271L716    645
5705          0615                          PJN    AMV9         IF NOT *VER* SPECIAL REQUEST  271L716    646
5706          1410                          LDN    10           SET REQUEST TYPE              271L716    647
5707          0200 5566                     RJM    AMF          ADJUST MACHINE FL             271L716    648
5711          2000 0113                     LDK    MABL         READ NEW *MABL*               271L716    649
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5713          6020                      CRD    CN                                     271L716     650
5714          3022                      LDD    CN+2       SAVE NEW SIZE FOR COMPLETION BIT TESTING   MTR47         1
5715          5400 0632                 STM    PCBA                                   271L716     652
5717          3023                      LDD    CN+3                                   271L716     653
5720          5400 0643                 STM    PCBB                                   271L716     654
5722          3044               AMV9   LDD    MM.4       SET *RSTM* COMPLETE         271L716     655
5723          6277                      CWD    ZR                                     271L716     656
5724          3044               AMV10  LDD    MM.4       EXTRACT REENTRY TABLE INDEX 271L716     657
5725          1074                      SHN    -3                                     271L716     658
5726          3444                      STD    MM.4                                   271L716     659
5727          2000 1375                 LDC    PPR        RESET MAIN LOOP             271L716     660
5731          5444 7445                 STM    TREA,MM.4                              271L716     661
                                 *      STM    TREA-(OF)/10,MM.4                      271L716     662
                          5732   AMVC   EQU    *-1                                    271L716     663
5733          1466                      LDN    ZERL       CLEAR MOVE PARAMETERS       271L716     664
5734          6040                      CRD    MM                                     271L716     665
5735          1500                      LCN    0          SET MOVE COMPLETE           271L716     666
5736          3440                      STD    MM.0                                   271L716     667
                                                                                      MTR        4224
5737          1457               AMVX   LDN    CMCL       STORE CONTROL WORD          MTR        4225
5740          6240                      CWD    MM                                     MTR        4226
5741          0200 7211                 RJM    PCM        PURGE CACHE IF CPU 1 IN MONITOR MODE   MTR54         3
                                                                                      MTR        4227
5743          0100 5743                 LJM    *          RETURN EXIT                 MTR        4228
                          5744   AMV    EQU    *-1                                    271L716     668
5745          3040                      LDD    MM.0       GET MCT ENTRY FOR MOVE CP   271L716     669
5746          0200 6444                 RJM    RSB                                    271L716     670
5750          3404                      STD    T4                                     271L716     671
5751          3011                      LDD    CM+1       CHECK FORWARD LINK          271L716     672
5752          3346                      LMD    NC                                     271L716     673
5753          0430                      ZJN    AMV4       IF LAST CP                  271L716     674
5754          3041                      LDD    MM.1                                   271L716     675
5755          1006                      SHN    6                                      271L716     676
5756          0727                      MJN    AMV5       IF DOWNWARD MOVE            271L716     677
5757          3040                      LDD    MM.0                                   271L716     678
5760          3343                      LMD    MM.3                                   271L716     679
5761          0414                      ZJN    AMV3       IF REQUESTING CP JUST MOVED 271L716     680
5762          3010                      LDD    CM                                     271L716     681
5763          3440                      STD    MM.0       SET NEXT CP/PCP FOR MOVE    271L716     682
5764          3343                      LMD    MM.3                                   271L716     683
5765          0503                      NJN    AMV1       IF UPPER MOVE NOT COMPLETE  271L716     684
5766          3064                      LDD    OR+4                                   271L716     685
5767          0506                      NJN    AMV3       IF NOT NEGATIVE FL REQUEST  271L716     686
5770          3040               AMV1   LDD    MM.0                                   271L716     687
5771          0200 6444                 RJM    RSB        FETCH NEXT MOVE INCREMENT   271L716     688
5773          3441               AMV2   STD    MM.1                                   271L716     689
5774          0342                      UJP    AMVX       RETURN                      271L716     690
                                                                                      MTR        4260
                                 *      BEGIN LOWER MOVE.                             MTR        4261
                                                                                      MTR        4262
5775          2000 0000          AMV3   LDC    0          INITIAL LOWER MOVE INCREMENT   271L716     691
                          5776   AMVA   EQU    *-1                                    271L716     692
5777          0404                      ZJN    AMV4       IF NO LOWER MOVE            271L716     693
6000          3404                      STD    T4                                     271L716     694
6001          3042                      LDD    MM.2                                   271L716     695
6002          0510                      NJN    AMV6       IF NOT CMR REQUEST          273L780     117
6003          0100 5673          AMV4   LJM    AMV8       COMPLETE MOVE               271L716     697
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                                                                                        MTR        4265
                                   *         ADVANCE LOWER MOVE.                        MTR        4266
                                                                                        MTR        4267
          6005      3040            AMV5     LDD    MM.0        CHECK CP/PCP JUST MOVED 271L716     698
          6006      2300 0000                LMC    0                                   271L716     699
                               6007 AMVB     EQU    *-1                                 271L716     700
          6010      0472                     ZJN    AMV4        IF REQUESTING CP        271L716     701
          6011      3011                     LDD    CM+1                                271L716     702
          6012      3440            AMV6     STD    MM.0        SET NEXT CP/PCP FOR MOVE 271L716    703
          6013      3343                     LMD    MM.3                                271L716     704
          6014      0503                     NJN    AMV7        IF LOWER MOVE NOT COMPLETE 271L716  705
          6015      3064                     LDD    OR+4                                271L716     706
          6016      0464                     ZJN    AMV4        IF NEGATIVE FL REQUEST  271L716     707
                                                                                        271L716     708
          6017      1500            AMV7     LCN    0           NEXT MOVE INCREMENT     271L716     709
          6020      3304                     LMD    T4                                  271L716     710
          6021      0351                     UJN    AMV2        SET NEGATIVE INCREMENT  271L716     711



                                   **        CFL - CLEAR FL INCREASE.                   MTR        4286
                                   *                                                    MTR        4287
                                   *         ENTRY  (CP) = CONTROL POINT NUMBER.        271L716     712
                                   *                (T5) = 0 IF CM REQUEST.             271L716     713
                                   *                     = 1 IF XM REQUEST.             271L716     714
                                   *                                                    MTR        4291
                                   *         USES   CM - CM+4.                          MTR        4292
                                   *                                                    271L716     715
                                   *         CALLS  SCP.                                271L716     716
                                                                                        MTR        4293
                                                                                        MTR        4294
          6022      1400            CFL1     LDN    0           CLEAR ECS INCREASE      MTR        4295
          6023      3413                     STD    CM+3                                MTR        4296
          6024      3011                     LDD    CM+1                                MTR        4297
          6025      1302                     SCN    2                                   MTR        4298
          6026      3411            CFL2     STD    CM+1                                MTR        4299
          6027      3074                     LDD    CP          SET CP/PCP ADDRESS      271L716     717
          6030      0200 6470                RJM    SCP                                 271L716     718
          6032      1665                     ADN    FLIW        REWRITE FL INCREASE CONTROL WORD 271L716 719
          6033      6210                     CWD    CM                                  MTR        4302
                                                                                        MTR        4303
          6034      0100 6034       CFL      SUBR               ENTRY/EXIT              MTR        4304
          6036      3074                     LDD    CP                                  271L716     720
          6037      0474                     ZJN    CFLX        IF CMR REQUEST          273L780     118
          6040      0200 6470                RJM    SCP                                 271L716     722
          6042      1665                     ADN    FLIW        READ FL INCREASE WORD   271L716     723
          6043      6010                     CRD    CM                                  271L716     724
          6044      3005                     LDD    T5                                  271L716     725
          6045      0554                     NJN    CFL1        IF XM REQUEST           271L716     726
          6046      3412                     STD    CM+2                                271L716     727
          6047      3414                     STD    CM+4        CLEAR FL INCREASE       271L716     728
          6050      3011                     LDD    CM+1                                MTR        4314
          6051      1301                     SCN    1                                   MTR        4315
          6052      0353                     UJN    CFL2        REWRITE FL INCREASE CONTROL WORD MTR   4316
```

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                                **      CRA - CHANGE REFERENCE ADDRESS.                                 271L716  730
                                *                                                                     271L716  731
                                *       ENTRY  (CP) = CP/PCP NUMBER.                                  271L716  732
                                *              (T5) = 0 IF CM REQUEST.                                271L716  733
                                *                   = 1 IF XM REQUEST.                                271L716  734
                                *              (T8) = MCT ORDINAL OF HOLE.                            271L716  735
                                *              (OR+2) = *RSTM* FLAGS.                                 271L716  736
                                *                                                                     271L716  737
                                *       USES   CP, CN - CN+4.                                         271L716  738
                                *                                                                     271L716  739
                                *       CALLS  ISR.                                                   271L716  740
                                *                                                                     271L716  741
                                                                                                      271L716  742
 6053   3015                    CRA1    LDD    T8          SET MCT ORDINAL OF HOLE                    271L716  743
 6054   3420                            STD    CN                                                     271L716  744
 6055   3005                    CRA2    LDD    T5          INSERT STORAGE TYPE                        271L716  745
 6056   3421                            STD    CN+1                                                   271L716  746
 6057   1416                            LDN    CRAF        CHANGE RA IN CPA, XP AND MCT               271L716  747
 6060   0200 6265                       RJM    ISR                                                    271L716  748
                                                                                                      271L716  749
 6062   0100 6062               CRA     SUBR               ENTRY/EXIT                              271L716  750
 6064   3062                            LDD    OR+2                                                   271L716  751
 6065   1377                            SCN    77          PRESERVE PCP FLAGS                         271L716  752
 6066   3423                            STD    CN+3                                                   271L716  753
 6067   1007                            SHN    21-12                                                  271L716  754
 6070   0662                            PJN    CRA1        IF NOT PSEUDO-ROLLOUT                      271L716  755
 6071   3074                            LDD    CP                                                     271L716  756
 6072   3420                            STD    CN                                                     271L716  757
 6073   3015                            LDD    T8          SET (CP) TO PCP NUMBER                     271L716  758
 6074   3474                            STD    CP                                                     271L716  759
 6075   0357                            UJN    CRA2        COMPLETE REQUEST                           271L716  760


                                **      EMO - EVALUATE MOVE OPTIONS.                                    271L716  762
                                *                                                                     271L716  763
                                *       ENTRY  (T8) = MCT ORDINAL OF HOLE.                            271L716  764
                                *              (CS - CS+4) = FL CONTROL WORD OF REQUESTING CP.         271L716  765
                                *                                                                     271L716  766
                                *       EXIT   TO CALLER IF NO FIELD LENGTH ASSIGNED.                 271L716  767
                                *              TO *MST* TO INITIATE MOVE IF FL PRESENT.               271L716  768
                                *                                                                     271L716  769
                                *       USES   MB, MM - MM+4.                                         271L716  770
                                *                                                                     271L716  771
                                *       CALLS  IMV.                                                   271L716  772
                                                                                                      271L716  773
                                                                                                      271L716  774
 6076   3015                    EMO5    LDD    T8                                                     271L716  775
 6077   0412                            ZJN    EMO2        IF NO HOLE FOUND                           271L716  776
                                                                                                      271L716  777
 6100   0100 6100               EMO     SUBR               ENTRY/EXIT                              271L716  778
 6102   3030                            LDD    CS                                                     271L716  779
 6103   3134                            ADD    CS+4                                                   271L716  780
 6104   0403                            ZJN    EMO1        IF NO ASSIGNED FL                          271L716  781
 6105   1071                            SHN    -MBCS                                                  271L716  782
 6106   1601                            ADN    1           CONVERT MEMORY MOVE COUNT                  271L716  783
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6107          3416                EMO1     STD    MB                                                   271L716     784
6110          0465                         ZJN    EMO5         IF NEW JOB / NEW XM REQUEST            271L716     785
                                                                                                        271L716     786
                                 *         INVESTIGATE INCREMENTAL MOVE.                                271L716     787
                                                                                                        271L716     788
6111          0200 6140           EMO2     RJM    IMV          INITIATE MOVE                           271L716     789
6113          3034                         LDD    CS+4                                                 271L716     790
6114          3216                         SBD    MB                                                   271L716     791
6115          0712                         MJN    EMO4         IF INCREMENTAL CHEAPER THAN BLOCK MOVE  271L716     792
6116          3015                         LDD    T8                                                   271L716     793
6117          0410                         ZJN    EMO4         IF NO HOLE FOUND                        271L716     794
6120          5400 5471                    STM    MSTG                                                 271L716     795
6122          3043                         LDD    MM.3         SET CP FOR MOVE                         271L716     796
6123          3440                         STD    MM.0                                                 271L716     797
                                 *         LDN    1            FAKE POSITIVE MOVE INCREMENT            271L716     798
6124          3441                         STD    MM.1                                                 271L716     799
6125          1400                EMO3     LDN    0            CLEAR LOWER MOVE                        271L716     800
6126          3442                         STD    MM.2                                                 271L716     801
6127          3076                EMO4     LDD    OA           SET REQUESTING PP OR ADDRESS            271L716     802
6130          3444                         STD    MM.4                                                 271L716     803
6131          1457                         LDN    CMCL         STORE MOVE CONTROL WORD                 271L716     804
6132          6240                         CWD    MM                                                   271L716     805
6133          0200 7211                    RJM    PCM          PURGE CACHE IF CPU 1 IN MONITOR MODE    MTR54         4
6135          0100 5264                    LJM    MST          MOVE STORAGE                            271L716     806



                                 **        IMV - INITIATE INCREMENTAL MOVE.                             271L716     807
                                 *                                                                      271L716     808
                                 *         ENTRY  (CP) = CONTROL POINT NUMBER / MCT ORDINAL.            271L716     809
                                 *                (T5) = 0 IF CM REQUEST.                               271L716     810
                                 *                     = 1 IF XM REQUEST.                               271L716     811
                                 *                (T6) = MCT ORDINAL IF NORMAL FL OR XM REQUEST.        271L716     812
                                 *                     = ORDINAL OF BACKWARD LINK IF NFL REQUEST.       271L716     813
                                 *                (T7) = AMOUNT OF MEMORY REQUIRED.                     271L716     814
                                 *                (OR+4) = 4 IF POSITIVE FL OR XM REQUEST.              271L716     815
                                 *                       = 0 IF NEGATIVE FL REQUEST.                    MTR        4354
                                 *                                                                      MTR        4355
                                 *         EXIT   (CS+4) = MOVE OVERHEAD COUNT.                         271L716     816
                                 *                (MM - MM+3) SET UP FOR FIRST MOVE.                    271L716     817
                                 *                                                                      271L716     818
                                 *         USES   MB+1, T2, T3, T4, CM - CM+4, CS - CS+4, MM - MM+4.    271L716     819
                                 *                                                                      271L716     820
                                 *         CALLS  AMM, RSB, STA, TIM.                                   271L716     821
                                 *                                                                      MTR36         5
                                 *         ERROR  EXIT TO *HGM* IF MOVE CANNOT BE COMPLETED.            MTR36         6
                                                                                                        MTR        4359
                                                                                                        MTR        4360
6137          0100 6137           IMV      SUBR                ENTRY/EXIT                              271L716     822
6141          1466                         LDN    ZERL                                                 271L716     823
6142          6030                         CRD    CS                                                   271L716     824
6143          3006                         LDD    T6           FETCH UNASSIGNED MEMORY BLOCK           271L716     825
6144          0200 6444                    RJM    RSB                                                  271L716     826
6146          3403                         STD    T3           SET HOLE SIZE ABOUT THIS CP             271L716     827
6147          3011                         LDD    CM+1                                                 271L716     828
6150          3404                         STD    T4           SAVE FORWARD LINK                       271L716     829
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                                                                                   271L716    830
                              *         COMPUTE UPPER + LOWER MOVE.                271L716    831
                                                                                   271L716    832
6151     1411                           LDN    CM+1        ACCUMULATE MEMORY FOR UPPER MOVE      271L716    833
6152     0200 5606                      RJM    AMM                                               271L716    834
6154     0514                           NJN    IMV2        IF REQUEST SATISFIED WITH UPPER MOVE  271L716    835
6155     3006                           LDD    T6                                                271L716    836
6156     3402                           STD    T2                                                271L716    837
6157     0200 6560                      RJM    STA         GET MCT ENTRY                         271L716    838
6161     6010                           CRD    CM                                                271L716    839
6162     1402                           LDN    T2          ACCUMULATE MEMORY FOR LOWER MOVE      271L716    840
6163     0200 5606                      RJM    AMM                                               271L716    841
6165     0503                           NJN    IMV2        IF MOVE CAN BE COMPLETED              271L716    842
                                                                                                 271L716    843
6166     0200 7175            IMV1      RJM    HGM         HANG *MTR* (NO RETURN)                271L716    844
                                                                                                 271L716    845
6170     3043                 IMV2      LDD    MM+3        CONVERT MOVE MEMORY TO COUNT          271L716    846
6171     1071                           SHN    -MBCS                                             271L716    847
6172     3534                           RAD    CS+4        APPEND TO MOVE COUNT                  271L716    848
6173     3417                           STD    MB+1                                              271L716    849
6174     0200 0343                      RJM    TIM         UPDATE CLOCK                          271L716    850
6176     1457                           LDN    CMCL                                              271L716    851
6177     6040                           CRD    MM                                                271L716    852
6200     6230                           CWD    CS          SAVE COMPUTED VALUES                  271L716    853
6201     3074                           LDD    CP                                                271L716    854
6202     1702                           SBN    2                                                 271L716    855
6203     0732                           MJN    IMV5        IF CMR REQUEST OR CP 1                273L780    119
                                                                                                 271L716    857
                              *         COMPUTE LOWER + UPPER MOVE.                              271L716    858
                                                                                                 271L716    859
6204     3006                           LDD    T6          GET UNASSIGNED MEMORY BLOCK           271L716    860
6205     0200 6444                      RJM    RSB                                               271L716    861
6207     3403                           STD    T3          SET HOLE SIZE ABOUT THIS CP           271L716    862
6210     1466                           LDN    ZERL                                              271L716    863
6211     6030                           CRD    CS                                                271L716    864
6212     1402                           LDN    T2          ACCUMULATE MEMORY FOR LOWER MOVE      271L716    865
6213     0200 5606                      RJM    AMM                                               271L716    866
6215     0507                           NJN    IMV3        IF REQUEST SATISFIED WITH LOWER MOVE  271L716    867
6216     3004                           LDD    T4                                                271L716    868
6217     3411                           STD    CM+1                                              271L716    869
6220     1411                           LDN    CM+1        ACCUMULATE MEMORY FOR UPPER MOVE      271L716    870
6221     0200 5606                      RJM    AMM                                               271L716    871
6223     0442                           ZJN    IMV1        IF MOVE CANNOT BE COMPLETED           271L716    872
6224     3043                 IMV3      LDD    MM+3                                              271L716    873
6225     1071                           SHN    -MBCS       CONVERT MOVE MEMORY TO COUNT          271L716    874
6226     3534                           RAD    CS+4                                              271L716    875
                                                                                                 271L716    876
                              *         COMPARE OVERHEAD OF UPPER/LOWER VS LOWER/UPPER MOVES.    271L716    877
                                                                                                 271L716    878
6227     3217                           SBD    MB+1                                              271L716    879
6230     0703                           MJN    IMV4        IF LOWER/UPPER MOVE CHEAPER           271L716    880
6231     1457                           LDN    CMCL                                              271L716    881
6232     6030                           CRD    CS          RESET UPPER/LOWER PARAMETERS          271L716    882
6233     0200 0343            IMV4      RJM    TIM                                               271L716    883
6235     3031                 IMV5      LDD    CS+1                                              271L716    884
6236     0510                           NJN    IMV6        IF UPPER MOVE PRESENT                 271L716    885
6237     3442                           STD    MM.2                                              271L716    886
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6240  3030            LDD   CS      SET INITIAL CP/PCP FOR LOWER MOVE   271L716  887
6241  3440            STD   MM.0                                        271L716  888
6242  3032            LDD   CS+2    DEFINE NEGATIVE INCREMENT           271L716  889
6243  2377 7777       LMC   -0                                          271L716  890
6245  0310            UJN   IMV7    SET INCREMENT                       271L716  891
                                                                        271L716  892
6246  3440      IMV6  STD   MM.0    SET INITIAL CP/PCP FOR UPPER MOVE   271L716  893
6247  3030            LDD   CS                                          271L716  894
6250  3442            STD   MM.2    SET INITIAL CP/PCP FOR LOWER MOVE   271L716  895
6251  3032            LDD   CS+2                                        271L716  896
6252  5400 5776       STM   AMVA    SET INITIAL LOWER MOVE INCREMENT    271L716  897
6254  3033            LDD   CS+3                                        271L716  898
6255  3441      IMV7  STD   MM.1    SET MOVE INCREMENT                  271L716  899
6256  3074            LDD   CP                                          271L716  900
6257  3443            STD   MM.3    SET REQUESTING CP                   271L716  901
6260  5400 6007       STM   AMVB                                        271L716  902
6262  0100 6137       LJM   IMVX    RETURN                              271L716  903
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                ** ISR - ISSUE STORAGE REQUEST.                       271L716  905
                *                                                     271L716  906
                *  ENTRY  (A) = MONITOR FUNCTION.                     271L716  907
                *         (CP) = CONTROL POINT NUMBER.                271L716  908
                *         (CN, CN+1, CN+3) = PARAMETERS.              271L716  909
                *                                                     271L716  910
                *  EXIT   (A) = 0.                                    271L716  911
                *                                                     271L716  912
                *  USES   CN - CN+4.                                  271L716  913
                *                                                     271L716  914
                *  CALLS  CPR, TIM.                                   271L716  915
                                                                      271L716  916
                                                                      271L716  917
6264  0100 6264   ISR   SUBR          ENTRY/EXIT                     271L716  918
6266  5400 6277         STM   ISRA                                    271L716  919
6270  3074            LDD   CP      SET CP NUMBER IN X0 IMAGE           271L716  920
6271  3422            STD   CN+2                                        271L716  921
6272  1400            LDN   0       CLEAR UNUSED BYTE                   271L716  922
6273  3424            STD   CN+4                                        271L716  923
6274  1467            LDN   SMRL    STORE FUNCTION IN PROGRESS          271L716  924
6275  6220            CWD   CN                                          271L716  925
6276  2001 0000       LDC   10000   ISSUE *CPUMTR* REQUEST              271L716  926
            6277  ISRA  EQU   *-1                                       271L716  927
6300  0200 5112       RJM   CPR                                         271L716  928
6302  0200 0343   ISR1  RJM   TIM     UPDATE TIME                       271L716  929
6304  1467            LDN   SMRL                                        271L716  930
6305  6020            CRD   CN      GET FUNCTION STATUS                 271L716  931
6306  3020            LDD   CN                                          271L716  932
6307  0572            NJN   ISR1    IF NOT COMPLETE                     271L716  933
                *     LDN   0                                           271L716  934
6310  0353            UJN   ISRX    RETURN                              271L716  935
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                                **        MFL - MODIFY FIELD LENGTH.                                      MTR       4448
                                *                                                                         MTR       4449
                                *         ENTRY  (CP) = CONTROL POINT NUMBER.                             271L716    937
                                *                (T5) = 0 IF CM REQUEST.                                  271L716    938
                                *                     = 1 IF XM REQUEST.                                  271L716    939
                                *                (OR+1) = NEW FIELD LENGTH.                               271L716    940
                                *                (OR+2) = *RSTM* FLAGS.                                   271L716    941
                                *                (OR+3) = *CMRL*/*FLSW* IF CM REQUEST.                    MTR       4453
                                *                       = *ECRL*/*ECSW* IF ECS REQUEST.                   MTR       4454
                                *                (OR+4) = 4 IF POSITIVE FL/ECS REQUEST.                   MTR       4455
                                *                       = 0 IF NEGATIVE FL REQUEST.                       MTR       4456
                                *                (CS - CS+4) = FL STATUS.                                 MTR       4458
                                *                                                                         MTR       4459
                                *         USES   CM - CM+4, CN - CN+4.                                    NS2748       1
                                *                                                                         271L716    943
                                *         CALLS  CFL, CPR, ISR, SCP, WXP.                                 273L780    121
                                *                                                                         MTR36      11
                                *         ERROR  EXIT TO *HGM* IF CMR SIZE .GE. MCMR*100B.                NS2748       2
                                                                                                          MTR       4463
                                                                                                          MTR       4464
 6311           3074            MFL4     LDD    CP          SET CP/PCP NUMBER                            271L716    945
 6312           3422                     STD    CN+2                                                     271L716    946
 6313           1400                     LDN    0           CLEAR UNUSED FIELDS                          271L716    947
 6314           3424                     STD    CN+4                                                     271L716    948
 6315           1467                     LDN    SMRL        SET REQUEST IN PROGRESS                      271L716    949
 6316           6220                     CWD    CN                                                       271L716    950
 6317           3074            MFL5     LDD    CP          FORM CP/PCP AREA ADDRESS                     271L716    951
 6320           0200 6470                RJM    SCP                                                      271L716    952
 6322           1620                     ADN    STSW        GET STATUS WORD                              271L716    953
 6323           6010                     CRD    CM                                                       271L716    954
 6324           3010                     LDD    CM          CHECK CPU STATUS                             271L716    955
 6325           1066                     SHN    -11                                                      271L716    956
 6326           1101                     LMN    ACPS                                                     271L716    957
 6327           0403                     ZJN    MFL6        IF ACTIVITY IN CPU - 0                       271L716    958
 6330           2001 0000                LDC    10000                                                    271L716    959
 6332           1106            MFL6     LMN    MFLF        MODIFY FIELD LENGTH                          271L716    960
 6333           0200 5112                RJM    CPR                                                      271L716    961
 6335           0200 5245                RJM    WXP         WAIT REQUEST COMPLETE                        271L716    962
 6337           1467                     LDN    SMRL                                                     271L716    963
 6340           6020                     CRD    CN          FETCH REQUEST STATUS                         271L716    964
 6341           3020                     LDD    CN                                                       271L716    965
 6342           0554                     NJN    MFL5        IF CHANGE NOT MADE                           271L716    966
                                                                                                          271L716    967
 6343           0100 6343       MFL      SUBR               ENTRY/EXIT                                   271L716    968
 6345           3062                     LDD    OR+2                                                     271L716    969
 6346           2200 6200                LPC    1S11+1S10+1S7                                            271L716    970
 6350           0572                     NJN    MFLX        IF SPECIAL REQUEST                           271L716    971
 6351           3423                     STD    CN+3                                                     271L716    972
 6352           3074                     LDD    CP                                                       271L716    973
 6353           0507                     NJN    MFL2        IF NOT CMR REQUEST                           273L780    123
 6354           3061                     LDD    OR+1                                                     271L716    975
 6355           2177 3777                SBK    MCMR                                                     NS2748       3
 6357           0705                     MJN    MFL3        IF REQUEST .LT. MCMR*100B                    NS2748       4
                                                                                                          271L716    978
 6360           0200 7175       MFL1     RJM    HGM         HANG *MTR* (NO RETURN)                       271L716    979
                                                                                                          271L716    980
 6362           0200 6035       MFL2     RJM    CFL         CLEAR FL INCREASE REQUEST                    271L716    981
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 6364          3061                MFL3      LDD    OR+1                                                    271L716     982
 6365          5264 0030                     SBM    CS,OR+4      SET MEMORY INCREMENT                       271L716     983
 6367          3420                          STD    CN                                                      271L716     984
 6370          0452                          ZJN    MFLX         IF NO CHANGE                               271L716     985
 6371          3064                          LDD    OR+4                                                    271L716     986
 6372          1006                          SHN    6            SET TYPE OF FL + TYPE OF MEMORY            271L716     987
 6373          3305                          LMD    T5                                                      271L716     988
 6374          3421                          STD    CN+1                                                    271L716     989
 6375          0100 6311           MFLA      LJM    MFL4         (DUAL CPU)                                 271L716     990
                                                                                                            271L716     991
                                  *          LDN    MFLF         (SINGLE CPU)                               271L716     992
                                  *          RJM    ISR                                                     271L716     993
 6377          6265                          CON    ISR                                                     271L716     994
 6400          0342                          UJP    MFLX         RETURN                                     271L716     995


                                  **         PVE - PROCESS SPECIAL REQUEST.                                 MTR        4604
                                  *                                                                         271L716     997
                                  *          ENTRY  (T5) = 0 IF CM REQUEST.                                 271L716     998
                                  *                 (T5) = 1 IF XM REQUEST.                                 271L716     999
                                  *                 (OR+1) = REQUESTED MEMORY INCREMENT.                    271L716    1000
                                  *                 (OR - OR+4) = UPDATED OUTPUT REGISTER.                  271L716    1001
                                  *                                                                         MTR        4605
                                  *          EXIT   (A) .GT. 0 IF INCREASE.                                 MTR        4606
                                  *                     .LT. 0 IF DECREASE.                                 271L716    1002
                                  *                 (CP) = LAST CONTROL POINT.                              271L716    1003
                                  *                 (T6) = MCT ORDINAL OF LAST CONTROL POINT.               271L716    1004
                                  *                 (T7) = AMOUNT OF INCREASE / DECREASE.                   271L716    1005
                                  *                 (CS - CS+4) = FL CONTROL WORD FOR LAST CONTROL POINT.   271L716    1006
                                  *                                                                         271L716    1007
                                  *          USES   CP, T6, T7, CM - CM+4, CS - CS+4.                       271L716    1008
                                  *                                                                         271L716    1009
                                  *          CALLS  AMF, HNG, SCP.                                          271L716    1010
                                                                                                            MTR        4617
                                                                                                            MTR        4618
 6401          1400                PVE2      LDN    **           SET CP TO LAST CONTROL POINT               271L716    1011
                                  *          LDN    (NC)-1                                                  271L716    1012
                      6401         PVEA      EQU    *-1                                                     271L716    1013
 6402          3474                          STD    CP                                                      271L716    1014
 6403          3406                          STD    T6                                                      271L716    1015
 6404          0200 6470                     RJM    SCP          READ FL CONTROL WORD                       271L716    1016
 6406          3163                          ADD    OR+3                                                    271L716    1017
 6407          6030                          CRD    CS                                                      271L716    1018
 6410          3076                          LDD    OA           STORE OUTPUT REGISTER                      271L716    1019
 6411          6260                          CWD    OR                                                      271L716    1020
 6412          3061                          LDD    OR+1         SET MEMORY INCREMENT                       271L716    1021
 6413          3407                          STD    T7                                                      271L716    1022
 6414          1006                          SHN    21-13        CHECK REQUEST TYPE                         271L716    1023
 6415          0605                          PJN    PVEX         IF *VER* REQUESTING MEMORY                 271L716    1024
 6416          1411                          LDN    11           SET REQUEST TYPE                           271L716    1025
 6417          0200 5566                     RJM    AMF          SET UNASSIGNED MEMORY AFTER LAST CP        271L716    1026
 6421          1501                          LCN    1            INDICATE *VER* RETURNING MEMORY            271L716    1027
                                                                                                            MTR        4620
 6422          0100 6422           PVE       SUBR                ENTRY/EXIT                                 MTR        4621
 6424          3076                          LDD    OA           VERIFY CALLER                              MTR        4622
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6425          1701                    SBN    1                                                MTR       4623
6426          6010                    CRD    CM                                               MTR       4624
6427          3011                    LDD    CM+1                                             MTR       4625
6430          1377                    SCN    77                                               MTR       4626
6431          1006                    SHN    6                                                MTR       4627
6432          3310                    LMD    CM                                               MTR       4628
6433          2322 2605               LMC    3RRVE                                            MTR       4629
6435          0443                    ZJN    PVE2         IF CALLER IS *VER*                  271L716   1028
6436          0200 1303     PVE1      RJM    HNG          HANG PP                             271L716   1029



                            **        RSB - RETURN SIZE OF UNASSIGNED MEMORY BLOCK.           271L716   1031
                            *                                                                 271L716   1032
                            *         ENTRY  (A) = ORDINAL OF MCT ENTRY.                      271L716   1033
                            *                (T5) = 0 IF CM REQUEST.                          271L716   1034
                            *                     = 1 IF XM REQUEST.                          271L716   1035
                            *                                                                 271L716   1036
                            *         EXIT   (A) = (T0) = BLOCK SIZE.                         271L716   1037
                            *                (T2) = ORDINAL OF MCT ENTRY.                     271L716   1038
                            *                (CM - CM+4) = MCT ENTRY.                         271L716   1039
                            *                                                                 271L716   1040
                            *         USES   T0, T2, CM - CM+4.                               271L716   1041
                            *                                                                 271L716   1042
                            *         CALLS  STA.                                             271L716   1043
                            *                                                                 271L716   1044
                            *         ERROR  TO *HGM* IF MCT ENTRY DESTROYED.                 271L716   1045
                                                                                              271L716   1046
                                                                                              271L716   1047
6440          2000 3777     RSB2      LDC    3777         RETURN MAXIMUM MEMORY               271L716   1048
6442          3400          RSB3      STD    T0                                               271L716   1049
                                                                                              271L716   1050
6443          0100 6443     RSB       SUBR                ENTRY/EXIT                          271L716   1051
6445          3402                    STD    T2                                               271L716   1052
6446          0200 6560               RJM    STA          FETCH MCT ENTRY                     271L716   1053
6450          6010                    CRD    CM                                               271L716   1054
6451          3013                    LDD    CM+3         VERIFY ENTRY                        271L716   1055
6452          1006                    SHN    21-13                                            271L716   1056
6453          0710                    MJN    RSB1         IF MCT ENTRY BAD                    271L716   1057
6454          1006                    SHN    14-6                                             271L716   1058
6455          3314                    LMD    CM+4         CHECK UNASSIGNED MEMORY             271L716   1059
6456          2177 4000               SBK    3777                                             271L716   1060
6460          0657                    PJN    RSB2         IF .GE. MAXIMUM FOR JOB             271L716   1061
6461          3014                    LDD    CM+4                                             271L716   1062
6462          0357                    UJN    RSB3         RETURN                              271L716   1063
                                                                                              271L716   1064
6463          0200 7175     RSB1      RJM    HGM          HANG *MTR* (NO RETURN)              271L716   1065
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                                   **        SCP - SET CP/PCP AREA ADDRESS.                                  271L716   1067
                                   *                                                                         271L716   1068
                                   *         ENTRY  (A) = CP/PCP NUMBER.                                     271L716   1069
                                   *                (NC) = SYSTEM CP NUMBER.                                 271L716   1070
                                   *                                                                         271L716   1071
                                   *         EXIT   (A) = CPA/PCPA ADDRESS.                                  271L716   1072
                                                                                                             271L716   1073
                                                                                                             271L716   1074
6465          3146                  SCP1     ADD    NC           SET REAL CP AREA ADDRESS                    271L716   1075
6466          1007                           SHN    7                                                        271L716   1076
                                                                                                             271L716   1077
6467          0100 6467             SCP      SUBR                ENTRY/EXIT                                  271L716   1078
6471          3246                           SBD    NC                                                       271L716   1079
6472          0772                           MJN    SCP1         IF REAL CP                                  271L716   1080
6473          0471                           ZJN    SCP1         IF SYSTEM CP                                271L716   1081
6474          1007                           SHN    7                                                        271L716   1082
6475          2100 0000                      ADC    0            ADD BASE PCPA ADDRESS - CPA LENGTH          271L716   1083
                         6476       SCPA     EQU    *-1                                                      271L716   1084
6477          0367                           UJN    SCPX         RETURN                                      271L716   1085



                                   **        SFL - SET FL INCREASE.                                          MTR       4655
                                   *                                                                         MTR       4656
                                   *         ENTRY  (CP) = CONTROL POINT NUMBER.                             271L716   1086
                                   *                (T5) = 0 IF CM REQUEST.                                  271L716   1087
                                   *                     = 1 IF XM REQUEST.                                  271L716   1088
                                   *                (OR+1) = FL TO SET FOR INCREASE.                         271L716   1089
                                   *                (OR+4) = 0 IF NEGATIVE FL REQUEST.                       MTR       4661
                                   *                (CS - CS+4) = CP FL STATUS WORD.                         MTR       4662
                                   *                                                                         MTR       4664
                                   *         USES   CM - CM+4.                                               MTR       4665
                                   *                                                                         MTR       4666
                                   *         MACROS MONITOR.                                                 MTR       4667
                                                                                                             MTR       4668
                                                                                                             MTR       4669
6500          3061                  SFL5     LDD    OR+1         SET XM FL REQUIRED                          271L716   1090
6501          3413                           STD    CM+3                                                     271L716   1091
6502          3074                  SFL6     LDD    CP           SET CP ADDRESS                              271L716   1092
6503          1007                           SHN    7                                                        271L716   1093
6504          1665                           ADN    FLIW         REWRITE FL INCREASE CONTROL WORD            271L716   1094
6505          6210                           CWD    CM                                                       MTR       4674
6506          1400                           LDN    0            CLEAR INPUT FILE SCHEDULING FLAG            MTR       4675
6507          3412                           STD    CM+2                                                     MTR       4676
6510          2000 0101                      MONITOR  RSJM       REQUEST JOB SCHEDULER                       MTR       4677
                                                                                                             MTR       4678
6514          0100 6514             SFL      SUBR                ENTRY/EXIT                                  MTR       4679
6516          3062                           LDD    OR+2                                                     MTR       4680
6517          1013                           SHN    21-6                                                     MTR       4681
6520          0673                           PJN    SFLX         IF DO NOT SET *FLIW*                        MTR       4682
6521          3074                           LDD    CP                                                       271L716   1095
6522          1007                           SHN    7                                                        271L716   1096
6523          1665                           ADN    FLIW         READ FL INCREASE CONTROL WORD               271L716   1097
6524          6010                           CRD    CM                                                       271L716   1098
6525          3005                           LDD    T5                                                       271L716   1099
6526          0551                           NJN    SFL5         IF XM REQUEST                               271L716   1100
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6527          3014                    LDD    CM+4                                       271L716    1101
6530          0420                    ZJN    SFL4         IF NO CM INCREASE PENDING     271L716    1102
6531          3064                    LDD    OR+4                                       271L716    1103
6532          0403                    ZJN    SFL2         IF NFL REQUEST                271L716    1104
6533          3030           SFL1     LDD    CS                                         271L716    1105
6534          0310                    UJN    SFL3         COMPUTE TOTAL CM FL           MTR        4694
                                                                                        MTR        4695
6535          3012           SFL2     LDD    CM+2                                       271L716    1106
6536          0555                    NJN    SFLX         IF REISSUE OF NFL REQUEST     271L716    1107
6537          3061                    LDD    OR+1                                       271L716    1108
6540          3230                    SBD    CS                                         271L716    1109
6541          3412                    STD    CM+2         COMPUTE NFL INCREASE AMOUNT   271L716    1110
6542          3014                    LDD    CM+4                                       MTR        4701
6543          3230                    SBD    CS                                         MTR        4702
6544          3161           SFL3     ADD    OR+1                                       MTR        4703
6545          3414                    STD    CM+4                                       MTR        4704
6546          0100 6502               LJM    SFL6         REWRITE FL INCREASE CONTROL WORD  271L716    1111
                                                                                        271L716    1112
6550          3064           SFL4     LDD    OR+4                                       271L716    1113
6551          0561                    NJN    SFL1         IF NOT NFL INCREASE           271L716    1114
6552          3061                    LDD    OR+1                                       271L716    1115
6553          3230                    SBD    CS                                         271L716    1116
6554          3412                    STD    CM+2         COMPUTE NFL INCREASE          271L716    1117
6555          3034                    LDD    CS+4                                       271L716    1118
6556          0365                    UJN    SFL3         ADD NFL TO CM FL              271L716    1119


                             **       STA - SET MEMORY CONTROL TABLE ADDRESS.           271L716    1121
                             *                                                          271L716    1122
                             *        ENTRY  (A) = CP/PCP NUMBER.                       271L716    1123
                             *               (T5) = 0 IF CM REQUEST.                    271L716    1124
                             *                    = 1 IF XM REQUEST.                    271L716    1125
                             *                                                          271L716    1126
                             *        EXIT   (A) = ABSOLUTE TABLE ADDRESS.              271L716    1127
                                                                                        271L716    1128
                                                                                        271L716    1129
6557          0100 6557      STA      SUBR                ENTRY/EXIT                    271L716    1130
6561          1001                    SHN    1                                          271L716    1131
6562          2100 0000               ADC    0            APPEND BASE MCT ADDRESS       271L716    1132
                        6563 STAA     EQU    *-1                                        271L716    1133
6564          3105                    ADD    T5                                         271L716    1134
6565          0371                    UJN    STAX         RETURN                        271L716    1135
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                                **        UFL - SET UNASSIGNED FIELD LENGTHS.                                  MTR       4715
                                *                                                                              MTR       4716
                                *         ENTRY  (CP) = CP/PCP NUMBER.                                         271L716   1137
                                *                (NC) = SYSTEM CP NUMBER.                                      271L716   1138
                                *                (T5) = 0 IF CM REQUEST.                                       271L716   1139
                                *                     = 1 IF XM REQUEST.                                       271L716   1140
                                *                (T7) = AMOUNT OF MEMORY REQUIRED.                             271L716   1141
                                *                (OR+4) = 0 IF NFL REQUEST.                                    271L716   1142
                                *                (CS - CS+4) = FL CONTROL WORD OF REQUESTING CP.               271L716   1143
                                *                                                                              271L716   1144
                                *         EXIT   (A) .LT. 0 IF MEMORY UNAVAILABLE.                             271L716   1145
                                *                (T8) = MCT ORDINAL OF MEMORY HOLE.                            271L716   1146
                                *                                                                              271L716   1147
                                *         USES   T1, T3, T4, T7, T8, CM - CM+4, CN - CN+4.                     271L716   1148
                                *                                                                              271L716   1149
                                *         CALLS  RSB, TIM.                                                     271L716   1150
                                                                                                               MTR       4726
                                                                                                               MTR       4727
 6566           3004            UFL11    LDD    T4                                                            271L716   1151
 6567           0514                     NJN    UFL12       IF CP HAS MEMORY ASSIGNED                         271L716   1152
 6570           3064                     LDD    OR+4                                                          271L716   1153
 6571           0412                     ZJN    UFL12       IF NFL REQUEST                                    271L716   1154
 6572           1427                     LDN    MSCL        GET MEMORY PAD SIZE                               271L716   1155
 6573           6020                     CRD    CN                                                            271L716   1156
 6574           3007                     LDD    T7          CHECK REQUEST SIZE                                271L716   1157
 6575           3124                     ADD    CN+4                                                          271L716   1158
 6576           2177 4007                SBK    3770                                                          271L716   1159
 6600           0703                     MJN    UFL12       IF REQUEST SHORT ENOUGH TO PAD                    271L716   1160
 6601           1400                     LDN    0                                                             271L716   1161
 6602           3424                     STD    CN+4                                                          271L716   1162
 6603           3010            UFL12    LDD    CM          CHECK CENTRAL MEMORY                              271L716   1163
 6604           1014                     SHN    14                                                            271L716   1164
 6605           3311                     LMD    CM+1        TOTAL UNASSIGNED MEMORY                           271L716   1165
 6606           3207            UFL13    SBD    T7                                                            271L716   1166
 6607           0617                     PJN    UFL1        IF SUFFICIENT TO SATISFY REQUEST                  271L716   1167
                                                                                                               271L716   1168
 6610           0100 6610       UFL      SUBR               ENTRY/EXIT                                        271L716   1169
 6612           3030                     LDD    CS                                                            271L716   1170
 6613           3134                     ADD    CS+4        TOTAL ASSIGNED MEMORY                             271L716   1171
 6614           3404                     STD    T4                                                            271L716   1172
 6615           1422                     LDN    ACML        FETCH UNASSIGNED MEMORY COUNT                     271L716   1173
 6616           6010                     CRD    CM                                                            271L716   1174
 6617           1400                     LDN    0           CLEAR MEMORY ASSIGNMENT PAD                       271L716   1175
 6620           3424                     STD    CN+4                                                          271L716   1176
 6621           3415                     STD    T8          SET MEMORY HOLE NOT FOUND                         271L716   1177
 6622           3005                     LDD    T5                                                            271L716   1178
 6623           0442                     ZJN    UFL11       IF REQUEST FOR CENTRAL MEMORY                     271L716   1179
 6624           3013                     LDD    CM+3                                                          271L716   1180
 6625           0360                     UJN    UFL13       CHECK UNASSIGNED EXTENDED MEMORY                  271L716   1181
                                                                                                               271L716   1182
 6626           3224            UFL1     SBD    CN+4                                                          271L716   1183
 6627           0606                     PJN    UFL3        IF SUFFICIENT MEMORY FOR REQUEST + PAD            271L716   1184
 6630           3124                     ADD    CN+4                                                          271L716   1185
 6631           3204                     SBD    T4                                                            271L716   1186
 6632           0612                     PJN    UFL6        IF ENOUGH MEMORY TO WARRANT HOLE SEARCH           271L716   1187
 6633           1400            UFL2     LDN    0                                                             271L716   1188
 6634           0353                     UJN    UFLX        RETURN                                            271L716   1189
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                                                                                        271L716   1190
6635        3204                 UFL3     SBD     T4                                    271L716   1191
6636        0604                          PJN     UFL5        IF HOLE SEARCH FOR REQUEST + PAD   271L716   1192
6637        3024                          LDD     CN+4                                  271L716   1193
6640        3507                          RAD     T7                                    271L716   1194
6641        0346                 UFL4     UJN     UFLX        RETURN                    271L716   1195
                                                                                        271L716   1196
6642        3024                 UFL5     LDD     CN+4        APPEND PAD TO REQUEST     271L716   1197
6643        3507                          RAD     T7                                    271L716   1198
6644        3064                 UFL6     LDD     OR+4                                  271L716   1199
6645        0442                          ZJN     UFLX        IF NFL REQUEST            271L716   1200
6646        3074                          LDD     CP                                    271L716   1201
6647        1702                          SBN     2                                     271L716   1202
6650        0762                          MJN     UFL2        IF CMR OR CP 1            273L780    124
6651        1603                          ADN     3                                     271L716   1204
6652        3346                          LMD     NC                                    271L716   1205
6653        0465                 UFL7     ZJN     UFL4        IF LAST REAL CP           271L716   1206
6654        3007                          LDD     T7                                    271L716   1207
6655        3504                          RAD     T4          INCLUDE CURRENT INCREASE  271L716   1208
6656        2000 0000                     LDC     0                                     271L716   1209
                         6657    UFLA     EQU     *-1         (NUMBER OF MCT ENTRIES)   271L716   1210
6660        1703                          SBN     3                                     271L716   1211
6661        3401                          STD     T1                                    271L716   1212
6662        1401                          LDN     1           INITIALIZE FORWARD LINK   271L716   1213
6663        3411                          STD     CM+1                                  271L716   1214
6664        1500                          LCN     0           PRESET HOLE SIZE          271L716   1215
6665        3403                          STD     T3                                    271L716   1216
6666        3011                 UFL8     LDD     CM+1        SAVE FORWARD LINK         271L716   1217
6667        5400 6674                     STM     UFLB                                  271L716   1218
6671        0200 0343                     RJM     TIM         UPDATE CLOCK              271L716   1219
6673        2000 0000                     LDC     **                                    271L716   1220
                         6674    UFLB     EQU     *-1                                   271L716   1221
6675        0200 6444                     RJM     RSB                                   271L716   1222
6677        3204                          SBD     T4                                    271L716   1223
6700        0711                          MJN     UFL9        IF HOLE NOT FOUND         271L716   1224
6701        3203                          SBD     T3                                    271L716   1225
6702        0607                          PJN     UFL9        IF THIS HOLE LARGER       271L716   1226
6703        3503                          RAD     T3                                    271L716   1227
6704        3002                          LDD     T2          SAVE ORDINAL OF HOLE      271L716   1228
6705        3415                          STD     T8                                    271L716   1229
6706        3000                          LDD     T0          CHECK HOLE SIZE           271L716   1230
6707        3204                          SBD     T4                                    271L716   1231
6710        0442                          ZJN     UFL7        IF EXACT FIT              271L716   1232
6711        3701                 UFL9     SOD     T1                                    271L716   1233
6712        0440                          ZJN     UFL7        IF SCAN COMPLETE          271L716   1234
6713        0352                          UJN     UFL8        CHECK NEXT MCT ENTRY      271L716   1235
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                                *       MEMORY ALLOCATION ADDRESSES / FUNCTIONS.                    MTR       4776
                                                                                                    MTR       4777
                                                                                                    MTR       4778
6714          0023 0025         MAFA    CON     FLSW,ECSW                                         MTR       4779
6716          0000 0002         MAFC    CON     MSTF,MECF                                         MTR       4780
                                                                                                    MTR       4782
                        0               ERRNZ   FLSW-CMRL                                         MTR       4783
                        0               ERRNZ   ECSW-ECRL                                         MTR       4784
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                                **      NOTE - SUBROUTINES WILL NOT ALTER OA, CP, OR - OR+4.          MTR       4787


                                **      CDA - CLEAR DEVICE ACTIVITY.                                  MTR       4819
                                *                                                                     MTR       4820
                                *       ENTRY  (T4 - CM) = *DSWM* PARAMETERS FROM MESSAGE BUFFER.     MTR       4821
                                *              (CS) = UNIT TO WRITE TO *DRQP*.                        273L780    126
                                *              (CN - CN+4) = DEVICE ACTIVITY WORD.                    MTR       4823
                                *                                                                     MTR       4825
                                *       EXIT   PP ACTIVITY WORD WRITTEN.                              MTR       4826
                                *              (PR) = PP NUMBER WAITING FOR THE UNIT BEING RELEASED.  MTR       4828
                                *                                                                     MTR       4829
                                *       USES   CM, CN, CN+1, CN+3, PR.                                273L780    127
                                *                                                                     273L780    128
                                *       MACROS MSTA.                                                  273L780    129
                                                                                                      MTR       4831
                                                                                                      MTR       4832
6720    3066            CDA6    LDD    PP          STORE *DRQP*                                       273L780    130
6721    1004                    SHN    PPXES                                                          273L780    131
6722    2100 0001               TADC   DRQP,PPX                                                      273L780    132
6724    6230                    CWD    CS                                                             MTR       4834
                                                                                                      MTR       4835
6725    0100 6725       CDA     SUBR               ENTRY/EXIT                                         MTR       4836
6727    3010                    LDD    CM          CLEAR *CHRV* CHANNEL STATUS                        MTR       4837
6730    1311                    SCN    11                                                             MTR       4838
6731    3410                    STD    CM                                                             MTR       4839
6732    5066 7614               LDM    TPPI,PP                                                        273L780    133
6734    0463                    ZJN    CDA6        IF NO INTERLOCK HELD                               271L716   1237
6735    1301                    SCN    1                                                              MTR       4849
6736    0415                    ZJN    CDA3        IF NO INTERLOCK SET                                MTR       4850
6737    3321                    LMD    CN+1                                                           MTR       4851
6740    3421                    STD    CN+1                                                           MTR       4852
6741    1064                    SHN    -13                                                            MTR       4853
6742    0510                    NJN    CDA2        IF FIRST UNIT NOT FREE                             271L716   1238
6743    3067                    LDD    PR                                                             271L716   1239
6744    0504                    NJN    CDA1        IF REQUEST FOR CHANNEL BY OTHER UNIT               271L716   1240
6745    3023                    LDD    CN+3                                                           271L716   1241
6746    0405                    ZJN    CDA3        IF UNIT NOT REQUESTED                              271L716   1242
6747    3467                    STD    PR                                                             271L716   1243
6750    1400            CDA1    LDN    0           CLEAR UNIT REQUEST                                 271L716   1244
6751    3423                    STD    CN+3                                                           271L716   1245
6752    1400            CDA2    LDN    0                                                              271L716   1246
6753    5466 7614       CDA3    STM    TPPI,PP                                                        273L780    134
6755    3021                    LDD    CN+1                                                           271L716   1248
6756    1317                    SCN    17                                                             271L716   1249
6757    0503                    NJN    CDA4        IF OTHER LOGICAL RESERVE(S) STILL SET              271L716   1250
6760    1401                    LDN    1                                                              271L716   1251
6761    3421                    STD    CN+1        CLEAR *DALL* UPDATE INTERLOCK                      271L716   1252
6762    3720            CDA4    SOD    CN                                                             271L716   1253
6763    1014                    SHN    21-5                                                           271L716   1254
6764    0604                    PJN    CDA5        IF NO UNDERFLOW                                    271L716   1255
6765    1006                    SHN    5-21+22                                                        271L716   1256
6766    1601                    ADN    1           FIX UNDERFLOW PROBLEM                              271L716   1257
6767    3420                    STD    CN                                                             271L716   1258
6770    5066 7727       CDA5    MSTA   DALL,PP     UPDATE DEVICE ACTIVITY                             273L780    135
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6774         6220                          CWD    CN                                     271L716    1260
6775         0100 6720                     LJM    CDA6         RETURN                    271L716    1261

                                 **        CFS - CHECK FOR STEP CRITERION MET.           MTR        4876
                                 *                                                       MTR        4877
                                 *         ENTRY  (A) = POINTER TO OUTPUT REGISTER.      MTR        4878
                                 *                (CM - CM+4) = INPUT REGISTER.          MTR        4879
                                 *                                                       MTR        4880
                                 *         EXIT   (A) = 0 IF STEP CRITERION MET BY THIS PPU.    MTR        4881
                                 *                                                       MTR        4882
                                 *         USES   T3, CM - CM+4.                         MTR        4883
                                                                                         MTR        4884
                                                                                         MTR        4885
6777         0100 6777           CFS       SUBR                ENTRY/EXIT                MTR        4886
7001         3403                          STD    T3           SAVE OUTPUT REGISTER ADDRESS    MTR        4887
7002         3011                          LDD    CM+1                                   MTR        4888
7003         1237                          LPN    37                                     MTR        4889
7004         1007                          SHN    7                                      MTR        4890
7005         1672                          ADN    TFSW         READ CALLING CP EJT ORDINAL    273L780     136
7006         6010                          CRD    CM                                     MTR        4892
7007         2000 0000                     LDC    0            EJT ORDINAL TO STEP       MTR        4893
                        7010     CFSA      EQU    *-1                                    MTR        4894
7011         0422                          ZJN    CFS1         IF NOT EJT ORDINAL STEP   MTR        4895
7012         3310                          LMD    CM                                     MTR        4896
7013         0420                          ZJN    CFS1         IF CORRECT EJT ORDINAL    273L780     137
7014         3003                          LDD    T3                                     273L780     138
7015         3265                          SBD    OF                                     273L780     139
7016         1001                          SHN    PPXES-PPCES                            273L780     140
7017         2100 0000                     TADC   ACPP,PPX                               273L780     141
7021         6010                          CRD    CM           GET ALTERNATE CP/PCP ASSIGNMENT IF PRESENT 273L780     142
7022         3011                          LDD    CM+1                                   273L780     143
7023         1014                          SHN    14                                     273L780     144
7024         3112                          ADD    CM+2                                   273L780     145
7025         1672                          ADK    TFSW         READ POSSIBLE ALTERNATE CP/PCP EJT ORDINAL 273L780     146
7026         6010                          CRD    CM                                     273L780     147
7027         3010                          LDD    CM                                     273L780     148
7030         5300 7010                     LMM    CFSA                                   273L780     149
7032         0544                          NJN    CFSX         IF NOT CORRECT EJT ORDINAL    273L780     150
7033         2000 0000           CFS1      LDC    **           FUNCTION TO STEP          MTR        4898
                        7034     CFSB      EQU    *-1                                    MTR        4899
7035         0441                          ZJN    CFSX         IF NO FUNCTION TO STEP    MTR        4900
7036         4303                          LMI    T3                                     MTR        4901
7037         2200 0177                     LPC    177                                    MTR        4902
7041         0505                          NJN    CFS2         IF INCORRECT FUNCTION     273L780     151
7042         5003 0000                     LDM    **,T3                                  MTR        4904
                        7043     CFSC      EQU    *-1          BYTE NUMBER STEPING ON    MTR        4905
7044         2300 0000                     LMC    **           BYTE VALUE TO STEP ON     MTR        4906
                        7045     CFSD      EQU    *-1                                    MTR        4907
7046         0100 6777           CFS2      LJM    CFSX         RETURN                    273L780     152
```

```
                                   **        FTN - PROCESS MONITOR FUNCTION.                                MTR        4910
                                   *                                                                        MTR        4911
                                   *         ENTRY  (A) = FUNCTION.                                         MTR        4915
                                   *                (CP) = CONTROL POINT NUMBER.                            271L716    1263
                                   *                (CM+1 - CM+4) = PARAMETERS.                             271L716    1264
                                   *                                                                        MTR        4918
                                   *         EXIT   (CM - CM+4) = RESPONSE.                                 MTR        4919
                                   *                (A) = 0.                                                MTR        4920
                                   *                                                                        MTR        4921
                                   *         USES   CN - CN+4.                                              273L780     153
                                   *                                                                        MTR        4923
                                   *         CALLS  AVC, CPR.                                               273L780     154
                                                                                                            MTR        4925
                                                                                                            MTR        4926
 7050         1466                  FTN4     LDN    ZERL         INITIALIZE *ACPP*                          273L780     155
 7051         6020                           CRD    CN                                                      273L780     156
 7052         3074                           LDD    CP           SET CONTROL POINT NUMBER                   273L780     157
 7053         3420                           STD    CN                                                      273L780     158
 7054         1007                           SHN    7            SET CONTROL POINT ADDRESS                  273L780     159
 7055         3422                           STD    CN+2                                                    273L780     160
 7056         3424                           STD    CN+4                                                    273L780     161
 7057         2000 0000                      TLDC   ACPP,PPX     WRITE *ACPP*                               273L780     162
 7061         6220                           CWD    CN                                                      273L780     163
 7062         3065                           LDD    OF           WRITE OUTPUT REGISTER                      273L780     164
 7063         6210                           CWD    CM                                                      273L780     165
 7064         2300 0000             FTNB     LMC    0            MERGE CPU NUMBER                           MTR        4935
 7066         0200 5112                      RJM    CPR                                                     MTR        4936
 7070         0200 0254             FTN5     RJM    AVC          ADVANCE CLOCK                              MTR        4937
 7072         3065                           LDD    OF           READ OUTPUT REGISTER                       MTR        4938
 7073         6010                           CRD    CM                                                      MTR        4939
 7074         3010                           LDD    CM                                                      MTR        4940
 7075         0572                           NJN    FTN5         IF NOT COMPLETE                            MTR        4941
                                                                                                            MTR        4942
 7076         0100 7076             FTN      SUBR                ENTRY/EXIT                                 MTR        4943
 7100         3410                           STD    CM           SET REQUEST                                MTR        4944
 7101         2000 2300             FTNA     LDC    LMCI                                                    MTR        4945
                                   *         UJN    FTN4         (1 CPU ONLY)                               MTR        4946
 7103         5400 7064                      STM    FTNB                                                    MTR        4947
 7105         3010                           LDD    CM                                                      MTR        4948
 7106         1156                           LMN    DCPM                                                    MTR        4949
 7107         0403                           ZJN    FTN1         IF FUNCTION REQUIRING CORRECT CPU          MTR        4950
 7110         1102                           LMN    CEFM&DCPM                                               MTR        4951
 7111         0527                           NJN    FTN3         IF FUNCTION DOES NOT REQUIRE CORRECT CPU   MTR        4952
 7112         3074                  FTN1     LDD    CP           CHECK CPU SELECTION                        MTR        4953
 7113         1007                           SHN    7                                                       271L716    1265
 7114         1621                           ADN    CWQW                                                    271L750     149
 7115         6020                           CRD    CN                                                      MTR        4955
 7116         3022                           LDD    CN+2                                                    271L750     150
 7117         1203                           LPN    3                                                       MTR        4957
 7120         1703                           SBN    3                                                       271L750     151
 7121         0417                           ZJN    FTN3         IF NEITHER CPU ASSIGNABLE                  271L750     152
 7122         1602                           ADN    3-1                                                     271L750     153
 7123         0613                           PJN    FTN2         IF CPU SELECTION                           MTR        4959
 7124         3074                           LDD    CP           CHECK FOR ACTIVE JOB                       MTR        4960
 7125         1007                           SHN    7                                                       271L716    1266
 7126         1620                           ADN    STSW                                                    MTR        4961
 7127         6020                           CRD    CN                                                      MTR        4962
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7130          3020                        LDD    CN                                         MTR        4963
7131          1066                        SHN    -11                                        MTR        4964
7132          0406                        ZJN    FTN3         IF NOT ACTIVE                 MTR        4965
7133          1703                        SBN    3                                          MTR        4966
7134          0604                        PJN    FTN3         IF NOT ACTIVE                 MTR        4967
7135          1602                        ADN    2                                          MTR        4968
7136          5500 7064          FTN2     RAM    FTNB         SET CORRECT CPU               MTR        4969
7140          0100 7050          FTN3     LJM    FTN4         ISSUE REQUEST                 MTR        4970



                                **        GCE - GET CHANNEL ASSIGNMENT TABLE ENTRY.         MTR        4974
                                *                                                           MTR        4975
                                *         ENTRY  (A) = CHANNEL NUMBER.                      MTR        4976
                                *                                                           MTR        4977
                                *         EXIT   (A) = ((T1)) = CHANNEL ASSIGNMENT TABLE ENTRY.  MTR   4978
                                *                (CM - CM+4) = CHANNEL ASSIGNMENT TABLE WORD.    MTR   4979
                                *                (CN) = REQUESTING JOB-S EJT ORDINAL.       NS2454       90
                                *                (T0) = WORD INDEX FOR CHANNEL ASSIGNMENT TABLE.  MTR  4981
                                *                                                           MTR        4982
                                *         USES   T0, T1, CM - CM+4, CN - CN+4.              NS2454       91
                                *                                                           252L678     256
                                *         CALLS  VCN.                                       252L678     257
                                *                                                           252L678     258
                                                                                            MTR        4984
                                                                                            MTR        4985
7142          0100 7142          GCE      SUBR                ENTRY/EXIT                    MTR        4986
7144          3401                        STD    T1           SAVE CHANNEL NUMBER           MTR        4987
7145          0200 7327                   RJM    VCN          VERIFY CHANNEL NUMBER         252L678     259
7147          1500                        LCN    0            INITIALIZE WORD INDEX         MTR        4988
7150          3400                        STD    T0                                         MTR        4989
7151          3600               GCE1     AOD    T0           INCREMENT WORD INDEX          MTR        4990
7152          1505                        LCN    5            DIVIDE BY 5 LOOP              MTR        4991
7153          3501                        RAD    T1                                         MTR        4992
7154          0674                        PJN    GCE1         IF NOT CORRECT INDEX          MTR        4993
7155          1615                        ADN    5+CM                                       MTR        4994
7156          3401                        STD    T1                                         MTR        4995
7157          2000 0000                   LDC    0            READ CHANNEL ASSIGNMENT TABLE WORD  MTR  4996
                             7160  GCEA   EQU    *-1                                        MTR        4997
7161          3100                        ADD    T0           ADD CORRECT WORD INDEX        MTR        4998
7162          6010                        CRD    CM                                         MTR        4999
7163          3076                        LDD    OA           GET JOB-S CP NUMBER           MTR        5000
7164          1701                        SBN    1                                          MTR        5001
7165          6020                        CRD    CN                                         NS2454       92
7166          3021                        LDD    CN+1         GET REQUESTING JOB-S EJT ORDINAL  NS2454   93
7167          1237                        LPN    37                                         MTR        5004
7170          1007                        SHN    7                                          MTR        5005
7171          1672                        ADN    TFSW                                       MTR        5006
7172          6020                        CRD    CN                                         NS2454       94
7173          4001                        LDI    T1                                         MTR        5008
7174          0345                        UJN    GCEX         RETURN                        MTR        5009
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                                **        HGM - HANG *MTR*.                                      MTR36         22
                                                                                                 MTR36         23
                                                                                                 MTR36         24
7175         0000                HGM      CON    **          CALLER-S ADDRESS                    MTR36         25
7176         2000 0036           HGM1     LDC    MS2W+***    DISPLAY MESSAGE                     271L716     1267
                       7177      HGMB     EQU    *-1                                             271L716     1268
7200         6370 7203                    CWM    HGMA,ON                                         MTR36         29
7202         0373                         UJN    HGM1        LOOP                                MTR36         30
                                                                                                 MTR36         31
                                                                                                 MTR36         32
7203         1524                HGMA     DATA   C*MTR HUNG*                                     MTR36         33



                                **        PCM - PURGE CACHE IF CPU 1 IN MONITOR MODE.            MTR54          6
                                *                                                                MTR54          7
                                *         PURGE CACHE IN CPU 1 ON A DUAL CPU MACHINE WITH        MTR54          8
                                *         CACHE, IF CPU 1 IS IN MONITOR MODE.                    MTR54          9
                                *                                                                MTR54         10
                                *         EXIT   CPU 1 CACHE PURGED IF DUAL-CPU NOS AND MONITOR MODE.  MTR54   11
                                *                                                                MTR54         12
                                *         USES   CM - CM+4.                                      MTR54         13
                                                                                                 MTR54         14
                                                                                                 MTR54         15
7210         0100 7210           PCM      SUBR               ENTRY/EXIT                          MTR54         16
7212         0375                PCMA     UJN    PCMX        IF NOT DUAL-CPU NOS CACHE MACHINE   MTR54         17
                                *         LDC    ***+CMST+1  (DUAL-CPU NOS CACHE MACHINE)        MTR54         18
7213         0000                         CON    **          CHECK IF CPU 1 IN MONITOR MODE      MTR54         19
7214         6010                         CRD    CM                                              MTR54         20
7215         3011                         LDD    CM+1                                            MTR54         21
7216         3112                         ADD    CM+2                                            MTR54         22
7217         3113                         ADD    CM+3                                            MTR54         23
7220         3114                         ADD    CM+4                                            MTR54         24
7221         0466                         ZJN    PCMX        IF CPU 1 NOT IN MONITOR MODE        MTR54         25
7222         1466                         LDN    ZERL                                            MTR54         26
7223         6010                         CRD    CM                                              MTR54         27
7224         2000 0400                    LDC    1S8         BIT 56 (IN 4 16-BIT BYTES) SELECTS CPU 1  MTR54   28
7226         3410                         STD    CM                                              MTR54         29
7227         1471                         LDK    EIBP        SET MICROCODE CPU 1 CACHE PURGE BIT MTR54         30
7230         0010                         RDSL   CM          CENTRAL READ AND SET LOCK (SELECT CPU 1)  MTR54   31
7231         2604                         INPN   4           PURGE CACHE IN SELECTED CPU (CPU 1) MTR54         32
7232         0355                         UJN    PCMX        RETURN                              MTR54         33




                                **        RCP - RECALL CPU.                                      MTR         5011
                                *                                                                MTR         5012
                                *         ENTRY  (CN+2) = CONTROL POINT AREA ADDRESS.            MTR         5013
                                *                                                                MTR         5014
                                *         USES   T7, CM - CM+4.                                  MTR         5015
                                *                                                                MTR         5016
                                *         CALLS  CPR.                                            MTR         5017
                                                                                                 MTR         5018
                                                                                                 MTR         5019
                                *         THE FOLLOWING CODE WILL SELECT CPU 0 IF NEITHER CPU CAN BE  271L750  154
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                                *       CURRENTLY ASSIGNED ON A DUAL CPU MACHINE WITH CACHE.          271L750   155
                                                                                                      271L750   156
 7233           1621            RCP1    ADN     CWQW        GET CPU SELECTION                         271L750   157
 7234           6010                    CRD     CM                                                    MTR      5021
 7235           3012                    LDD     CM+2                                                  271L750   158
 7236           1203                    LPN     3                                                     MTR      5023
 7237           0404                    ZJN     RCP1.1      IF EITHER CPU ASSIGNABLE                  271L750   159
 7240           1103                    LMN     3                                                     271L750   160
 7241           1201                    LPN     1           SELECT CPU FOR RECALL                     271L750   161
 7242           0311                    UJN     RCP2.1      RECALL CPU                                271L750   162
                                                                                                      MTR      5026
                                *       SELECT CPU WITH LOWEST PRIORITY JOB.                          MTR      5027
                                                                                                      MTR      5028
 7243           2000 0161       RCP1.1  LDC     TSCL        CPU - 0 PRIORITY                          271L750   163
 7245           6007                    CRD     T7                                                    MTR      5030
 7246           1601                    ADN     1           CPU - 1 PRIORITY                          MTR      5031
 7247           6010                    CRD     CM                                                    MTR      5032
 7250           3010                    LDD     CM                                                    MTR      5033
 7251           3207                    SBD     T7                                                    MTR      5034
 7252           1056            RCP2    SHN     0-21        SIGN BIT TO RECALL CPU - 1                MTR      5035
 7253           1014            RCP2.1  SHN     14                                                    271L750   164
 7254           1105                    LMN     RCLF                                                  MTR      5037
 7255           0200 5112               RJM     CPR                                                   MTR      5038
                                                                                                      MTR      5039
 7257           0100 7257       RCP     SUBR                ENTRY/EXIT                            MTR      5040
 7261           3022                    LDD     CN+2                                                  MTR      5041
 7262           2200 7600               LPC     7600        SET CONTROL POINT ADDRESS                 MTR      5042
 7264           3422                    STD     CN+2                                                  MTR      5043
 7265           0345            RCPA    UJN     RCP1        CHECK CPU SELECTION                       MTR      5044
                                *       UJN     RCP2        (SINGLE CPU)                              MTR      5045


                                **      RCS - REQUEST CHANNEL STATE CHANGE.                           252L678   261
                                *                                                                     252L678   262
                                *       ENTRY   (A) = *SCSM* SUBFUNCTION.                             252L678   263
                                *               (OR+1) = EST ORDINAL.                                 252L678   264
                                *               (OR+3) = CHANNEL NUMBER.                              252L678   265
                                *                                                                     252L678   266
                                *       EXIT    (A) = (CM+1) = *SCSM* REPLY.                          252L678   267
                                *                   = 0 IF FUNCTION WAS REJECTED.                     252L678   268
                                *                                                                     252L678   269
                                *       USES    CM+1 - CM+3.                                          252L678   270
                                *                                                                     252L678   271
                                *       MACROS  MONITOR.                                              252L678   272
                                                                                                      252L678   273
                                                                                                      252L678   274
 7266           0100 7266       RCS     SUBR                ENTRY/EXIT                            252L678   275
 7270           3413                    STD     CM+3        SUBFUNCTION                           252L678   276
 7271           3061                    LDD     OR+1        EST ORDINAL                           252L678   277
 7272           3411                    STD     CM+1                                              252L678   278
 7273           3063                    LDD     OR+3        CHANNEL                               252L678   279
 7274           3412                    STD     CM+2                                              252L678   280
 7275           1423                    MONITOR  SCSM                                             252L678   281
 7300           3011                    LDD     CM+1                                              252L678   282
 7301           0364                    UJN     RCSX        RETURN                                252L678   283
```

```
                                       **       TCH - TEST CHANNEL.                                     MTR        5091
                                       *                                                                MTR        5092
                                       *        ENTRY  (A) = CHANNEL NUMBER.                            MTR        5093
                                       *                                                                MTR        5094
                                       *        EXIT   (T2) = CHANNEL.                                  MTR        5095
                                       *               (A) = 0 IF CHANNEL FREE.                         MTR        5096
                                       *               (A) .GT. 0 IF CHANNEL IS RESERVED.               MTR        5097
                                       *               (A) = NEGATIVE IF CHANNEL DOWN.                  MTR        5098
                                       *                                                                MTR        5099
                                       *        CALLS  VCN.                                             252L678     284
                                                                                                        MTR        5101
                                                                                                        MTR        5102
          7302          0100 7302       TCH     SUBR                 ENTRY/EXIT                         252L678     285
          7304          0200 7327               RJM    VCN           VERIFY CHANNEL NUMBER              252L678     287
          7306          5002 7350               LDM    TCHS,T2                                          252L678     288
          7310          0471                    ZJN    TCHX          IF CHANNEL IS FREE AND UP          MTR        5110
          7311          1014                    SHN    21-5                                             MTR        5111
          7312          0767                    MJN    TCHX          IF CHANNEL DOWN                    MTR        5112
          7313          1063                    SHN    -14                                              252L678     289
          7314          0465                    ZJN    TCHX          IF CHANNEL UNASSIGNED              252L678     290
          7315          3437                    STD    CF            SET CHANNEL UPDATE FLAG            252L678     291
          7316          5002 7350               LDM    TCHS,T2       SET CHANNEL REQUESTED FLAG         252L678     292
          7320          2277 3777               LPC    -4000                                            252L678     293
          7322          3356                    LMD    FT                                               252L678     294
          7323          5402 7350               STM    TCHS,T2                                          252L678     295
          7325          0354                    UJN    TCHX          RETURN                             MTR        5117


                                       **       VCN - VERIFY CHANNEL NUMBER.                            252L678     297
                                       *                                                                252L678     298
                                       *        ENTRY  (A) = CHANNEL DESCRIPTOR.                        252L678     299
                                       *                                                                252L678     300
                                       *        EXIT   (T2) = CHANNEL NUMBER.                           252L678     301
                                       *                                                                252L678     302
                                       *        ERROR  TO *HNG* IF INVALID CHANNEL NUMBER.              252L678     303
                                                                                                        252L678     304
                                                                                                        252L678     305
          7326          0100 7326       VCN     SUBR                 ENTRY/EXIT                         252L678     306
          7330          1277                    LPN    77                                               252L678     307
          7331          3402                    STD    T2            EXTRACT CHANNEL NUMBER             252L678     308
          7332          1700            VCNA    SBN    0                                                252L678     309
          7333          0772                    MJN    VCNX          IF NON-CONCURRENT CHANNEL          252L678     310
          7334          1740            VCNB    SBN    40-0                                             252L678     311
          7335          0703                    MJN    VCN1          IF UNDEFINED CHANNEL               252L678     312
          7336          1700            VCNC    SBN    0                                                252L678     313
          7337          0766                    MJN    VCNX          IF CONCURRENT CHANNEL              252L678     314
          7340          0200 1303       VCN1    RJM    HNG           HANG PP                            252L678     315
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                          **        COMMON DECKS.                                       MTR      5119
                                                                                        MTR      5120
                                                                                        MTR      5121
                     1      EST$      EQU    1            SELECT EST PROCESSOR          MTR      5122
                     1      IFP$      EQU    1            SELECT REMOTE INITIALIZATION  MTR      5123
       7342                           CTEXT  COMPGFP - MANAGED TABLE PROCESSOR.         COMPGFP     1
```

```
                                **        TCHS - CHANNEL TABLE.                                     MTR       5127
                                *                                                                   MTR       5128
                                *         ENTRY = 1 WORD.                                           MTR       5129
                                *         INDEXED BY CHANNEL NUMBER.                                MTR       5130
                                *                                                                   MTR       5131
                                *T, TCHS  1/  R,4/,1/  I,1/  D,5/  ST                               252L678    316
                                *         R       SET IF CHANNEL IS REQUESTED.                      MTR       5133
                                *         I       SET IF CHANNEL BEING IDLED DOWN.                  252L678    317
                                *         D       SET IF CHANNEL IS DOWN.                           MTR       5134
                                *         ST      0 IF CHANNEL FREE.                                MTR       5135
                                *         ST      PP NUMBER IF CHANNEL BUSY.                        MTR       5136
                                                                                                    MTR       5137
                        7350     TCHS     EQU     *                                                 MTR       5138
                          52     TCHSL    EQU     MXCH+1      CHANNEL NUMBER VALIDATION             251L664    319



                                *         TPPR - TABLE OF *MTR* PP REQUESTS.                        MTR       5141
                                *         ENTRY = 1 WORD.                                           MTR       5142
                                *         INDEXED BY MONITOR FUNCTION CODE.                         MTR       5143
                                *                                                                   MTR       5144
                                *T,       12/  ADDR                                                 MTR       5145
                                                                                                    MTR       5146
                                                                                                    MTR       5147
                        7425     TPPR     EQU     TCHS+CTALL*5                                      MTR       5148
  7425                                    ORG     TPPR                                              MTR       5149
                                                                                                    MTR       5150
                          21              DUP     CPUM,1                                            MTR       5151
                                          CON     HNG1                                              251L664    320
                                                                                                    MTR       5153
                                 PPR      HERE    INSERT      REQUEST PROCESSOR ADDRESSES           MTR       5154
  7446                                    ORG     TPPR+CPUM                                         MTR       5155



                                **        TREA - TABLE OF REENTRY ADDRESSES.                        251L664    322
                                *         ENTRY = 1 WORD.                                           251L664    323
                                *                                                                   251L664    324
                                *T, TREA  12/  ADDR                                                 251L664    325
                                *         ADDR    ADDRESS OF CURRENT PROCESSOR FOR THE PP.          251L664    326
                                *                 = 0, IF PP IS TURNED OFF.                         251L664    327
                                                                                                    251L664    328
                                                                                                    251L664    329
                        7445     TREA     EQU     *-1                                               251L664    330
  7446        1360                        CON     DSD                                               251L664    331
                          34              DUP     30D-2,1     NO ENTRY FOR *MTR*, SPECIAL ONE FOR *DSD*  251L664    332
                                          CON     PPR                                               251L664    333



                                **        CPRA - (P), (A0), (B0) FOR EXCHANGE PACKAGE.              MTR       5157
                                                                                                    MTR       5158
                                                                                                    MTR       5159
  7503                     5     CPRA     BSS     5                                                 MTR       5160
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                                **        BEGIN TABLES OVERLAYED BY PRESET.                                MTR       5162
                                                                                                           MTR       5163
                                                                                                           MTR       5164
          7510                   BEGIN    BSSN   CPRA+5                                                   MTR       5165




                                **        TSYD - TABLE OF SYSTEM DEVICES.                                  MTR       5167
                                *         ENTRY = 1 WORD.                                                  MTR       5168
                                *                                                                          MTR       5169
                                *T, TSYD  12/  EQ                                                          MTR       5170
                                *         EQ     NEXT SYSTEM DEVICE EST ORDINAL.                           MTR       5171
                                                                                                           MTR       5172
                                                                                                           MTR       5173
                         7510    TSYD     EQU    *                                                        MTR       5174
          7510                            BSSN   MXSY                                                     MTR       5175




                                **        TSHS - TABLE OF SHARED SYSTEM DEVICES.                           MTR       5177
                                *         ENTRY = 1 WORD.                                                  MTR       5178
                                *                                                                          MTR       5179
                                *T, TSHS  12/ V                                                            MTR       5180
                                *         V      4, IF THIS SYSTEM DEVICE IS SHARED, ELSE 0.               MTR       5181
                                                                                                           MTR       5182
                                                                                                           MTR       5183
                         7515    TSHS     EQU    *                                                        MTR33        1
        L 7515                            BSSN   MXSY                                                     MTR33        2




                                **        TSYM - TABLE OF SYSTEM DEVICE MST ADDRESSES.                     MTR       5187
                                *         ENTRY = ONE WORD, ZERO WORD TERMINATES TABLE.                    MTR       5188
                                *                                                                          MTR       5189
                                *T, TSYM  12/  MSTA                                                        MTR       5190
                                *         MSTA   MST ADDRESS OF SYSTEM EQUIPMENT IN *TSYD* WITH SAME       MTR       5191
                                *                RELATIVE TABLE POSITION.                                  MTR       5192
                                                                                                           MTR       5193
                                                                                                           MTR       5194
                         7522    TSYM     EQU    *                                                        MTR       5195
        L 7522                            BSSN   MXSY+1      FORCE ZERO TERMINATOR                       MTR33        3
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                                **        TCHR - TABLE OF PRIORITY SEEK REQUESTS.                          MTR       5198
                                *         ENTRY = ONE WORD, INDEXED BY CHANNEL NUMBER.                     MTR       5199
                                *                                                                          MTR       5200
                                *T, TCHR  12/  PPN                                                         MTR       5201
                                *         PPN    NUMBER OF PP WITH A PRIORITY REQUEST FOR THE CHANNEL.     MTR       5202
                                *                A PRIORITY REQUEST IS ONE TO PERFORM THE INITIAL          MTR       5203
                                *                POSITION ON A UNIT.                                       MTR       5204
                                                                                                           MTR       5205
                                                                                                           MTR       5206
                         7530    TCHR     EQU    *                                                       MTR       5207
      L 7530                             BSSN   MXNC+1                                                    251L664    334


                                **        THE FOLLOWING TABLES ARE PRESET TO ZERO.                         MTR       5210


                                **        TCMA - TABLE OF CONTROL MODULE ACTIVITY.                         MTR       5212
                                *         ENTRY = 1 WORD.                                                  MTR       5213
                                *         INDEXED BY CONTROL MODULE NUMBER.                                MTR       5214
                                *                                                                          MTR       5215
                                *T, TCMA  6/  CH,6/  AC                                                    MTR       5216
                                *         CH     CHANNEL NUMBER.                                           MTR       5217
                                *         AC     ACTIVITY COUNT.                                           MTR       5218
                                                                                                           MTR       5219
                                                                                                           MTR       5220
                         7564    TCMA     EQU    *                                                       MTR       5221
      L 7564                             BSSN   8D                                                       MTR       5222


                                **        TCMN - TABLE OF DEVICE UNIT NUMBERS.                             MTR       5224
                                *         ENTRY = 1 WORD.                                                  MTR       5225
                                *         INDEXED BY PP NUMBER.                                            MTR       5226
                                *                                                                          MTR       5227
                                *T, TCMN  12/  UN                                                          MTR       5228
                                *         UN     DEVICE UNIT NUMBER.                                       MTR       5229
                                                                                                           MTR       5230
                                                                                                           MTR       5231
                         7572    TCMN     EQU    *-2                                                     MTR       5232
      L 7574                             BSSN   20D-2       NO TABLE ENTRY FOR PP0, PP1                  MTR       5233
```

```
                                **        TPPI - TABLE OF PPU INTERLOCK BITS.                                MTR       5235
                                *         ENTRY = 1 WORD.                                                    MTR       5236
                                *         INDEXED BY PPU NUMBER.                                             MTR       5237
                                *                                                                            MTR       5238
                                *T, TPPI  8/  IL,3/,1/  AC                                                   MTR       5239
                                *         IL     INTERLOCK HELD BY PPU.                                      MTR       5240
                                *         AC     ACTIVITY BIT.                                               MTR       5241
                                                                                                             MTR       5242
                                                                                                             MTR       5243
                          7614   TPPI     EQU    *-2                                                         MTR       5246
        L 7616                           BSSN   20D-2       NO TABLE ENTRY FOR PP0, PP1                      MTR       5247


                                **        TSCA - TABLE OF SHARED DEVICE OUTSTANDING SEEKS.                   MTR       5249
                                *         ENTRY = 1 WORD.                                                    MTR       5250
                                *         INDEXED BY CHANNEL NUMBER.                                         MTR       5251
                                *                                                                            MTR       5252
                                *T, TSCA  12/  N                                                             MTR       5253
                                *         N = NUMBER OF SEEK WAITS FOR SHARED DEVICES ON THIS CHANNEL.       MTR       5254
                                                                                                             MTR       5255
                                                                                                             MTR       5256
        L 7640                   TSCA     BSSN   MXNC+1                                                     251L664    335


                                **        TSEK - TABLE OF SEEK WAITS ON SHARED DEVICES.                      MTR       5259
                                *         ENTRY = 1 WORD.                                                    MTR       5260
                                *         INDEXED BY CHANNEL NUMBER.                                         MTR       5261
                                *                                                                            MTR       5262
                                *T, TSEK  12/  N                                                             MTR       5263
                                *         N = NUMBER OF SEEK WAITS PROCESSED FOR THIS CHANNEL                MTR       5264
                                *             SINCE A TIME WHEN NO SHARED DEVICE ACTIVITY WAS                MTR       5265
                                *             PRESENT ON THE CHANNEL.  WHEN THIS COUNTER REACHES             MTR       5266
                                *             A PREDEFINED CONSTANT FURTHER ASSIGNMENT OF THE                MTR       5267
                                *             CHANNEL FOR SHARED DEVICE ACCESS WILL BE DISALLOWED            MTR       5268
                                *             UNTIL ALL REQUESTS COMPLETE AND OTHER MACHINES ARE             MTR       5269
                                *             ALLOWED ACCESS TO THE CONTROLLER.                              MTR       5270
                                                                                                             MTR       5271
                                                                                                             MTR       5272
        L 7674                   TSEK     BSSN   MXNC+1                                                     251L664    336
                                                                                                             MTR       5288
                          7730   EZOT     EQU    *           END OF ZEROED OUT TABLES                        MTR       5289
```

```
                                **        TPMS - TABLE OF MST ADDRESSES BY PP.                                MTR       5291
                                *         ENTRY = 1 WORD.                                                     MTR       5292
                                *         INDEXED BY PPU NUMBER.                                              MTR       5293
                                *                                                                             MTR       5294
                                *T, TPMS  12/  MSTA                                                           MTR       5295
                                *         MSTA   MST ADDRESS / 10.                                            MTR       5296
                                                                                                              MTR       5297
                                                                                                              MTR       5298
                          7727  TPMS      EQU    *-1                                                          MTR       5299
        L 7730                            BSSN   20D-1       NO TABLE ENTRY FOR PP0                          MTR       5300
                                                                                                              MTR       5301
                            23            ERRNG  7776-*      TABLE OVERFLOW                                  MTR       5302
        L 7753              END           BSSN                                                               MTR       5303
```

```
7510         6010                PRS8      CRD    CM                                 251L664     337
7511         1601                          ADN    1                                  MTR        5307
7512         6114 7514                     CRM    OVLL,CM+4    LOAD NEXT PRESET OVERLAY    271L716    1269
                                                                                     MTR        5309
7514                             OVLL      BSS    0            PRESET OVERLAY LOAD ADDRESS 271L716    1270
                                                                                     MTR        5311
                                **         PRS - PRESET TABLES AND CONSTANTS.        MTR        5312
                                                                                     MTR        5313
                                                                                     MTR        5314
7514                             PRS       BSS    0            ENTRY                 271L716    1271
7514         1477                          LDN    PPCP         FETCH PP COMMUNICATION AREA POINTER   MTR   5319
7515         6010                          CRD    CM                                 MTR        5320
7516         3614                          AOD    CM+4         SET FIRST OUTPUT REGISTER ADDRESS     MTR   5321
7517         3465                          STD    OF                                 MTR        5322
7520         1074                          SHN    -3                                 251L664     347
7521         2377 7777                     LMC    -0                                 MTR        5323
7523         5500 5732                     RAM    AMVC                               271L716    1275
                                                                                     MTR        5335
                                *          SET PP COMMUNICATION ADDRESSES.           MTR        5336
                                                                                     MTR        5337
7525         1470                PRS1      LDN    PPUL         SET PP STATUS         MTR        5338
7526         6020                          CRD    CN                                 MTR        5339
7527         3020                          LDD    CN           SET MAXIMUM CHANNEL NUMBER + 1      251L664     350
                           0               ERRNZ  NCHL-PPUL    CODE DEPENDS ON VALUE 251L664     351
7530         5500 7332                     RAM    VCNA                               252L678     320
7532         1400                          LDN    0                                  251L664     353
7533         3220                          SBD    CN                                 251L664     354
7534         5500 7334                     RAM    VCNB                               252L678     321
7536         3023                          LDD    CN+3         SET NUMBER OF CONCURRENT PPS        251L664     356
                                *          ERRNZ  CPPL-PPUL    CODE DEPENDS ON VALUE 251L664     357
7537         1277                          LPN    77                                 251L664     358
7540         3423                          STD    CN+3                               251L664     359
7541         0513                          NJN    PRS2         IF CONCURRENT PPS PRESENT           251L664     360
7542         2000 0000                     ISTORE MTRB,(UJN  MTR2)  SKIP CPP PROCESSING          251L664     361
7546         5400 4617                     STM    CMSA+1                             MTR27         5
7550         2000 0000                     ISTORE MTRE,(LDN  NCTAL)  WRITE ONLY NON CCH-S        251L664     362
7554         3023                PRS2      LDD    CN+3                               251L664     363
7555         5500 0124                     RAM    MTRC                               251L664     364
7557         5400 7336                     STM    VCNC                               252L678     322
7561         3022                          LDD    CN+2         SET NUMBER OF NON-CONCURRENT PPS    251L664     366
7562         1112                          LMK    10D                                251L664     367
7563         0402                          ZJN    PRS3         IF 10 PP-S            251L664     368
7564         1412                          LDN    10D                                251L664     369
7565         1612                PRS3      ADN    10D                                251L664     370
7566         5500 0112                     RAM    MTRA                               251L664     371
7570         1277                          LPN    77           SET TOTAL NUMBER OF PPS             251L664     372
7571         3123                          ADD    CN+3                               251L664     373
7572         3445                          STD    NP                                 251L664     374
7573         1004                          SHN    PPXES        SET END OF PP-S FOR STORAGE MOVE CHECK   273L780   166
7574         1620                          ADN    PPXE         ALLOW FOR PSEUDO-PP   273L780     167
7575         5400 5323                     STM    MSTA                               251L664     378
7577         1401                          LDN    1            SET PP 1              251L664     379
7600         3401                          STD    T1                                 MTR        5341
7601         3001                PRS4      LDD    T1           CHECK FOR UNAVAILABLE PPS           251L664     380
7602         1003                          SHN    3                                  MTR        5352
7603         3165                          ADD    OF                                 251L664     381
7604         1701                          SBN    1            READ INPUT REGISTER   MTR        5363
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7605         6010                  CRD    CM                                     MTR        5364
7606         3010                  LDD    CM          CHECK PP STATUS            MTR        5365
7607         2300 4747             LMC    2R**                                   MTR        5366
7611         0505                  NJN    PRS5        IF AVAILABLE               251L664     382
7612         2000 0111             LDC    MTR         INHIBIT PROCESSING         251L664     383
7614         5401 7445             STM    TREA,T1                                251L664     384
7616         3601         PRS5     AOD    T1          ADVANCE PP NUMBER          251L664     385
7617         3345                  LMD    NP                                     251L664     386
7620         0560                  NJN    PRS4        IF NOT ALL PPS CHECKED     251L664     387
                                                                                 MTR        5378
                         *         RELOCATE CENTRAL MEMORY ADDRESS CONSTANTS.    273L780     168
                                                                                 MTR        5380
7621         2000 0147             LDK    CMTP        READ *CPUMTR* FWA          273L780     169
7623         6010                  CRD    CM                                     MTR        5387
7624         3013                  LDD    CM+3                                   273L780     170
7625         1014                  SHN    14                                     273L780     171
7626         3114                  ADD    CM+4                                   273L780     172
7627         1602                  ADK    CXBP        READ *EXPACS* BLOCK POINTER  273L780   173
7630         6004                  CRD    T4                                     273L780     174
7631         1477                  LDK    PPCP        READ EXTENDED PP COMMUNICATION BLOCK FWA   273L780     175
7632         6020                  CRD    CN                                     273L780     176
7633         2000 0102             LDK    SDAP        READ STATISTICAL DATA AREA POINTER   273L780     177
7635         6030                  CRD    CS                                     273L780     178
7636         2000 7704             LDC    TSIC        SET RELOCATION TABLE ADDRESS   273L780     179
7640         0200 7663             RJM    SIC         RELOCATE INSTRUCTIONS      273L780     180
                                                                                 MTR        5396
                    -137           ERRPL  CPRA-*      CODE DESTROYED READING EXCHANGE PACKAGE   MTR        5397
                                                                                 MTR        5398
7642         2000 0000             TLDC   /EXPACS/MXP+0,XBP  READ EXCHANGE PACKAGE   273L780     181
7644         6170 7503             CRM    CPRA,ON                                MTR        5400
7646         2000 0210             LDC    210B        SET *B0* (MICROCODE REQUIRES THIS VALUE)   271L750     165
7650         5400 7507             STM    CPRA+4                                 MTR        5402
                                                                                 271L716    1278
                         *         LOAD *4MZ* AND CONTINUE PRESET.               271L716    1279
                                                                                 271L716    1280
7652         2000 0142             LDC    RPLP                                   271L716    1281
7654         6010                  CRD    CM                                     271L716    1282
7655         3010                  LDD    CM                                     271L716    1283
7656         1014                  SHN    14                                     271L716    1284
7657         3111                  ADD    CM+1                                   271L716    1285
7660         0100 7510             LJM    PRS8        OVERLAY WITH NEXT PRESET OVERLAY   271L716    1286


                         **        INSTRUCTION RELOCATION EQUIVALENCES.          273L780     183
                                                                                 271L716    1294
                                                                                 271L716    1295
                      13  CMT      EQU    CM+3        *CPUMTR* FWA               273L780     184
                       7  XBP      EQU    T4+3        *CPUMTR* *EXPACS* BLOCK POINTER   273L780     185
                      20  PPX      EQU    CN+0        EXTENDED PP CONTROL BLOCK POINTER   273L780     186
                      30  SDA      EQU    CS+0        STATISTICAL DATA AREA POINTER   273L780     187
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                                  **        COMMON DECKS.                                        273L780     189
                                                                                                 273L780     190
                                                                                                 273L780     191
       7662                                 CTEXT  COMPSIC - SET PP INSTRUCTION CONSTANTS.       COMPSIC       1


                                  **        TSIC - INSTRUCTION RELOCATION TABLE.                 273L780     194
                                                                                                 273L780     195
                                                                                                 273L780     196
       7704                        TSIC     BSS    0                                             273L780     197
                                            LIST   D                                             271L716    1297
                                   SIC      HERE                                                 273L780     198
       7704          0163                   CON    '?000001                                      SIC      .1
       7705          0030                   CON    SDA                                           SIC      .1
       7706          0217                   CON    '?000002                                      SIC      .1
       7707          0030                   CON    SDA                                           SIC      .1
       7710          0257                   CON    '?000003                                      SIC      .1
       7711          0013                   CON    CMT                                           SIC      .1
       7712          0273                   CON    '?000004                                      SIC      .1
       7713          0013                   CON    CMT                                           SIC      .1
       7714          0316                   CON    '?000005                                      SIC      .1
       7715          0007                   CON    XBP                                           SIC      .1
       7716          1733                   CON    '?000018                                      SIC      .1
       7717          0020                   CON    PPX                                           SIC      .1
       7720          1776                   CON    '?000021                                      SIC      .1
       7721          0020                   CON    PPX                                           SIC      .1
       7722          3377                   CON    '?000052                                      SIC      .1
       7723          0020                   CON    PPX                                           SIC      .1
       7724          3413                   CON    '?000055                                      SIC      .1
       7725          0020                   CON    PPX                                           SIC      .1
       7726          3524                   CON    '?000062                                      SIC      .1
       7727          0020                   CON    PPX                                           SIC      .1
       7730          3775                   CON    '?000065                                      SIC      .1
       7731          0020                   CON    PPX                                           SIC      .1
       7732          5140                   CON    '?000068                                      SIC      .1
       7733          0007                   CON    XBP                                           SIC      .1
       7734          5155                   CON    '?000070                                      SIC      .1
       7735          0007                   CON    XBP                                           SIC      .1
       7736          5177                   CON    '?000071                                      SIC      .1
       7737          0007                   CON    XBP                                           SIC      .1
       7740          5250                   CON    '?000072                                      SIC      .1
       7741          0007                   CON    XBP                                           SIC      .1
       7742          5317                   CON    '?000073                                      SIC      .1
       7743          0020                   CON    PPX                                           SIC      .1
       7744          5322                   CON    '?000074                                      SIC      .1
       7745          0020                   CON    PPX                                           SIC      .1
       7746          6722                   CON    '?000078                                      SIC      .1
       7747          0020                   CON    PPX                                           SIC      .1
       7750          7017                   CON    '?000079                                      SIC      .1
       7751          0020                   CON    PPX                                           SIC      .1
       7752          7057                   CON    '?000080                                      SIC      .1
       7753          0020                   CON    PPX                                           SIC      .1
       7754          7642                   CON    '?000096                                      SIC      .1
       7755          0007                   CON    XBP                                           SIC      .1
       7756          0000                   CON    0            TERMINATE ENTRIES                273L780     199
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                              LIST   *                                        271L716   1300
                                                                              271L716   1301
                      13      ERRNG  7777-*-5                                 271L716   1302
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                                          IDENT  4MZ,FMZ                                 271L716   1305
                                  COMMENT 85/07/29. 24/05/19. MTR - PRESET (PART 2).     271L716   1306
                                          COMMENT  COPYRIGHT CONTROL DATA SYSTEMS INC.  1992.    281L803      2


                                 ***      4MZ - MTR PRESET (PART 2).                     271L716   1309
                                 *                                                       271L716   1310
                                 *        TO FREE SPACE IN *MTR*, SEVERAL PRESET OVERLAYS HAVE BEEN  271L716   1311
                                 *        DEFINED.  THESE OVERLAYS ARE -                 271L716   1312
                                 *        *4MZ*, *4MY*, *4MX*, *4MW*, *4MV* AND *4MU*.    271L716   1313
                                 *        *STL* LOADS THESE OVERLAYS INTO THE RPL BEFORE RELEASING  271L716   1314
                                 *        *MTR*.  ONCE *MTR* HAS FINISHED PRESET, *STL* LOADS THE   271L716   1315
                                 *        DEADSTART RPL OVER THESE OVERLAYS.  *STL* IS PREVENTED FROM  271L716   1316
                                 *        OVERWRITING THE PRESET OVERLAYS BEFORE *MTR* HAS READ THEM  271L716   1317
                                 *        BY THE FOLLOWING SCHEME -                      271L716   1318
                                 *        1)  AFTER RELEASING *MTR*, *STL* INITIALIZES *DIO*  271L716   1319
                                 *        RESIDENT AND ATTEMPTS TO READ THE NEXT TAPE BLOCK.  271L716   1320
                                 *        2)  THE TAPE BLOCK CANNOT BE READ UNTIL *DIO* FINISHES  271L716   1321
                                 *        INITIALIZING ITSELF, WHICH INCLUDES REQUESTING A CHANNEL  271L716   1322
                                 *        WITH A *RCHM* MONITOR FUNCTION.                271L716   1323
                                 *        3)  THE *RCHM* FUNCTION CANNOT COMPLETE UNTIL *MTR* HAS  271L716   1324
                                 *        READ ALL PRESET OVERLAYS AND BEGUN EXECUTING.  271L716   1325
                                                                                         271L716   1326
                                                                                         271L716   1327
      7514                                ORG    OVLL                                    271L716   1328
                                                                                         271L716   1329
                                                                                         271L716   1330
      7514                        FMZ     BSS    0            ENTRY                      271L716   1331
      7514          1447                  LDN    DFPP         SET FWA-3 OF DAYFILE POINTERS FOR *CDBM*  MTR56     10
      7515          6010                  CRD    CM                                      MTR56     11
      7516          3010                  LDD    CM                                      MTR56     12
      7517          1014                  SHN    14                                      MTR56     13
      7520          3111                  ADD    CM+1                                    MTR56     14
      7521          1703                  SBN    3                                       MTR56     15
      7522          5400 1634             STM    CDBA+1                                  MTR56     16
      7524          1063                  SHN    -14                                     MTR56     17
      7525          5500 1633             RAM    CDBA                                    MTR56     18
      7527          1425                  LDN    ECRL         CHECK USER ECS ENABLED     MTR54     34
      7530          6010                  CRD    CM                                      MTR54     35
      7531          3011                  LDD    CM+1         CHECK USER EXTENDED MEMORY SIZE  MTR54     36
      7532          3214                  SBD    CM+4                                    MTR54     37
      7533          0507                  NJN    FMZ0         IF USER EM DEFINED         MTR54     38
      7534          5700 3545             SOM    RSTA                                    MTR54     39
      7536          2000 1304             LDC    HNG1         DISABLE *RCXM* FUNCTION    MTR54     40
      7540          5400 7434             STM    TPPR+RCXM                               MTR54     41
      7542          2000 0113     FMZ0    LDK    MABL                                    MTR54     42
      7544          6020                  CRD    CN                                      MTR     5406
      7545          1626                  ADN    CHTP-MABL    READ CHANNEL TABLE POINTER MTR     5407
      7546          6010                  CRD    CM                                      MTR     5408
                                                                                         MTR     5424
                                 *        PRESET CHANNEL TABLE.                          MTR     5425
                                                                                         MTR     5426
      7547          3013                  LDD    CM+3         SET CHANNEL STATUS TABLE ADDRESS  MTR     5427
      7550          5400 0154             STM    MTRF                                    251L664    395
      7552          1611                  ADN    CTALL        SET CHANNEL ASSIGNMENT TABLE ADDRESS  MTR     5429
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7553          5400 4432               STM    SEQB                                     MTR         5430
7555          5400 7160               STM    GCEA                                     MTR         5431
7557          1063                    SHN    -14                                      MTR         5432
7560          3400                    STD    T0           SAVE OVERFLOW, IF ANY       MTR         5433
7561          3012                    LDD    CM+2                                     MTR         5434
7562          5500 0153               RAM    MTRF-1                                   251L664      396
7564          3100                    ADD    T0                                       MTR         5436
7565          5400 4431               STM    SEQB-1                                   MTR         5437
7567          5400 7157               STM    GCEA-1                                   MTR         5438
7571          1411                    LDN    CTALL        READ CHANNEL TABLE          MTR         5439
7572          3401                    STD    T1                                       MTR         5440
7573          3012                    LDD    CM+2                                     MTR         5441
7574          1014                    SHN    14                                       MTR         5442
7575          3313                    LMD    CM+3                                     MTR         5443
7576          6101 7350               CRM    TCHS,T1                                  MTR         5444
                                                                                      MTR         5452
                                *     COMPLETE CHANNEL TABLE PRESET.                  271L716     1333
                                                                                      MTR         5454
7600          1451                    LDK    MXCH                                     271L716     1334
7601          3401                    STD    T1                                       271L716     1335
7602          5001 7350          FMZ1 LDM    TCHS,T1      PRESERVE DOWN STATUS        271L716     1336
7604          1240                    LPN    40                                       271L716     1337
7605          5401 7350               STM    TCHS,T1                                  271L716     1338
7607          3701                    SOD    T1                                       271L716     1339
7610          0671                    PJN    FMZ1         IF MORE CHANNELS            271L716     1340
7611          5600 7360               AOM    TCHS+CHDS    ASSIGN DISPLAY CHANNEL TO *DSD*  271L716     1341
                                                                                      271L716     1342
                                *     ADJUST FOR MACHINE SIZE, PP SPEED AND MEMORY CLEARING.  271L716     1343
                                                                                      271L716     1344
7613          3022                    LDD    CN+2         SAVE MACHINE SIZE           271L716     1347
7614          5400 0632               STM    PCBA                                     271L716     1348
7616          3023                    LDD    CN+3                                     271L716     1349
7617          5400 0643               STM    PCBB                                     271L716     1350
7621          1445                    LDK    SSTL         CHECK FOR MEMORY CLEARING ENABLED  271L716     1351
7622          6010                    CRD    CM                                       271L716     1352
7623          3010                    LDD    CM                                       271L716     1353
7624          1007                    SHN    21-12                                    271L716     1354
7625          0605                    PJN    FMZ2         IF MEMORY CLEARING ENABLED  271L716     1355
7626          2000 0000               ISTORE RSTC,(UJN RST20) DISABLE MEMORY CLEARING 271L716     1356
                                                                                      271L716     1357
                                *     PRESET SECDED PROCESSING.                       271L716     1358
                                                                                      271L716     1359
7632          3057               FMZ2 LDD    SC           SAVE ADDRESS OF UID TABLE   271L716     1360
7633          6010                    CRD    CM                                       271L716     1361
7634          3010                    LDD    CM                                       271L716     1362
7635          1277                    LPN    77                                       271L716     1363
7636          5500 1154               RAM    BISC-1                                   271L716     1364
7640          3011                    LDD    CM+1                                     271L716     1365
7641          5400 1155               STM    BISC                                     271L716     1366
7643          3021                    LDD    CN+1                                     271L716     1367
7644          1066                    SHN    -11                                      271L716     1368
7645          1107                    LMN    7                                        271L716     1369
7646          0415                    ZJN    FMZ4         IF CYBER 176                271L716     1370
7647          2000 0000               ISTORE BISE,(UJN BIS6)  DISABLE CYBER 176 PROCESSING  271L716     1371
                                                                                      271L716     1372
                                *     MOVE SECDED PROCESSING TABLE FOR NON-176 INTO *BIS*.  271L716     1373
                                                                                      271L716     1374
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7653          1414                   LDN    FMZBL        SET LENGTH TO MOVE                  271L716   1375
7654          3401                   STD    T1                                               271L716   1376
7655          5001 7674        FMZ3  LDM    FMZB-1,T1                                        271L716   1377
7657          5401 1251              STM    BISF-1,T1                                        271L716   1378
7661          3701                   SOD    T1                                               271L716   1379
7662          0572                   NJN    FMZ3         IF NOT DONE MOVING                  271L716   1380
                                                                                             271L716   1381
                              *      LOAD *4MY* AND CONTINUE PRESET.                         271L716   1382
                                                                                             271L716   1383
7663          2000 0142        FMZ4  LDK    RPLP                                             271L716   1384
7665          6010                   CRD    CM                                               271L716   1385
7666          3010                   LDD    CM                                               271L716   1386
7667          1014                   SHN    14                                               271L716   1387
7670          3111                   ADD    CM+1                                             271L716   1388
7671          6010                   CRD    CM                                               271L716   1389
7672          3114                   ADD    CM+4                                             271L716   1390
7673          0100 7510              LJM    PRS8         LOAD NEXT PRESET OVERLAY            271L716   1391
                                                                                             271L716   1392
                                                                                             271L716   1393
7675                           FMZB  BSS    0            C170 CM ID INFORMATION              271L716   1401
7675          6000                   VFD    12/6000,1/0,5/CSEW,6/0                           271L716   1402
7676          1700
7677          0077                   VFD    12/77,1/0,5/CMAW,6/4                             271L716   1403
7700          0404
7701          7400                   VFD    12/7400,1/1,5/SYNW,6/-10                         271L716   1404
7702          4367
7703          0360                   VFD    12/360,1/0,5/SYNW,6/4                            271L716   1405
7704          0304
7705          0000                   CON    0            C170 ID BUILD TERMINATOR            271L716   1406
7706          2003                   CON    FCCL+SECD                                        271L716   1407
7707          0000                   CON    0            TERMINATOR FOR C170 CLEARING FUNCTIONS  271L716   1408
7710          0000                   CON    0                                                271L716   1409
                         14    FMZBL EQU    *-FMZB       TABLE LENGTH                        271L716   1410
                                                                                             271L716   1411
                          0          ERRNZ  FMZBL-BISFL TABLE LENGTH ERROR                   271L716   1412

                         54          ERRNG  7777-*-10D   OVERFLOW ON OVERLAY LOAD            271L716   1414
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                                          IDENT  4MY,FMY                                         271L716   1417
                                   COMMENT 85/07/29. 24/05/19. MTR - PRESET (PART 3).            271L716   1418
                                          COMMENT  COPYRIGHT CONTROL DATA SYSTEMS INC.  1992.    281L803      3


                                  ***     4MY - MTR PRESET (PART 3).                             271L716   1421
                                  *                                                              271L716   1422
                                  *       ENTRY  (CN - CN+4) = MABL.                             271L716   1423
                                                                                                 271L716   1424
                                                                                                 271L716   1425
          7514                            ORG    OVLL                                            271L716   1426
                                                                                                 271L716   1427
                                                                                                 271L716   1428
          7514                     FMY    BSS    0            ENTRY                              271L716   1429
                                                                                                 271L716   1430
                                  *       PRESET CYBER 180 HARDWARE ERROR PROCESSING.            271L716   1445
                                                                                                 MTR       5504
          7514         3021               LDD    CN+1                                            271L716   1446
          7515         1006               SHN    21-13                                           MTR       5506
          7516         0603               MJP    FMY2         IF LARGE CENTRAL MEMORY NOT PRESENT    271L750    166
          7521         2000 0000          ISTORE CPRF,(ZJN CPR9)  ENABLE *CPUMTR* CONTROL OF *RTCL*  271L750    167
          7525         5600 1645          AOM    CDBB         READ *FLSW* + 1                    271L716   1448
          7527         5600 1742          AOM    DCRA                                            MTR       5509
          7531         2000 0000          ISTORE CCPC,(SHN 6)  CHANGE TO CME CODE                NS2418      39
          7535         2000 0000          ISTORE CRQA,(ZJN PCB3)  CHANGE TO CME PROCESSOR        NS2418      40
          7541         2077 7677          LDC    UJNI-ZJNI    PREVENT CPU SELECTION FOR ECS      MTR       5518
          7543         5500 3630          RAM    RSTB                                            MTR       5519
          7545         3021               LDD    CN+1         CHECK FOR CYBER 170 S/C REGISTER   MTR       5520
          7546         1013               SHN    21-6                                            MTR       5521
          7547         0703               PJP    FMY2         IF CYBER 170-865/875               271L750    168
          7552         1471               LDK    EIBP         READ *EICB* POINTER                243L647     24
          7553         6010               CRD    CM                                              243L647     25
          7554         3010               LDD    CM                                              271L750    169
          7555         1007               SHN    21-12                                           271L750    170
          7556         0703               PJP    FMY1         IF NOT DUAL CPU MACHINE WITH CACHE 271L750    171
          7561         2000 5000          LDC    LDMI+0       ENABLE CPU 0 CHECK                 271L750    172
          7563         5400 5146          STM    CPRC                                            271L750    173
          7565         2000 0147          LDK    CMTP         SET *CPUMTR* BASE ADDRESS          271L750    174
          7567         6001               CRD    T1                                              MTR50        1
          7570         3004               LDD    T1+3                                            MTR50        2
          7571         1014               SHN    14                                              MTR50        3
          7572         3305               LMD    T1+4                                            MTR50        4
          7573         5500 5163          RAM    CPRG+1                                          271L750    179
          7575         5400 7213          STM    PCMA+1                                          MTR54       43
          7577         1063               SHN    -14                                             271L750    180
          7600         5500 5162          RAM    CPRG                                            271L750    181
          7602         5400 7212          STM    PCMA                                            MTR54       44
          7604         5024 7725          LDM    FMYA,CN+4    SET COUNTER FOR 25 MICROSECOND DELAY   MTR54     45
          7606         5500 5152          RAM    CPRE                                            MTR54       46
          7610         5024 7730          LDM    FMYB,CN+4    SET COUNTER FOR 125 MICROSECOND DELAY  MTR54     47
          7612         5400 5173          STM    CPRH+1                                          MTR54       48
          7614         6457 7614          SCF    *,MR         GET MAINTENANCE CHANNEL            271L750    182
          7616         7557               DCN    MR+40                                           271L750    183
          7617         7717 5340          FNC    MRDC,MR      KILL DEADMAN TIMER                 271L750    184
          7621         7557               DCN    MR+40                                           271L750    185
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7622    2010 4403          LDC   STII+T3+1S15  (STIL INSTRUCTION)                        MTR54    49
7624    7417               ACN   MR                                                      271L750  187
7625    7217               OAN   MR                                                      271L750  188
7626    1401               LDN   1                                                       271L750  189
7627    7117 7645          IAM   FMYD,MR     READ *STIL* TO MEMORY                      MTR54    50
7631    7557               DCN   MR+40       ENSURE MAINTENANCE CHANNEL INACTIVE        271L750  191
7632    6557 7632          CCF   *,MR        RELEASE CHANNEL                            271L750  192
7634    2000 7733          LDC   FMYC        SET UP INSTRUCTION TABLE ADDRESS           MTR54    51
7636    3402               STD   T2                                                     MTR54    52
7637    4002          FMY0 LDI   T2          ADDRESS OF 16-BIT INSTRUCTION              MTR54    53
7640    0410               ZJN   FMY1        IF FINISHED                                MTR54    54
7641    3403               STD   T3                                                     MTR54    55
7642    4003               LDI   T3                                                     MTR54    56
7643    2310 0000          LMC   1S15        CONVERT TO 16-BIT INSTRUCTION              MTR54    57
7645    4403          FMYD STI   T3          SET LONG INSTRUCTIONS                      MTR54    58
                      *    STIL  T3          SET LONG INSTRUCTIONS                      MTR54    59
7646    3602               AOD   T2                                                     MTR54    60
7647    0367               UJN   FMY0        PROCESS NEXT INSTRUCTION                   MTR54    61
                                                                                        MTR54    62
7650    3013          FMY1 LDD   CM+3                                                   271L750  197
7651    1014               SHN   14                                                    243L647  27
7652    3314               LMD   CM+4                                                  243L647  28
7653    1641               ADN   DSCM+3      READ DFT/OS BUFFER POINTER                 243L647  29
7654    6010               CRD   CM                                                    243L647  30
7655    3012               LDD   CM+2        SAVE ADDRESS OF *DFT* CONTROL WORD         243L647  31
7656    1014               SHN   14                                                    243L647  32
7657    3313               LMD   CM+3                                                  243L647  33
7660    1073               SHN   -4                                                    243L647  34
7661    1006               SHN   6                                                     243L647  35
7662    3310               LMD   CM                                                    243L647  36
7663    5400 0655          STM   PHEA+1                                                243L647  37
7665    1063               SHN   -14                                                   243L647  38
7666    5500 0654          RAM   PHEA                                                  243L647  39
7670    1237               LPN   37                                                    NS2418   42
7671    1014               SHN   14          READ NOS REQUEST AREA POINTER             NS2418   43
7672    5100 0655          ADM   PHEA+1                                                NS2418   44
7674    1606               ADN   DFRQ                                                  NS2418   45
7675    6010               CRD   CM                                                    NS2418   46
7676    3012               LDD   CM+2        SAVE ADDRESS OF NOS REQUEST HEADER        NS2418   47
7677    1014               SHN   14                                                    NS2418   48
7700    3313               LMD   CM+3                                                  NS2418   49
7701    1073               SHN   -4                                                    NS2418   50
7702    1006               SHN   6                                                     NS2418   51
7703    3310               LMD   CM                                                    NS2418   52
7704    5400 0660          STM   PHEF+1                                                NS2418   53
7706    1063               SHN   -14                                                   NS2418   54
7707    5500 0657          RAM   PHEF                                                  NS2418   55
                                                                                        271L716  1450
                      *    LOAD *4MX* AND CONTINUE PRESET.                            271L716  1451
                                                                                        271L716  1452
7711    2000 0142     FMY2 LDK   RPLP                                                  271L750  198
7713    6010               CRD   CM                                                    271L716  1454
7714    3010               LDD   CM                                                    271L716  1455
7715    1014               SHN   14                                                    271L716  1456
7716    3111               ADD   CM+1                                                  271L716  1457
7717    6010               CRD   CM                                                    271L716  1458
7720    3114               ADD   CM+4                                                  271L716  1459
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7721          6010                          CRD    CM                                              271L716   1460
7722          3114                          ADD    CM+4                                            271L716   1461
7723          0100 7510                     LJM    PRS8        LOAD NEXT PRESET OVERLAY            271L716   1462
                                                                                                   271L750    199
                                                                                                   271L750    200
7725          0014 0030            FMYA     CON    14,30,61    COUNTERS FOR 25 MICROSECOND DELAY   271L750    201
7727          0061
7730          0075 0173            FMYB     CON    75,173,370  COUNTERS FOR 125 MICROSECOND DELAY  271L750    202
7732          0370
7733          5151                 FMYC     LIST16             LIST OF LOCATIONS OF 16-BIT INSTRUCTIONS   MTR54   63



                         26                 ERRNG  7777-*-10D  OVERFLOW ON OVERLAY LOAD            271L716   1464
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                                             IDENT  4MX,OMU                                        271L716   1467
                                      COMMENT 85/07/29. 24/05/19. MTR - PRESET (PART 4).           271L716   1468
                                             COMMENT  COPYRIGHT CONTROL DATA SYSTEMS INC.  1992.   281L803      4

                                      ***    4MX - MTR PRESET (PART 4).                            271L716   1471
                                      *                                                            271L716   1472
                                      *      ENTRY  (CN - CN+4) = MABL.                            271L716   1473
                                                                                                   271L716   1474
                                                                                                   271L716   1475
          7514                               ORG    OVLL                                           271L716   1476
                                                                                                   271L716   1477
                                                                                                   271L716   1478
          7514                         OMU   BSS    0            ENTRY                             271L716   1479
                                                                                                   271L716   1480
                                      *      PRESET CYBER 70, 170 HARDWARE ERROR PROCESSING.       271L716   1481
                                                                                                   271L716   1482
          7514      3021                     LDD    CN+1                                           271L716   1483
          7515      1006                     SHN    21-13                                          271L716   1484
          7516      0705                     MJN    OMU1         IF LARGE CENTRAL MEMORY NOT PRESENT 271L716 1485
          7517      1005                     SHN    21-6-21+13                                     271L716   1486
          7520      0605                     PJN    OMU2         IF CYBER 865/875                  271L716   1487
          7521      0100 7611                LJM    OMU7         LOAD NEXT OVERLAY                 271L716   1488
                                                                                                   MTR       5524
          7523      1005               OMU1  SHN    21-6-21+13                                     251L664    406
          7524      0720                     MJN    OMU3         IF NOT CYBER 170 S/C REGISTER     251L664    407
          7525      3071               OMU2  LDD    HN           CHANGE TO TIME PROCESSING         251L664    408
                                      *      LDC    ZJNI-UJNI                                      MTR       5528
                              0              ERRNZ  100-ZJNI+UJNI  (ADJUST IF INSTRUCTIONS CHANGE) MTR       5529
          7526      5500 0725                RAM    PHEB                                           MTR       5530
          7530      3021                     LDD    CN+1                                           MTR       5531
          7531      1066                     SHN    -11                                            MTR       5532
          7532      1107                     LMN    7                                              MTR       5533
          7533      0534                     NJN    OMU4         IF NOT CYBER 176                  251L664    409
          7534      5600 1027                AOM    PSEA                                           MTR       5535
          7536      1477                     LDN    PSNI                                           MTR       5536
          7537      5400 0741                STM    PHEC                                           MTR       5537
          7541      5400 1032                STM    PSEB                                           MTR       5538
          7543      0324                     UJN    OMU4         LOAD CYBER 170 PROCESSER          251L664    410
                                                                                                   MTR       5540
          7544      1021               OMU3  SHN    21-7-21+6+22                                   251L664    411
          7545      0736                     MJN    OMU6         IF NOT CYBER 70 INTERLOCK REGISTER 251L664   412
          7546      5700 7631                SOM    OMUC         CHANGE TO INTERLOCK REGISTER      251L664    413
          7550      5700 1066                SOM    ODWA                                           MTR       5544
          7552      5700 1067                SOM    ODWB                                           MTR       5545
          7554      1445                     LDN    SSTL         GET SUB-SYSTEM STATUS             MTR       5546
          7555      6010                     CRD    CM                                             MTR       5547
          7556      3013                     LDD    CM+3         CHECK SIMULATED SCR               MTR       5548
          7557      1016                     SHN    21-3                                           MTR       5549
          7560      0607                     PJN    OMU4         IF SIMULATED SCR IS SELECTED      251L664    414
          7561      5700 0513                SOM    AVTA         NO TIME CALL FOR C70 NON-SIMULATION MTR     5551
          7563      2000 1000                LDC    FCTB         TEST BIT 0 FUNCTION               MTR       5552
          7565      5400 7630                STM    OMUB                                           251L664    415
                                                                                                   MTR       5554
                                      *      MOVE CYBER 70, 170, 700 SERIES, 865/875 BLOCK INTO *PHE*.  MTR  5555
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                                                                                                 MTR        5556
      7567          1407                 OMU4      LDN    OMUAL        LENGTH TO MOVE            251L664     416
      7570          3401                           STD    T1                                     MTR        5558
      7571          1400                           ISTORE PHEG,(PSN)   DISABLE *DFT* CHECK IF NOT CYBER 180  NS2418A       3
      7574          5001 7626            OMU5      LDM    OMUA-1,T1                              251L664     417
      7576          5401 0653                      STM    PHEA-1,T1                              MTR        5560
      7600          3701                           SOD    T1                                     MTR        5561
      7601          0572                           NJN    OMU5         IF MOVE NOT DONE          251L664     418
      7602          0307                           UJN    OMU7         CONTINUE                  251L664     419
                                                                                                 MTR        5564
      7603          2000 0302            OMU6      LDC    UJNI+2       DISABLE *1MB* CALL        251L664     420
      7605          5400 0161                      STM    MTRG                                   251L664     421
      7607          5400 5460                      STM    MSTC                                   MTR        5567
                                                                                                 MTR        5609
                                         *         LOAD *4MW* AND CONTINUE PRESET.               271L716    1489
                                                                                                 MTR        5611
      7611          2000 0142            OMU7      LDK    RPLP                                   271L716    1490
      7613          6010                           CRD    CM                                     MTR        5613
      7614          3010                           LDD    CM                                     MTR        5614
      7615          1014                           SHN    14                                     MTR        5615
      7616          3111                           ADD    CM+1                                   MTR        5616
      7617          6010                           CRD    CM                                     MTR        5617
      7620          3114                           ADD    CM+4                                   MTR        5618
      7621          6010                           CRD    CM                                     271L716    1491
      7622          3114                           ADD    CM+4                                   271L716    1492
      7623          6010                           CRD    CM                                     271L716    1493
      7624          3114                           ADD    CM+4                                   271L716    1494
      7625          0100 7510                      LJM    PRS8         LOAD NEXT PRESET OVERLAY  251L664     426
                                                                                                 MTR        5622
      7627                               OMUA      BSS    0            CYBER 170 ERROR PROCESSOR 251L664     427
                                                   LIST   D                                      MTR        5624
                                         PHEE      HERE                                          MTR        5625
    L  654                                         LOC    PHEA                                   PHEE      .1
    L  654          2000 7000                      LDC    FCTE         TEST ERROR FUNCTION       PHEE      .1
    L  656          6616 0652                      FJM    PHEX,CH      IF CHANNEL HUNG FULL      PHEE      .1
    L  660          0200 1065                      RJM    ODW                                    PHEE      .1
    L  662          0330                           UJN    PHE3         SAVE ERROR STATUS         PHEE      .1
      7636                                         LOC    *O                                     PHEE      .1
                                                   LIST   *                                      271L716    1495
                                    7    OMUAL     EQU    *-OMUA                                 251L664     428
                                 7630    OMUB      EQU    OMUA+1                                 251L664     429
                                 7631    OMUC      EQU    OMUA+2                                 251L664     430

                                   27              ERRNG  PHE3-PHEA-OMUAL       OVERFLOW OF *PHE*          251L664     431
                                  127              ERRNG  7777-*-10D  OVERFLOW ON OVERLAY LOAD   MTR38         1
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                                         IDENT  4MW,SCC                                      271L716   1499
                                   COMMENT 85/07/29. 24/05/19. MTR - PRESET (PART 5).        271L716   1500
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                                 **      4MW - MTR PRESET (PART 5).                          271L716   1502
                                                                                             MTR       5649
                                                                                             MTR       5650
 7514                                    ORG    OVLL                                         271L716   1503
                                                                                             271L716   1504
                                                                                             MTR       5652
 7514                             SCC    BSS    0            ENTRY                           271L716   1505
 7514         2000 0134                  LDK    MCTP         GET MEMORY CONTROL TABLE POINTER 271L716  1506
 7516         6020                       CRD    CN                                           271L716   1507
 7517         3021                       LDD    CN+1         SET MCT BASE ADDRESS            271L716   1508
 7520         5400 6563                  STM    STAA                                         271L716   1509
 7522         3020                       LDD    CN                                           271L716   1510
 7523         5500 6562                  RAM    STAA-1                                       271L716   1511
 7525         3022                       LDD    CN+2         SET NUMBER OF MCT ENTRIES       271L716   1512
 7526         5400 6657                  STM    UFLA                                         271L716   1513
                             0           ERRNZ  MCTP-PCPP    CODE DEPENDS ON VALUE           271L716   1514
 7530         3023                       LDD    CN+3                                         271L716   1515
 7531         1014                       SHN    14           FORM BASE PCPA ADDRESS          271L716   1516
 7532         3324                       LMD    CN+4                                         271L716   1517
 7533         2177 7577                  SBK    CPAS                                         271L716   1518
 7535         5400 6476                  STM    SCPA         SET ADDRESS - *CPAS*            271L716   1519
 7537         1063                       SHN    -14                                          271L716   1520
 7540         5500 6475                  RAM    SCPA-1                                       271L716   1521
 7542         1470                       LDN    NCPL         READ NUMBER OF CONTROL POINTS   271L716   1522
 7543         6010                       CRD    CM                                           271L716   1523
 7544         3611                       AOD    CM+1         SET SYSTEM CONTROL POINT        271L716   1524
 7545         3446                       STD    NC                                           271L716   1525
 7546         1701                       SBN    1            SET LAST CONTROL POINT          273L780    200
 7547         5500 3701                  RAM    RSTE                                         273L780    201
 7551         1277                       LPN    77                                           271L716   1530
 7552         5500 6401                  RAM    PVEA                                         271L716   1531
 7554         3046                       LDD    NC           SET ADDRESS OF *MS2W* OF SYSTEM CP 271L716 1532
 7555         1007                       SHN    7                                            271L716   1533
 7556         5500 7177                  RAM    HGMB                                         271L716   1534
 7560         5400 1344                  STM    HNGD                                         271L716   1535
 7562         5400 3370                  STM    HLTA                                         271L716   1536
 7564         0200 7672                  RJM    IFP          INITIALIZE *COMPGFP*            271L716   1537
 7566         1460                       LDN    ACPL         READ CPU 0 STATUS               271L716   1538
 7567         6010                       CRD    CM                                           271L716   1539
 7570         3010                       LDD    CM           CHECK CPU 0                     271L716   1540
 7571         1006                       SHN    6                                            271L716   1541
 7572         0625                       PJN    SCC3         IF AVAILABLE                    271L716   1542
 7573         3071                       LDD    HN                                           271L716   1543
                                 *       LDC    100          (SAVES 1 BYTE)                  271L716   1544
 7574         5500 7506                  RAM    CPRA+3       SET CPU - 1                     271L716   1545
 7576         5600 5201                  AOM    MXN                                          271L716   1546
 7600         5600 4730                  AOM    CCPB                                         271L716   1548
 7602         5700 5103                  SOM    CCSB                                         271L750    203
 7604         2000 7644           SCC1   LDC    SCCA                                         271L716   1549
 7606         3401                       STD    T1           SAVE TABLE ADDRESS              271L716   1550
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 7607         4001              SCC2     LDI    T1                                                  271L716   1551
 7610         0414                       ZJN    SCC4         IF NO MORE INSTRUCTIONS TO MODIFY      271L716   1552
 7611         3402                       STD    T2                                                  271L716   1553
 7612         3601                       AOD    T1                                                  271L716   1554
 7613         4001                       LDI    T1           GET NEW INSTRUCTION VALUE              271L716   1555
 7614         4402                       STI    T2           STORE ON TOP OF OLD INSTRUCTION        271L716   1556
 7615         3601                       AOD    T1                                                  271L716   1557
 7616         0370                       UJN    SCC2         MODIFY THE NEXT INSTRUCTION            271L716   1558
                                                                                                    271L716   1559
 7617         1461              SCC3     LDN    ACPL+1       READ CPU 1 STATUS                      271L716   1560
 7620         6010                       CRD    CM                                                  271L716   1561
 7621         3010                       LDD    CM           CHECK CPU 1                            271L716   1562
 7622         1006                       SHN    6                                                   271L716   1563
 7623         0760                       MJN    SCC1         IF NOT AVAILABLE                       271L716   1564
                                                                                                    271L716   1565
                               *         LOAD *4MV* AND CONTINUE PRESET.                            271L716   1566
                                                                                                    271L716   1567
 7624         2000 0142         SCC4     LDK    RPLP                                                271L716   1568
 7626         6010                       CRD    CM                                                  271L716   1569
 7627         3010                       LDD    CM                                                  271L716   1570
 7630         1014                       SHN    14                                                  271L716   1571
 7631         3311                       LMD    CM+1                                                271L716   1572
 7632         6010                       CRD    CM                                                  271L716   1573
 7633         3114                       ADD    CM+4                                                271L716   1574
 7634         6010                       CRD    CM                                                  271L716   1575
 7635         3114                       ADD    CM+4                                                271L716   1576
 7636         6010                       CRD    CM                                                  271L716   1577
 7637         3114                       ADD    CM+4                                                271L716   1578
 7640         6010                       CRD    CM                                                  271L716   1579
 7641         3114                       ADD    CM+4                                                271L716   1580
 7642         0100 7510                  LJM    PRS8         LOAD NEXT PRESET OVERLAY               271L716   1581
                                                                                                    271L716   1582
                                                                                                    271L716   1583
                               *         TABLE OF INSTRUCTION MODIFICATIONS FOR SINGLE CPU OPERATION. 271L750    204
                                                                                                    271L750    205
 7644                           SCCA     BSS    0                                                   271L716   1584
                                                                                                    271L716   1585
 7644         0234                       CON    AVCB                                                271L716   1586
L  234                                   LOC    AVCB                                                271L716   1587
L  234        0304                       UJN    AVC5         SKIP PROCESSING FOR OTHER CPU          271L716   1588
 7646                                    LOC    *O                                                  271L716   1589
                                                                                                    271L716   1590
 7646         4716                       CON    CCPD                                                271L716   1591
L 4716                                   LOC    CCPD                                                271L716   1592
L 4716        0305                       UJN    CCPX         RETURN                                 271L716   1593
 7650                                    LOC    *O                                                  271L716   1594
                                                                                                    271L716   1595
 7650         5017                       CON    CCSA                                                271L750    206
L 5017                                   LOC    CCSA                                                271L750    207
L 5017        1100                       LMN    0                                                   271L750    208
 7652                                    LOC    *O                                                  271L716   1599
                                                                                                    271L716   1600
 7652         5114                       CON    CPRB                                                271L716   1601
L 5114                                   LOC    CPRB                                                271L716   1602
L 5114        0311                       UJN    CPR1                                                271L716   1603
 7654                                    LOC    *O                                                  271L716   1604
                                                                                                    271L716   1605
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     7654         0257                CON    CX1                                     271L716   1606
   L  257                             LOC    CX1                                     271L716   1607
   L  257         0373                UJN    AVCX         RETURN                     271L716   1608
     7656                             LOC    *O                                      271L716   1609
                                                                                     271L716   1610
     7656         6375                CON    MFLA                                    271L716   1611
   L 6375                             LOC    MFLA                                    271L716   1612
   L 6375         1406                CON    LDNI+MFLF                               271L716   1613
     7660                             LOC    *O                                      271L716   1614
                                                                                     271L716   1615
     7660         6376                CON    MFLA+1                                  271L716   1616
   L 6376                             LOC    MFLA+1                                  271L716   1617
   L 6376         0200                CON    RJMI                                    271L716   1618
     7662                             LOC    *O                                      271L716   1619
                                                                                     271L716   1620
     7662         7101                CON    FTNA                                    271L716   1621
   L 7101                             LOC    FTNA                                    271L716   1622
   L 7101         0346                UJN    FTN4         AVOID CPU SELECTION        271L716   1623
     7664                             LOC    *O                                      271L716   1624
                                                                                     271L716   1625
     7664         7265                CON    RCPA                                    271L716   1626
   L 7265                             LOC    RCPA                                    271L716   1627
   L 7265         0364                UJN    RCP2         AVOID CPU SELECTION        271L716   1628
     7666                             LOC    *O                                      271L716   1629
                                                                                     271L716   1630
     7666         3630                CON    RSTB                                    271L716   1631
   L 3630                             LOC    RSTB                                    271L716   1632
   L 3630         0314                UJN    RST7         AVOID CPU SELECTION        271L716   1633
     7670                             LOC    *O                                      271L716   1634
                                                                                     271L716   1635
     7670         0000                CON    0            END OF TABLE               271L716   1636



                                 IFP  HERE                *COMPGFP* INITIALIZATION CODE          271L716   1638



                          61          ERRNG  7777-*-10D   OVERFLOW ON OVERLAY LOAD   271L716   1640
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                                         IDENT  4MV,THU                                                 271L716   1643
                                 COMMENT 85/07/29. 24/05/19. MTR - PRESET (PART 6).                     271L716   1644
                                         COMMENT  COPYRIGHT CONTROL DATA SYSTEMS INC.  1992.            281L803      6


                                **       4MV - MTR PRESET (PART 6).                                     271L716   1647
                                                                                                        271L716   1648
                                                                                                        271L716   1649
         7514                            ORG    OVLL                                                    271L716   1650
                                                                                                        271L716   1651
                                                                                                        MTR       5665
         7514                     THU    BSS    0             ENTRY                                     271L716   1652
                                                                                                        271L716   1653
                                *        SET MULTI-MAINFRAME PROCESSING.                                MTR       5666
                                                                                                        MTR       5667
         7514     2000 0122              LDK    MMFL          CHECK MMF ENVIRONMENT                     271L716   1654
         7516     6030                   CRD    CS                                                      271L716   1655
         7517     1601                   ADN    EFRL-MMFL     CHECK ERROR IN PRESET                     271L716   1656
         7520     6020                   CRD    CN                                                      271L716   1657
         7521     3024                   LDD    CN+4                                                    271L716   1658
         7522     0505                   NJN    THU1          IF ERROR DETECTED IN *CPUMTR* PRESET      271L716   1659
         7523     3031                   LDD    CS+1                                                    271L716   1660
         7524     2200 0777              LPC    777                                                     271L716   1661
         7526     0522                   NJN    THU2          IF MMF PRESENT                            271L716   1662
         7527     2000 0000       THU1   ISTORE AVCC,(UJN  AVCD)  DISABLE MULTI-MAINFRAME PROCESSING    271L716   1663
         7533     1512                   LCN    ARMF-ARTF                                               271L716   1664
         7534     5500 0250              RAM    AVCD                                                    271L716   1665
         7536     3031                   LDD    CS+1                                                    271L716   1666
         7537     0511                   NJN    THU2          IF INDEPENDENT SHARED DEVICES PRESENT     271L716   1667
         7540     2000 7610              LDC    NSDJ          DISABLE SHARED DEVICE CODE                271L716   1668
         7542     0200 7643              RJM    MMI           MODIFY *MTR* INSTRUCTIONS                 271L716   1669
         7544     2000 1410              LDC    LDNI+10                                                 271L716   1670
         7546     5400 2762              STM    RRXA                                                    271L716   1671
         7550     1470            THU2   LDK    CFGL                                                    271L716   1672
         7551     6010                   CRD    CM                                                      271L716   1673
         7552     3013                   LDD    CM+3                                                    271L716   1674
         7553     1010                   SHN    21-11                                                   271L716   1675
         7554     0705                   MJN    THU3          IF ISD SUBSYSTEM PRESENT                  271L716   1676
         7555     2000 7625              LDC    N8SJ          DISABLE ISD SUBSYSTEM CODE                271L716   1677
         7557     0200 7643              RJM    MMI           MODIFY *MTR* INSTRUCTIONS                 271L716   1678
         7561     2000 0106       THU3   LDC    RTCL          INITIALIZE REAL-TIME CLOCK                271L716   1679
         7563     6047                   CRD    TM                                                      MTR       5691
         7564     3053                   LDD    TM+4          INITIALIZE CYCLE TIME                     MTR       5692
         7565     3475                   STD    CY                                                      MTR       5693
                                                                                                        271L716   1680
                                *        LOAD *4MU* AND CONTINUE PRESET.                                271L716   1681
                                                                                                        271L716   1682
         7566     2000 0142              LDK    RPLP                                                    271L716   1683
         7570     6010                   CRD    CM                                                      271L716   1684
         7571     3010                   LDD    CM                                                      271L716   1685
         7572     1014                   SHN    14                                                      271L716   1686
         7573     3311                   LMD    CM+1                                                    271L716   1687
         7574     6010                   CRD    CM                                                      271L716   1688
         7575     3114                   ADD    CM+4                                                    271L716   1689
         7576     6010                   CRD    CM                                                      271L716   1690
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7577          3114                      ADD    CM+4                                 271L716   1691
7600          6010                      CRD    CM                                   271L716   1692
7601          3114                      ADD    CM+4                                 271L716   1693
7602          6010                      CRD    CM                                   271L716   1694
7603          3114                      ADD    CM+4                                 271L716   1695
7604          6010                      CRD    CM                                   271L716   1696
7605          3114                      ADD    CM+4                                 271L716   1697
7606          0100 7510                 LJM    PRS8        LOAD NEXT PRESET OVERLAY 271L716   1698



                                  **         NSDJ - TABLE OF NO SHARED DEVICE JUMP INSTRUCTIONS.     MTR       5696
                                  *                                                                  MTR       5697
                                  *T, NSDJ  12/ ADDRESS,12/ *UJN* INSTRUCTION                        MTR       5698
                                                                                                     MTR       5699
                                                                                                     MTR       5700
7610                               NSDJ      BSS    0                                                MTR       5701
                                   NSDJ      HERE                                                    MTR       5702
7624          0000                           CON    0                                                MTR       5703



                                  **         N8SJ - TABLE OF ISD SUBSYSTEM JUMP INSTRUCTIONS.        MTR       5705
                                  *                                                                  MTR       5706
                                  *T, N8SJ  12/ ADDRESS,12/ *UJN* INSTRUCTION                        MTR       5707
                                                                                                     MTR       5708
                                                                                                     MTR       5709
7625                               N8SJ      BSS    0                                                MTR       5710
                                   N8SJ      HERE                                                    MTR       5711
7641          0000                           CON    0                                                MTR       5712



                                  **         MMI - MODIFY *MTR* INSTRUCTIONS.                        MTR       5714
                                  *                                                                  MTR       5715
                                  *          ENTRY  (A) = ADDRESS OF MODIFICATION TABLE.             MTR       5716
                                  *                                                                  MTR       5717
                                  *          EXIT   INSTRUCTIONS MODIFIED.                           MTR       5718
                                  *                                                                  MTR       5719
                                  *          USES   T1, T2.                                          MTR       5720
                                                                                                     MTR       5721
                                                                                                     MTR       5722
7642          0100 7642            MMI       SUBR               ENTRY/EXIT                           MTR       5723
7644          3401                           STD    T1          SAVE TABLE ADDRESS                   MTR       5724
7645          4001                 MMI1      LDI    T1                                               MTR       5725
7646          0473                           ZJN    MMIX        IF NO MORE INSTRUCTIONS TO MODIFY    MTR       5726
7647          3402                           STD    T2                                               MTR       5727
7650          3601                           AOD    T1                                               MTR       5728
7651          4001                           LDI    T1          GET NEW INSTRUCTION VALUE            MTR       5729
7652          4402                           STI    T2          STORE ON TOP OF OLD INSTRUCTION      MTR       5730
7653          3601                           AOD    T1                                               MTR       5731
7654          0370                           UJN    MMI1        MODIFY THE NEXT INSTRUCTION          MTR       5732
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110 ERRNG 7777-*-10D OVERFLOW ON OVERLAY LOAD 271L716 1700

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                                          IDENT  4MU,FMV                                      271L716   1703
                                    COMMENT 85/07/29. 24/05/19. MTR - PRESET (PART 7).        271L716   1704
                                          COMMENT  COPYRIGHT CONTROL DATA SYSTEMS INC.  1992. 281L803      7


                                   **     4MU - MTR PRESET (PART 7).                          271L716   1707
                                                                                              MTR       5821
                                                                                              MTR       5822
          7514                            ORG    OVLL                                         271L716   1708
                                                                                              271L716   1709
                                                                                              271L716   1710
          7514                     FMV    BSS    0             ENTRY                          271L716   1711
          7514          1472              LDK    ESTP          READ EST POINTER               271L716   1712
          7515          6060              CRD    OR                                           271L716   1713
          7516          1602              ADK    EJTP-ESTP     READ EJT POINTER               271L716   1714
          7517          6010              CRD    CM                                           271L716   1715
          7520          3762              SOD    OR+2          SET EST SIZE                   271L716   1716
          7521          5400 4034         STM    SEQA                                         271L716   1717
          7523          3011              LDD    CM+1          SET EJT FWA + *SCHE* OFFSET    271L716   1718
          7524          5500 2354         RAM    RCEB+1                                       271L716   1719
          7526          1063              SHN    -14                                          271L716   1720
          7527          3110              ADD    CM                                           271L716   1721
          7530          5500 2353         RAM    RCEB                                         271L716   1722
          7532          1405              LDK    NOPE          INITIALIZE EST ORDINAL FOR SEARCH 271L716  1723
          7533          3461              STD    OR+1                                         MTR       5824
                                                                                              MTR       5825
                                   *      BUILD MASS STORAGE TABLES.                          MTR       5826
                                                                                              MTR       5827
          7534          1400              LDN    0                                            MTR       5828
          7535          3401              STD    T1            INITIALIZE SYSTEM DEVICE COUNT MTR       5829
          7536          2000 7522         LDC    TSYM          SET SYSTEM MST TABLE ADDRESS   MTR       5830
          7540          3402              STD    T2                                           MTR       5831
                                   12     ERRNG  *-TSYM-MXSY TABLE OVERLAYS CODE              MTR       5832
          7541          3061       FMV1   SFA    EST,OR+1      READ EST ENTRY                 271L716   1724
                                          ADK    EQDE                                         MTR       5834
          7544          6030              CRD    CS                                           NS2454     102
          7545          3030              LDD    CS                                           NS2454     103
          7546          1065              SHN    0-12                                         MTR       5837
          7547          1103              LMN    3                                            MTR       5838
          7550          0526              NJN    FMV3          IF NOT SYSTEM DEVICE           271L716   1725
          7551          3601              AOD    T1                                           MTR       5840
          7552          1076              SHN    -1                                           MTR       5841
          7553          0405              ZJN    FMV2          IF NOT MORE THAN 1 SYSTEM DEVICE 271L716 1726
          7554          2000 2000         LDC    LDCI          ENABLE SYSTEM DEVICE SELECTION CODE MTR    5843
          7556          5400 2264         STM    RCEA                                         MTR       5844
          7560          3061       FMV2   LDD    OR+1          SET EST ORDINAL                271L716   1727
          7561          5402 7765         STM    TSYD-TSYM,T2                                 MTR       5846
          7563          3030              LDD    CS            SET SHARED FLAG                NS2454     104
          7564          1070              SHN    2-11                                         MTR       5848
          7565          1204              LPN    4                                            MTR       5849
          7566          5402 7772         STM    TSHS-TSYM,T2                                 MTR       5850
          7570          3034              LDD    CS+4          SET MST ADDRESS                NS2454     105
          7571          4402              STI    T2                                           MTR       5852
          7572          3602              AOD    T2                                           MTR       5853
          7573          3033              LDD    CS+3                                         NS2454     106
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7574         2300 0401                LMC    2RDA                                           MTR       5856
7576         0511            FMV3     NJN    FMV4         IF NOT 33502                      271L716   1728
7577         2000 0000                ISTORE RSYA,(LPN 37)  ENABLE 33502 SYSTEM PROCESSING  MTR       5858
7603         2000 0000                ISTORE RSYB,(LMD CS+1)                                MTR       5859
7607         3661            FMV4     AOD    OR+1                                           271L716   1729
7610         3363                     LMD    OR+3         LAST MASS STORAGE ORDINAL + 1     MTR       5862
7611         0403                     NJP    FMV1         IF NOT END OF EQUIPMENT           271L716   1730
7614         7014                     IAN    14                                             MTR       5864
7615         3454                     STD    MS                                             MTR       5865
7616         2000 7730                LDC    EZOT                                           271L716   1731
7620         3401                     STD    T1                                             271L716   1732
7621         1407                     LDN    DSCL         SET UP *MTR* ACTIVE STATUS        271L716   1733
7622         6010                     CRD    CM                                             271L716   1734
7623         3412                     STD    CM+2                                           271L716   1735
                         104          IFPL   EZOT-*,1                                       MTR       5866
7624                     104          BSSZ   EZOT-*       INSURE CODE TO ZERO TABLE IS BEYOND TABLE  MTR  5867
7730         1400            FMV5     LDN    0            CLEAR TABLES                      271L716   1736
7731         4402                     STI    T2                                             MTR       5869
7732         3602                     AOD    T2                                             MTR       5870
7733         3301                     LMD    T1                                             271L716   1737
7734         0573                     NJN    FMV5         IF NOT END OF TABLES              271L716   1738
7735         1407                     LDN    DSCL         SET *MTR* ACTIVE STATUS           271L716   1739
7736         6210                     CWD    CM                                             NS2492       6
7737         0100 0143                LJM    MTR4         ENTER MAIN LOOP                   251L664    442



                          24          ERRNG  7777-*-10D   OVERFLOW ON OVERLAY LOAD          MTR38        2



7741                                  END                                                   MTR       5878

                    102200B CM  STORAGE USED            17265 STATEMENTS     4785 SYMBOLS      000097 INVENTED SYMBOLS
                       PARALLEL CPU ASSEMBLY            6.853 SECONDS        4374 REFERENCES



SYMBOLIC REFERENCE TABLE.

ACGL            1   NOSTEXT        45/22
ACML           22   NOSTEXT       106/41
ACPL           60   NOSTEXT        82/22      82/33      83/04      83/22     134/45     135/10
ACPP            0   NOSTEXT        36/56      60/44      64/56      89/12     110/32
                                   40/45      61/23      69/23      89/14     111/22
ACPS            1                 101/33
ADTF           17                   5/43 L    18/07      80/34
AMC          4405                  74/44 L    75/38      75/38
AMC1         4414                  74/49      74/52 L
AMC2         4423                  75/01 L    75/04
AMC3         4425                  74/57      75/03 L
AMC4         4430                  75/06 L    75/15
AMC5         4436                  74/54      75/13 L
AMF          5566                  92/29 D    94/56     102/53
AMFX         5565                  92/29 L    92/36
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SYMBOLIC REFERENCE TABLE.

AMM	5606		93/32 D	99/05	99/12	99/37	99/42	
AMMA	5643		93/55 S	94/01 D				
AMMX	5605		93/32 L	94/21				
AMM1	5613		93/37 L	93/50	94/03			
AMM2	5630		93/46	93/49 L				
AMM3	5631		93/50 L	94/17				
AMM4	5632		93/43	93/51 L				
AMM5	5600		93/26 L	93/52				
AMV	5744		90/31	91/36 S	92/11	95/25 D		
AMVA	5776		95/52 D	100/11 S				
AMVB	6007		67/26 S	96/06 D	100/16 S			
AMVC	5732		95/14 D	122/17 S				
AMVX	5737		95/20 L	95/47				
AMV1	5770		95/41	95/44 L				
AMV10	5724		91/39	95/08 L				
AMV2	5773		95/46 L	96/17				
AMV3	5775		95/37	95/43	95/51 L			
AMV4	6003		95/31	95/53	95/57 L	96/07	96/13	
AMV5	6005		95/34	96/04 L				
AMV6	6012		95/56	96/09 L				
AMV7	6017		96/11	96/15 L				
AMV8	5673		94/46 L	95/57				
AMV9	5722		94/54	95/06 L				
ARMF	14		5/40 L	15/27	137/28			
ARTF	2		5/30 L	15/17	137/28			
ASCM	1	NOSTEXT	117/32					
AVC	254		15/31 D	82/32	89/42	111/28		
AVCA	253		15/21 S	15/33 D	17/34	17/34 S		
AVCB	234		15/17 L	135/38	135/39			
AVCC	245		15/23 L	137/27	137/27 S			
AVCD	250		15/27 L	137/27	137/29 S			
AVCX	253		15/31 L	15/57	136/03			
AVC1	257		15/35 L	15/56				
AVC2	273		15/43	15/47 L				
AVC3	306		15/51	15/55 L				
AVC4	234		15/16 L	17/34				
AVC5	240		15/20 L	135/40				
AVT	442		15/22	18/10 D				
AVTA	513		18/47 L	132/53 S				
AVTC	450		17/33 S	18/16 D	18/19			
AVTX	441		18/04	18/10 L				
AVT1	461		18/24 L	18/31	18/39	18/44		
AVT2	430		17/56 L	18/24	18/53			
BA	26		8/24 L	93/36 S	93/54	94/08	94/14	94/20
BIS	1106		24/40	25/01	25/53 D			
BISA	1141		26/10 S	26/22 D				
BISB	1142		26/15 S	26/24 D				
BISC	1155		26/39 D	127/47 S	127/49 S			
BISD	1156		24/56 S	25/03 S	26/40 L			
BISE	1217		27/21 L	127/54	127/54 S			
BISF	1252		27/45	27/46	28/05 L	28/18	128/04 S	
BISFL	14		28/18 D	128/35				
BISG	1266		27/47	28/30 L				
BISX	1105		25/53 L	27/39				
BIS1	1117		26/07 L	26/29				
BIS2	1150		26/09	26/34 L				
BIS3	1152		26/36 L	26/53	26/56	27/02		

SYMBOLIC REFERENCE TABLE.

BIS4	1171		26/48	26/51 L				
BIS5	1212		26/37	27/08	27/17 L			
BIS6	1226		27/27 L	127/54				
BIS7	1245		27/35	27/39 L				
BIS8	1071		25/41 L	26/49				
BIS9	1102		25/48	25/50 L				
BOTM	2	NOSTEXT	117/32					
CACX	10		5/11 L	15/35	15/47			
CBLP	0		5/05 L					
CCHM	3	NOSTEXT	33/49	117/32				
CCH1	1554		33/55 L	34/02				
CCH2	1556		33/54	33/57 L				
CCH3	1567		33/53	34/05	34/08 L			
CCH4	1571		34/13 L	61/32				
CCH5	1604		34/21 L	34/27				
CCH6	1606		34/07	34/23 L				
CCNS	14		69/29	69/31	75/38			
CCP	4724		14/41	30/53	82/26 D			
CCPA	4725		82/30 L	88/40	91/23	91/26 S	92/03 S	
CCPB	4730		82/20	82/24 S	82/33 L	134/54 S		
CCPC	4735		82/39 L	129/26	129/26 S			
CCPD	4716		82/20 L	135/43	135/44			
CCPF	0		5/25 L	83/02				
CCPX	4723		82/26 L	135/45				
CCP1	4726		82/15	82/17	82/32 L			
CCP2	4743		82/39	82/48 L				
CCP3	4760		83/07 L	83/11	83/20	83/26		
CCP4	4762		82/53	83/09 L				
CCP5	4775		83/14	83/17	83/20 L			
CCP6	4707		82/12 L	91/24				
CCP7	4713		82/16 L					
CCP8	4716		82/19 L	82/38	83/07			
CCRT	250		28/16	28/17				
CCS	5014		14/40	83/52 D				
CCSA	5017		83/57 L	135/48	135/49			
CCSB	5103		83/56	84/02 S	84/53 L	134/55 S		
CCSX	5013		83/52 L	84/28	85/01			
CCS1	5043		84/14	84/17	84/20 L			
CCS2	5044		84/21 L	84/56				
CCS3	5046		84/20	84/26 L				
CCS4	5050		84/28 L	84/44				
CCS5	5061		84/31	84/34	84/37 L			
CCS6	5065		84/40 L	84/55				
CCS7	5107		84/37	84/51	85/01 L			
CCS8	5005		83/46 L	84/11				
CCS9	5006		83/47 L	84/22				
CDA	6726		43/31	44/54	46/57	109/25 D		
CDAM	53	NOSTEXT	70/37					
CDAX	6725		109/25 L					
CDA1	6750		109/38	109/42 L				
CDA2	6752		109/36	109/44 L				
CDA3	6753		109/32	109/40	109/45 L			
CDA4	6762		109/48	109/51 L				
CDA5	6770		109/53	109/57 L				
CDA6	6720		109/20 L	109/30	110/02			
CDBA	1633		35/14 L	126/37 S	126/39 S			
CDBB	1645		35/24 L	129/24 S				

SYMBOLIC REFERENCE TABLE.

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CDBM          12   NOSTEXT        34/55    117/32
CDB1        1630                  35/06     35/11 L
CDB2        1637                  35/12     35/18 L
CDB3        1653                  35/16     35/31 L
CDB4        1665                  35/39     35/41 L
CDB5        1667                  35/09     35/43 L
CDB6        1672                  35/38     35/42     35/46 L
CDB7        1677                  35/45     35/50 L   36/31
CECL         103   NOSTEXT        27/31     27/37
CEFM          54   NOSTEXT        92/01    111/42
CF            37                   8/36 L   13/52 S   13/57 S   36/26 S   51/54 S   72/35 S   74/32 S
                                  13/48     13/55     34/17 S   41/24 S   52/51 S   73/31 S  115/21 S
CFGL          70   NOSTEXT       137/36
CFL         6035                  66/25     96/43 D  101/57
CFLX        6034                  96/43 L   96/45
CFL1        6022                  96/33 L   96/50
CFL2        6026                  96/37 L   96/55
CFPP           3                   5/08 L
CFS         7000                  31/20     32/44    110/17 D
CFSA        7010                  78/50 S  110/25 D  110/40
CFSB        7034                  78/52 S  110/43 D
CFSC        7043                  78/55 S  110/49 D
CFSD        7045                  78/57 S  110/51 D
CFSX        6777                 110/17 L  110/41    110/44    110/52
CFS1        7033                 110/26    110/28    110/42 L
CFS2        7046                 110/47    110/52 L
CH            16                   9/37 D  133/35
CHD         2741                  47/07     53/22 L
CHDS          10   NOSTEXT       127/26 S
CHMR          17   NOSTEXT         9/38
CHSC          16   NOSTEXT         9/37     25/17     25/20
CHTP         141   NOSTEXT       126/50
CKP         4443                   75/24 L   75/38
CKPS          26                   75/38
CKP1        4451                   75/11     75/29 L
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SYMBOLIC REFERENCE TABLE.

CM	10	NOSTEXT	8/07 L	27/32 S	54/32 S	78/46 S	91/16 S	106/48	126/32 S	133/26 S	
			8/12	27/38	54/33 S	78/48	91/18 S	107/25 S	126/33	133/27	
			13/21 S	29/28 S	54/36 S	79/26	91/20	107/28	126/35	134/32 S	
			13/22	29/30 S	54/41 S	79/28 S	91/27	109/26	126/41 S	134/33 S	
			13/25 S	29/32 S	54/42	79/30	91/48	109/28 S	126/42	134/46 S	
			13/27	29/35	54/43 S	82/13 S	91/53 S	110/19	126/43	134/47	
			14/08 S	29/40	54/47 S	82/14	91/57 S	110/23 S	126/51 S	135/11 S	
			14/11 S	29/43 S	54/48	82/36 S	93/35	110/27	126/55	135/12	
			14/18 S	29/44	54/55	82/37	94/08 S	110/33 S	127/05	135/19 S	
			14/20	29/46	55/05	82/49	94/14 S	110/34	127/12	135/20	
			14/21	31/18 S	55/07 S	83/09	94/20 S	110/36	127/14	135/22	
			14/23 S	32/38 S	55/10	83/10	95/29	110/38 S	127/35 S	135/23 S	
			14/26	32/39	55/20	83/13	95/38	110/39	127/36	135/24	
			14/28 S	35/20 S	55/25	83/16	96/08	111/25	127/44 S	135/25 S	
			14/32	35/21	60/16 S	83/19	96/34 S	111/30 S	127/45	135/26	
			15/38 S	35/26 S	60/17	84/08 S	96/35	111/31	127/48	135/27 S	
			15/41	35/27	60/45 S	84/26	96/37 S	111/35 S	128/11 S	135/28	
			15/42	35/28	60/46	84/30	96/41	111/39	128/12	135/29 S	
			15/48 S	35/31 S	61/24 S	84/33	96/48 S	112/37	128/14	135/30	
			15/49	35/37	61/25	84/36	96/51 S	112/42 S	128/15 S	136/36 S	
			15/50	36/57 S	63/25 S	84/48 S	96/52 S	113/30 S	128/16	136/36	
			16/26 S	37/01	63/26	84/50	96/53	113/31	129/34 S	136/36	
			16/27	37/07 S	63/27	86/20 S	98/56	113/32	129/35	137/37 S	
			16/28	37/14 S	63/32	86/21	99/04	113/33	130/20	137/38	
			19/37 S	37/15	63/38 S	86/24 S	99/10 S	113/34	130/22	137/51 S	
			19/38	37/20	63/40	86/25	99/40 S	113/37 S	130/24 S	137/52	
			19/43 S	37/21	64/57 S	86/26	99/41	113/39 S	130/25	137/54	
			19/45	37/24 S	65/03	86/27	101/30 S	113/41	130/27	137/55 S	
			19/57	37/25	65/45 S	86/28	101/31	114/04 S	130/30	137/56	
			20/20	40/51	65/46	86/37 S	103/02 S	114/05	130/38 S	137/57 S	
			20/23	41/17	66/13 S	86/38	103/03	114/17 S	130/39	138/01	
			20/26	44/55	66/15 S	86/54 S	103/06	114/18	130/41	138/02 S	
			20/30	45/13 S	69/24 S	86/56	103/37 S	114/50 S	130/44	138/03	
			20/47	45/14	69/25	87/27 S	103/38	114/52 S	130/52 S	138/04 S	
			20/49	45/23 S	69/47 S	87/28	103/42	114/54 S	130/53	138/05	
			21/01	45/24	70/36 S	87/29	103/45	114/56	130/55	138/06 S	
			21/11	45/32	70/38	89/13 S	104/39 S	122/01 S	130/56 S	138/07	
			22/31 S	45/38 S	71/18 S	89/17	104/43	122/03	130/57	140/18 S	
			22/34	45/40 S	71/20 S	89/32 S	104/45 S	122/12 S	131/01 S	140/21	
			22/37	45/42 S	71/25 S	89/33	104/55 S	122/13 S	131/02	140/24	
			24/03 S	45/43	71/27 S	89/53 S	105/01	123/01 S	132/49 S	141/13 S	
			25/41 S	45/46	71/29	89/54	105/08	123/02	132/50	141/14 S	
			25/45	45/49	73/23 S	90/02 S	105/12 S	123/14 S	133/18 S	141/23	
			26/01 S	45/50	73/24	90/03	105/13	123/15	133/19		
			26/05	45/52 S	74/31	90/42 S	105/16 S	123/17	133/21		
			26/51	45/53	75/10	90/49	105/23 S	123/37 S	133/22 S		
			26/54	52/46	77/39 S	91/07 S	106/31	123/38	133/23		
			26/57	52/49 S	77/49	91/09 S	106/33	123/40	133/24 S		
			27/29	53/33	78/42	91/12 S	106/42 S	123/49	133/25		
CMAW	4		28/08	128/23							
CMCL	57	NOSTEXT	95/20	98/21	99/22	99/52					
CMRL	23	NOSTEXT	108/07								
CMS	4610		79/25 L	81/11							
CMSA	4616		79/31 L	122/35 S							
CMST	4		5/09 L	86/23							
CMS1	4636		79/41 L	79/57							
CMS2	4651		79/45	79/52 L							

SYMBOLIC REFERENCE TABLE.

CMT	13		123/49 D	124/20	124/22							
CMTLL	12		5/13 L									
CMTP	147	NOSTEXT	123/13	129/40								
CN	20		8/18 L	34/06	48/41	70/26	85/35 S	100/49	109/51 S	122/40		
			15/26 S	35/33 S	54/37	74/51 S	85/52	101/22 S	109/56 S	122/47		
			18/03	35/36	54/52 S	75/05	86/42	101/24 S	110/01	123/21 S		
			18/17 S	35/40	54/53	75/13	90/24 S	101/26	111/16 S	123/51		
			18/52 S	37/02 S	55/01	79/05 S	90/26 S	101/40 S	111/18 S	126/49 S		
			19/11	37/12	55/29 S	79/35 S	90/28 S	101/41	111/20 S	127/30		
			19/44 S	40/46 S	55/30	80/33 S	91/28 S	101/48 S	111/21 S	127/32		
			26/41 S	40/47	56/20 S	80/54 S	92/30 S	102/03 S	111/23	127/50		
			26/45	40/49	56/21 S	80/56 S	92/32 S	102/08 S	111/47 S	129/20		
			26/46	40/55 S	56/22	83/01 S	93/40 S	106/24 S	111/48	129/30		
			26/47	42/15	56/24	84/06 S	93/41	106/26	111/57 S	129/50		
			26/52	42/17	56/34 S	84/09	93/42	106/30 S	112/01	129/52		
			26/55	42/19 S	56/36	84/13	95/01 S	106/44 S	112/45 S	132/20		
			27/01	43/04	56/40 S	84/16	95/02	106/51	112/46	132/33		
			27/07	43/06	56/41	84/19	95/04	106/53	112/50 S	134/16 S		
			27/09 S	43/08 S	56/43	84/39 S	97/15 S	107/04	114/26	134/17		
			27/13	43/10	56/45 S	84/40	97/17 S	107/08	114/28 S	134/19		
			29/26 S	45/09	56/50 S	84/43	97/24 S	109/33	122/22 S	134/21		
			29/33	45/17	56/52	84/45 S	97/28 S	109/34 S	122/23	134/24		
			29/36	46/31 S	59/02	84/49	100/38 S	109/39	122/27	134/26		
			32/36 S	46/33	59/18	84/52	100/40 S	109/43 S	122/29	137/21 S		
			32/41	48/37	62/37 S	85/24 S	100/42	109/46	122/32 S	137/22		
			32/43	48/39 S	70/25 S	85/33	100/48 S	109/50 S	122/37			
CP	74	NOSTEXT	9/20 L	65/42	88/47 S	91/55 S	97/27	101/21	104/52			
			23/55 S	66/10	89/02	92/05 S	97/30 S	101/27	107/12			
			65/04 S	66/39	90/47	94/47 S	99/25	101/49	111/17			
			65/20 S	66/45	90/51	96/38	100/14	102/41 S	111/44			
			65/30	67/21	91/17	96/44	100/37	104/40	111/54			
CPAS	200	NOSTEXT	134/27									
CPBT	6		5/10 L									
CPR	5112		15/19	15/54	30/13	79/07	81/01	83/50	92/34	111/27		
			15/29	18/08	32/01	79/37	83/06	85/23 D	100/45	114/23		
			15/46	19/17	62/39	80/35	83/25	91/30	101/37			
CPRA	7503		85/31 S	86/12	118/04	123/30 S	134/52 S					
			85/54	117/57 L	123/27	123/32 S						
CPRB	5114		85/25 L	135/53	135/54							
CPRC	5146		86/13 D	129/39 S								
CPRE	5152		86/16 L	129/51 S								
CPRF	5204		86/41 D	129/23	129/23 S							
CPRG	5162		86/23 L	129/45 S	129/48 S							
CPRH	5172		86/30 L	129/53 S								
CPRX	5111		85/23 L	87/07								
CPR1	5125		85/32 L	135/55								
CPR10	5242		86/39	86/44	87/07 L							
CPR2	5146		86/10 L	87/04								
CPR3	5177		86/10	86/14	86/35 L							
CPR4	5204		86/22	86/39 L								
CPR5	5210		86/29	86/33	86/45 L							
CPR6	5217		86/49	86/51 L								
CPR7	5226		86/52	86/57 L								
CPR8	5234		87/02	87/04 L								
CPR9	5236		87/06 L	129/23								
CPSL	76	NOSTEXT	86/55									
CPUM	21	NOSTEXT	5/50	30/09	30/28	31/44	79/33	117/29	117/33			

SYMBOLIC REFERENCE TABLE.

CPUS	1		66/14								
CPXT	0		6/22 L								
CRA	6063		67/10	97/21 D							
CRAF	16		5/42 L	97/18							
CRAX	6062		97/21 L								
CRA1	6053		97/14 L	97/26							
CRA2	6055		97/16 L	97/31							
CRCW	125	NOSTEXT	19/13	19/14							
CRES	23		75/38								
CRQ	536		13/47	19/22 D							
CRQA	567		20/05 L	129/27	129/27 S						
CRQX	535		19/22 L	19/41	20/35						
CRQ2	545		19/36 L	19/48	20/03	20/07					
CRQ3	551		19/18	19/40 L	20/54						
CRQ4	553		19/27	19/42 L							
CRQ5	554		19/43 L								
CRQ6	522		19/11 L	20/28							
CRQ7	533		19/15	19/20 L							
CS	30		8/28 L	40/56	47/32 S	70/45 S	88/54	97/54	102/02	137/30	
			22/33 S	41/05	47/35	71/04	89/50 S	98/07	102/45 S	140/38 S	
			23/16	41/13	55/24 S	71/21	90/15	98/52 S	105/05	140/39	
			23/21 S	43/13 S	55/31	71/41	90/18	99/19 S	105/11	140/50	
			23/22	43/15	55/44	71/45 S	90/19	99/24	105/14	140/54	
			23/51 S	43/17 S	55/45 S	72/05 S	90/54 S	99/35 S	105/22	140/57	
			23/53	43/19 S	55/49 S	72/08	90/55	99/46 S	105/24	141/04	
			35/08 S	43/22	55/54	72/55	93/26	99/53 S	106/38		
			35/35 S	43/24	65/33 S	73/05	94/08 S	99/55	106/39		
			35/43	43/30 S	65/57	73/11	94/10 S	100/01	109/23		
			37/04 S	44/46 S	66/23	73/20	94/14 S	100/03	123/23 S		
			37/08	44/51	69/40 S	73/41	94/20 S	100/08	123/52		
			40/54 S	46/10	70/11	74/03	94/50 S	100/10	137/19 S		
			40/54	46/56 S	70/42	88/50 S	97/53	100/12	137/24		
CSAW	22	NOSTEXT	7/19								
CSES	21		75/38								
CSEW	17		128/21								
CSLF	3		5/31 L	83/24							
CSPS	4		81/11								
CSTM	31	NOSTEXT	67/40								
CSWF	1		5/26 L	83/46							
CSWL	62	NOSTEXT	84/05	84/07							
CSXP	1		5/06 L								
CTALL	11	NOSTEXT	13/50	117/26	126/57	127/10					
CTMW	23		7/19 D								
CUI	3141		46/08	56/19 L							
CUI1	3160		56/30 L	56/44							
CUI2	3165		56/32	56/35 L							
CUI3	3174		56/26	56/39 L							
CUI4	3205		56/25	56/45 L							
CWQW	21	NOSTEXT	37/13	111/46	114/03						
CXBP	2		5/07 L	123/18							
CX1	257		15/37 D	136/01	136/02						
CY	75		9/21 L	14/15	14/19 S	137/46 S					
C1C	2601		50/35	51/37 L	58/51						
C1M	2526		49/54 L	58/45							
C2C	2555		50/32	51/13 L	58/56	58/57					
C2C1	2575		51/27	51/31 L	138/19						
C2C10	2702		51/33	52/36	52/41 L						

SYMBOLIC REFERENCE TABLE.

C2C2	2577		51/33 L	51/49	138/19				
C2C3	2603		51/19	51/30	51/40 L				
C2C5	2622		51/41	51/52 L					
C2C5.1	2637		52/04	52/08 L					
C2C6	2647		52/10	52/16 L					
C2C7	2652		52/14	52/18 L					
C2C7.1	2655		52/13	52/17	52/20 L				
C2C7.3	2665		52/22	52/28 L					
C2C7.4	2670		52/26	52/30 L					
C2C8	2673		52/25	52/29	52/32 L				
C2C8.1	2675		52/07	52/34 L					
C2C9	2676		51/46	52/35 L					
C2M	2542		50/27 L	58/56					
C2M1	2554		50/02	50/05	50/35 L				
DALL	12	NOSTEXT	40/54	46/32	54/51	56/35	56/51	109/57	
			43/09	48/40	56/19	56/39	70/24		
DAPN	3	NOSTEXT	35/30						
DCHM	4	NOSTEXT	36/14	117/32					
DCH1	1714		36/21	36/25 L					
DCH2	1726		36/24	36/33 L					
DCPM	56	NOSTEXT	90/48	111/40	111/42				
DCRA	1742		37/05 L	129/25 S					
DDLL	16	NOSTEXT	55/28						
DFMM	60	NOSTEXT	35/46						
DFPP	47	NOSTEXT	35/07	126/31					
DFRQ	6		130/37						
DIXT	5		6/30 L						
DLSL	262		23/41	24/47					
DNC	4242		72/47 L	75/38					
DNCS	11		69/42	75/38					
DNC1	4251		72/49	72/57 L					
DNC10	4365		69/48	74/19 L					
DNC11	4403		74/20	74/36 L					
DNC2	4256		73/03 L	73/13	73/15	73/19			
DNC3	4266		73/04	73/11 L					
DNC4	4300		73/08	73/20 L					
DNC5	4330		73/43	73/46 L					
DNC6	4332		73/48 L	73/51	73/54				
DNC7	4342		73/26	73/55 L	74/10	74/12	74/18		
DNC8	4344		73/45	73/49	74/03 L				
DNC9	4361		72/57	74/06	74/07	74/16 L			
DRCM	5	NOSTEXT	36/51	117/32					
DRC1	1757		37/11	37/20 L					
DRC2	1766		37/17	37/27 L					
DRC4	1770		37/18	37/26	37/28 L				
DRQP	1	NOSTEXT	109/22						
DSBL	166		23/35	24/30					
DSCL	7	NOSTEXT	141/12	141/22					
DSCM	36		130/23						
DSD	1360		30/04 L	117/47					
DSD1	1374		29/52	30/07	30/14 L				
DSRM	6	NOSTEXT	77/36	117/32					
DSR1	4520		77/42	77/45	77/52 L				
DSR2	4531		77/46	77/48	77/51	78/08 L			
DSWM	13	NOSTEXT	40/40	117/32					
DSW1	2031		41/01	41/04 L					
DSW10	2122		41/57 L						

SYMBOLIC REFERENCE TABLE.

DSW11	2143		42/13	42/21 L						
DSW12	2145		41/19	41/54	41/57	42/23 L	138/31			
DSW13	2157		42/30 L							
DSW14	2162		42/25	42/33 L						
DSW15	2167		42/22	59/26	59/26	59/26	59/26	59/26		
			42/37 L	59/26	59/26	59/26	59/26	59/26		
DSW2	2037		41/07	41/10 L						
DSW3	2041		41/09	41/12 L	138/31					
DSW4	2045		41/17 L	138/19						
DSW5	2055		41/26 L							
DSW6	2065		41/28	41/32 L						
DSW7	2073		41/03	41/26	41/37 L					
DSW8	2075		41/36	41/38 L						
DSW8.1	2110		41/44	41/48 L						
DSW9	2115		41/47	41/49	41/51 L	138/19				
DWES	3		75/38							
DWSS	1		74/16							
ECET	30	NOSTEXT	91/56							
ECRL	25	NOSTEXT	108/08	126/40						
ECSW	25	NOSTEXT	89/52	108/04	108/08					
ECXM	35	NOSTEXT	62/30							
EDT	4663		80/31 L	81/11						
EDTS	2		81/11							
EFRL	123	NOSTEXT	137/20							
EIBP	71	NOSTEXT	113/40	129/33						
EJTE	4	NOSTEXT	45/50							
EJTP	74	NOSTEXT	140/17							
EMO	6101		67/09	97/52 D						
EMOX	6100		97/52 L							
EMO1	6107		97/55	98/01 L						
EMO2	6111		97/50	98/06 L						
EMO3	6125		67/33	98/17 L						
EMO4	6127		98/09	98/11	98/19 L					
EMO5	6076		97/49 L	98/02						
EMS	2423		46/51 L	59/27						
EPRF	4		5/32 L	62/38	91/29					
EQDE	0	NOSTEXT	40/54	69/39	72/07	140/37				
ESPS	3		81/11							
ESTP	72	NOSTEXT	136/36	140/15	140/17					
EST$	1		116/04 D							
ETA	415		16/36	17/09	17/32 D					
ETAX	414		17/32 L	17/37						
EZOT	7730		120/45 D	141/10	141/15 F	141/16				
FCCL	2000		23/35	23/41	28/15	28/17	28/40	28/42	128/30	
FCSB	4000		24/30	24/47	28/16	28/41				
FCTB	1000		24/32	24/35	24/49	24/52	132/54			
FCTE	7000		23/32	133/34						
FLIW	65	NOSTEXT	63/23	96/40	96/47	104/42	104/54			
FLSW	23	NOSTEXT	35/24	37/05	108/04	108/07				
FMV	7514		140/01	140/14 L						
FMV1	7541		140/36 L	141/07						
FMV2	7560		140/45	140/48 L						
FMV3	7576		140/42	141/02 L						
FMV4	7607		141/02	141/05 L						
FMV5	7730		141/17 L	141/21						
FMY	7514		129/01	129/16 L						
FMYA	7725		129/50	131/06 L						

SYMBOLIC REFERENCE TABLE.

FMYB	7730		129/52	131/08 L						
FMYC	7733		130/08	131/10 L						
FMYD	7645		130/05 S	130/15 L						
FMY0	7637		130/10 L	130/18						
FMY1	7650		129/37	130/11	130/20 L					
FMY2	7711		129/22	129/32	130/51 L					
FMZ	7514		126/01	126/30 L						
FMZB	7675		128/03	128/20 L	128/33					
FMZBL	14		128/01	128/33 D	128/35					
FMZ0	7542		126/44	126/48 L						
FMZ1	7602		127/21 L	127/25						
FMZ2	7632		127/38	127/43 L						
FMZ3	7655		128/03 L	128/06						
FMZ4	7663		127/53	128/10 L						
FNC	1413		31/04 L	60/51	63/41	71/06	72/39	75/29		
			34/21	61/44	67/15	72/09	74/36	91/35		
FNC1	1414		31/05 L							
FNR	1407		30/14	31/25	35/50	60/49	67/44	73/55		
			30/53 L	31/32	37/28	62/40	69/27	90/37		
			31/08	35/03	54/13	65/02	70/39			
FNR1	1411		30/31	30/54 L	117/32	117/32				
FNZ	1405		30/43 L	66/26	70/34	72/28	75/01	80/15		
			33/55	67/12	71/31	73/09	79/08			
FR	72		9/18 L							
FT	56		9/03 L	51/38	52/03	69/46	115/24			
			23/50	51/53	61/42	79/48				
FTN	7077		24/04	70/37	90/48	104/46	114/55			
			66/16	71/28	92/01	111/34 D				
FTNA	7101		111/36 L	136/16	136/17					
FTNB	7064		111/26 L	111/38 S	112/07 S					
FTNX	7076		111/34 L							
FTN1	7112		111/41	111/44 L						
FTN2	7136		111/53	112/07 L						
FTN3	7140		111/43	111/51	112/03	112/05	112/08 L			
FTN4	7050		111/15 L	112/08	136/18					
FTN5	7070		111/28 L	111/32						
FVXT	2		6/24 L							
GCE	7143		34/04	72/26	74/46	112/28 D				
GCEA	7160		112/40 D	127/02 S	127/09 S					
GCEX	7142		112/28 L	112/52						
GCE1	7151		112/33 L	112/36						
GRDR	13		45/25							
HGM	7175		99/15	101/55	103/48	113/04 L				
HGMA	7203		113/07	113/11 L						
HGMB	7177		113/06 D	134/41 S						
HGM1	7176		113/05 L	113/08						
HLTA	3370		60/22 D	134/43 S						
HLTM	14	NOSTEXT	60/13	117/32						
HLT1	3367		60/21 L							
HN	71	NOSTEXT	9/17 L	15/20	16/20	73/29	85/38	132/29	134/50	
HNG	1303		29/22 L	41/37	63/43	69/35	78/08	115/49		
			36/33	42/37	65/52	75/16	103/09			
HNGA	1350		29/51	29/55 L						
HNGB	1302		29/20 L	29/23 S						
HNGC	1355		29/45 S	29/48 S	29/56 L					
HNGD	1344		29/50 D	134/42 S						

SYMBOLIC REFERENCE TABLE.

HNG1	1304		29/23 L	75/36	75/36	75/36	81/09	117/30	117/30	117/30
			75/36	75/36	75/36	75/36	81/09	117/30	117/30	117/30
			75/36	75/36	75/36	75/36	81/09	117/30	117/30	117/30
			75/36	75/36	75/36	75/36	81/09	117/30	117/30	117/30
			75/36	75/36	75/36	75/36	81/09	117/30	117/30	117/30
			75/36	75/36	75/36	75/36	81/09	117/30	117/30	126/46
HNG2	1326		29/34	29/38 L						
HNG3	1343		29/37	29/49 L						
ICNS	15		69/31	69/33	74/53	75/38				
IDES	1		75/38							
IDXT	4		6/27 L							
IFP	7672		134/44	136/36 D						
IFP$	1		116/05 D							
IMV	6140		98/06	98/50 D						
IMVX	6137		98/50 L	100/17						
IMV1	6166		99/15 L	99/43						
IMV2	6170		99/06	99/13	99/17 L					
IMV3	6224		99/38	99/44 L						
IMV4	6233		99/51	99/54 L						
IMV5	6235		99/27	99/55 L						
IMV6	6246		99/56	100/07 L						
IMV7	6255		100/05	100/13 L						
INWL	124	NOSTEXT	45/12							
ISR	6265		90/30	97/19	100/35 D	102/13				
ISRA	6277		100/36 S	100/44 D						
ISRX	6264		100/35 L	100/52						
ISR1	6302		100/46 L	100/50						
JCIW	26	NOSTEXT	45/41							
LCAW	10		28/35	28/37						
LCMW	15		28/06							
LCRT	260		28/41	28/42						
LDCI	2000		140/46							
LDMI	5000		129/38							
LDNI	1400		136/08	137/34						
LDSC	304		24/52							
LERW	11		28/33							
LMCI	2300		111/36							
LS	25		8/23 L	16/33	16/38 S	17/11 S				
LSCD	13		24/49	28/40						
LSSI	7745		45/44							
LSYW	14		28/31							
MABL	113	NOSTEXT	94/57	126/48	126/50					
MAFA	6714		65/28	108/04 L						
MAFC	6716		91/27	108/05 L						
MB	16		8/15 L	98/01 S	98/08	99/20 S	99/50			
MBCS	6		9/40 D	97/56	99/18	99/45				
MCMR	4000	NOSTEXT	101/52							
MCTP	134	NOSTEXT	134/15	134/23						
MECF	2		6/06 L	108/05						
MFL	6344		67/11	67/32	94/51	101/44 D				
MFLA	6375		102/09 L	136/06	136/07	136/11	136/12			
MFLF	6		5/34 L	92/33	101/36	136/08				
MFLX	6343		101/44 L	101/47	102/04	102/14				
MFL1	6360		101/55 L							
MFL2	6362		101/50	101/57 L						
MFL3	6364		101/53	102/01 L						
MFL4	6311		101/21 L	102/09						

SYMBOLIC REFERENCE TABLE.

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MFL5          6317                 101/27 L  101/42
MFL6          6332                 101/34    101/36 L
MIXT             4                   6/29 L
MLSC          1750                   9/36 D   16/49     16/55     86/51
MM              40                   8/39 L   93/29 S   93/49 S   94/09     95/16 S   99/17
                                    93/27 S   93/44 S   93/53 S   94/11     95/21     99/23 S
                                    93/28     93/48 S   94/07     94/12 S   98/22     99/44
MMFL           122   NOSTEXT       137/18    137/20
MMI           7643                 137/33    137/42    138/46 D
MMIX          7642                 138/46 L  138/49
MMI1          7645                 138/48 L  138/55
MM.0            40                   8/40 L   60/47     88/46     90/43     95/26     96/04    100/07 S
                                    35/02     61/26     89/18     91/50     95/35     96/09 S
                                    47/05     67/25 S   89/47     92/04     95/39 S   98/14 S
                                    49/27     69/26     89/57     95/18 S   95/44    100/02 S
MM.1            41                   8/41 L   90/06     90/25     95/32     98/16 S
                                    67/31 S   90/17 S   91/08     95/46 S  100/13 S
MM.2            42                   8/42 L   95/55     98/18 S   99/57 S  100/09 S
MM.3            43                   8/43 L   89/03     95/36     96/10    100/15 S
                                    67/22 S   94/46     95/40     98/13
MM.4            44                   8/44 L   65/01     92/06     95/08     95/12
                                    60/40     90/32     95/06     95/10 S   98/20 S
MNFL            12   NOSTEXT         65/49
MR              17                   9/38 D   22/43     22/48     22/51    129/55    130/02    130/06
                                    22/41     22/44     22/49     22/53    129/56    130/03    130/07
                                    22/42     22/45     22/50    129/54    129/57    130/05
MRAF             7                   5/35 L   90/29
MRDC          5340                 129/56
MRP            104                  13/04 L   13/05     49/22     88/39
MS              54                   8/57 L   16/24 S   16/46     16/56 S  141/09 S
MSC           1420                  31/16 L   79/02
MSCA          1430                  31/24 D   31/35 S   79/03 S   80/14 S
MSCB          1435                  31/29 D   31/37 S   32/24     32/26 S
MSCF            10                   5/36 L   79/06     79/36
MSCL            27   NOSTEXT        106/23
MSC3          1441                  31/32 L   31/52     32/02
MSC4          1442                  31/30     31/34 L
MSC5          1450                  31/21     31/38 L
MSC6          1463                  31/45     31/49 L
MSEK            40                  40/37 D   51/29     51/47     52/12     52/24
MSP           4534                  78/36 L   81/11
MSPA          4545                  78/41 S   78/44 D
MSPS             0                  81/11
MST           5264                  88/45 L   90/35     98/24
MSTA          5323                  89/15 D  122/51 S
MSTC          5460                  91/02 L  133/13 S
MSTE          5464                  90/50 S   91/06 D
MSTF             0                   6/04 L  108/05
MSTG          5471                  91/11 D   91/14 S   98/12 S
MSTX          5257                  88/39 L   88/41     89/43     91/31
MSTX.         5530                  91/45 L   92/12
MST1          5313                  89/04     89/08 L
MST10         5431                  90/33     90/37 L
MST11         5433                  90/20     90/41 L
MST12         5463                  91/01     91/05 L
MST13         5466                  90/45     91/08 L
MST15         5520                  91/04     91/35 L
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MST16	5551		91/49	92/03 L						
MST2	5315		89/10 L	89/19	89/36	89/41				
MST3	5324		88/56	89/07	89/16 L					
MST5	5345		89/34	89/39	89/42 L	89/56				
MST6	5351		89/16	89/47 L						
MST7	5403		90/11	90/15 L						
MST8	5405		90/13	90/16 L						
MST9	5407		90/05	90/08	90/18 L					
MST.	5531		82/16	91/47 D						
MS2W	36	NOSTEXT	29/49	60/21	113/05					
MTR	111		13/15 L	13/40	14/44	30/54	123/05			
MTRA	112		13/16 L	122/45 S						
MTRB	113		13/17 L	79/01	79/01 S	79/31	79/31 S	122/34	122/34 S	
MTRC	124		13/29 D	122/38 S						
MTRD	142		13/38 S	13/42 D						
MTRE	151		13/50 L	122/36	122/36 S					
MTRF	154		13/54 D	126/56 S	127/06 S					
MTRG	161		14/02 D	133/12 S						
MTRI	167		14/10 D	14/13 S	16/53 S					
MTRJ	210		14/25 D	14/30 S	87/01	87/03 S				
MTRS	5	NOSTEXT	14/07	14/31						
MTR1	124		13/17	13/28 L	79/01	79/31				
MTR2	125		13/31 L	122/34						
MTR3	127		13/33 L	57/30						
MTR4	143		13/23	13/31	13/46 L	141/24				
MTR5	161		13/49	14/01 L						
MTR6	201		14/16	14/18 L						
MTR7	207		14/22	14/24 L						
MTR8	214		14/27	14/29 L						
MXCH	51	NOSTEXT	117/14	127/19						
MXDSRM	6		81/08	81/10	81/12					
MXDSWM	12		42/24	42/26	42/39 D	59/25	59/28			
MXML	10		35/41							
MXN	5201		85/28 S	86/36 L	134/53 S					
MXNC	33	NOSTEXT	41/23	119/11	120/24	120/43				
MXNI	2610		85/27							
MXPF	21		5/46 L	5/50	5/51					
MXRC	3		9/39 D	19/23						
MXSEQM	27		75/35	75/37	75/39					
MXSY	5		118/17	118/30	118/44	140/35				
MXXT	6		6/32 L							
NC	46		8/47 L	63/19	66/09	90/44	104/09	107/16	134/39	
			23/54	63/21	90/04	95/30	104/13	134/34 S		
NCHL	70	NOSTEXT	122/24							
NCPL	70	NOSTEXT	134/31							
NCTAL	6	NOSTEXT	122/36							
NOPE	5	NOSTEXT	140/26							
NP	45		8/46 L	32/29	32/32	79/56	122/48 S	123/08		
NSDJ	7610		137/32	138/18 L						
NXWF	2		5/28 L	86/43						
N8SJ	7625		137/41	138/30 L						
OA	76	NOSTEXT	9/22 L	30/34	35/18	46/02	52/50	56/28	66/17	112/43
			13/35 S	30/43	35/48	46/36	53/22	56/46	67/35	
			29/24	31/06	36/25	47/01	54/06	57/26	67/42	
			29/38	31/16	43/11	47/09	54/27	57/33 S	98/19	
			29/41	31/26	43/20	47/33	55/22	58/35	102/46	
			30/11	31/56	44/44	52/41	55/50	62/32	102/57	

SYMBOLIC REFERENCE TABLE.

ODW	1065		23/33	23/42	24/33	24/48	24/53	26/20	27/23	133/36	
			23/36	24/31	24/36	24/50	25/16 D	27/19	27/26		
ODWA	1066		25/19 D	132/46 S							
ODWB	1067		25/22 D	132/47 S							
ODWX	1064		25/16 L	25/23							
OF	65		9/13 L	23/56	32/35	62/34	79/38	89/31	111/24	122/14 S	
			13/34	31/27	57/34	64/54	79/54	110/30	111/29	122/56	
OFES	2		75/38								
OMU	7514		132/01	132/16 L							
OMUA	7627		133/05	133/30 L	133/40	133/41	133/42				
OMUAL	7		133/02	133/40 D	133/47						
OMUB	7630		132/55 S	133/41 D							
OMUC	7631		132/45 S	133/42 D							
OMU1	7523		132/22	132/27 L							
OMU2	7525		132/24	132/29 L							
OMU3	7544		132/28	132/43 L							
OMU4	7567		132/36	132/41	132/52	133/02 L					
OMU5	7574		133/05 L	133/08							
OMU6	7603		132/44	133/11 L							
OMU7	7611		132/25	133/09	133/17 L						
ON	70	NOSTEXT	9/16 L	24/01	85/54	113/07	123/30				
ONES	0		75/38								
OR	60		9/07 L	35/11	48/48 S	54/05 S	65/29 S	71/26	78/51	95/42	
			13/36 S	35/15	49/26	54/07	65/32	71/41	78/53	96/12	
			13/39	35/47 S	49/29	55/18	65/34	71/44	78/56	97/22	
			20/50 S	35/49	50/04	55/21 S	65/38 S	71/45	79/42 S	101/45	
			20/51	36/16	50/34 S	56/23	65/48	72/06	79/43	101/51	
			21/03 S	40/48 S	51/13	56/27 S	65/54	72/18	79/49 S	102/01	
			21/05 S	40/50 S	51/15 S	56/29	66/01	72/20	79/51	102/02	
			21/08	40/53 S	51/24	56/30	66/18	72/22	80/32	102/05	
			21/13	41/11 S	51/32 S	56/42	66/19	72/25	80/53	102/44	
			21/20	41/16 S	51/40	56/54	66/22	72/33	80/55	102/47	
			30/05 S	41/42	51/43	58/34 S	66/23	72/36	82/43 S	102/48	
			30/08	41/45	51/48	58/36	66/43	72/38	82/45 S	104/38	
			30/12	41/52	51/55	58/39	66/49	72/48	82/46	104/49	
			30/32	41/55	52/05	58/48	66/51	72/50	82/51 S	105/03	
			31/05 S	42/23	52/08	58/52 S	67/37	73/18	82/52	105/10	
			31/07	42/33	52/20	59/01 S	67/39 S	73/53	88/51	105/15	
			31/19	43/14	52/23	61/28	67/41 S	74/08	89/05	105/19	
			31/43	43/32	52/28	61/36	67/43	74/11	89/49	105/21	
			31/49	44/47 S	52/31	61/41	69/28	74/19	89/51	106/21	
			31/53	45/35	52/34	62/31 S	69/37	74/25	90/09	107/10	
			31/55 S	46/01 S	52/37	62/33	69/41	74/27	90/15	114/51	
			31/57	46/09 S	52/44	63/18	69/44	74/35	90/16	114/53	
			33/51	46/11 S	53/02	63/24 S	69/52	74/47	90/34 S	140/16 S	
			34/09 S	46/27 S	53/34 S	63/30	69/54	74/50	92/07 S	140/19 S	
			34/15 S	46/37	53/40	63/37	69/56	74/52	92/08	140/27 S	
			34/23	47/04	53/50 S	63/39	70/35	74/55	92/31	140/36	
			34/26 S	47/08 S	53/52 S	65/09	70/44	77/43	93/39	140/48	
			34/57	47/10	53/54	65/15	70/46	77/52	94/49	141/05 S	
			35/04	48/43 S	54/02 S	65/24	70/48	78/49	94/52	141/06	
OVLL	7514		122/03 S	122/05 L	126/27	129/13	132/13	134/11	137/11	140/11	
PA	27		8/25 L	93/33 S	93/37	93/51					
PCB	613		20/05	20/47 L							
PCBA	632		21/07 D	95/03 S	127/31 S						
PCBB	643		21/16 D	95/05 S	127/33 S						
PCBF	1		19/53	20/04							

SYMBOLIC REFERENCE TABLE.

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PCB1          614                 20/48 L   21/22
PCB2          622                 20/32     20/54 L   21/09     21/18     21/19
PCB3          624                 21/01 L  129/27
PCB4          647                 21/10     21/20 L
PCM          7211                 95/22     98/23    113/26 D
PCMA         7212                113/27 L  129/46 S  129/49 S
PCMX         7210                113/26 L  113/27    113/35    113/43
PCPP          134   NOSTEXT       134/23
PCXF           13                   5/39 L   15/45     15/53
PD              0                   7/53 D   17/57     18/12 S   18/18 S   18/33 S
PDTL           31   NOSTEXT        17/56     18/01     18/11     18/13     29/27
PEET           44   NOSTEXT        90/57
PHE           653                  14/01     22/22 D   91/02
PHEA          654                  22/30 L  130/31 S  130/33 S  130/36    133/06 S  133/33    133/47
PHEB          725                  23/29 D  132/32 S
PHEC          741                  23/40 D  132/39 S
PHED         1002                  18/45     23/18     24/01     24/09 S   25/51 S   75/28 S
                                   18/50 S   23/43     24/08 S   24/13 L   75/25
PHEF          657                  22/32 L  130/45 S  130/47 S
PHEG          713                  23/16 L  133/04 S
PHEX          652                  22/22 L   22/41     22/46     23/46    133/35
PHE0          670                  22/36     22/41 L
PHE1          702                  22/43     22/48 L
PHE2          710                  22/51     22/53 L
PHE3          712                  22/39     23/15 L  133/37    133/47
PHE4          746                  23/37     23/43 L
PHE4.1        752                  23/19     23/24     23/46 L   24/11
PHE5          754                  23/26     23/45     23/50 L
PMRF            1                   6/05 L
PMXF            3                   6/08 L    6/12
PP             66                   9/14 L   34/16     41/33     46/32     52/18     56/19     57/36 S  109/29
                                    13/06     36/18     42/07     46/35     52/30     56/33     60/42    109/45
                                    13/15 S   36/22     43/09     47/30     52/56     56/35     61/21    109/57
                                    13/32     36/54     44/53     48/40     54/09     56/39     69/21
                                    13/37     40/43     45/22     49/54     55/26     56/51     77/40
                                    14/43 S   40/54     46/29     50/27     55/47     57/29 S  109/20
PPCES           3   NOSTEXT        64/55     89/30    110/31
PPCP           77   NOSTEXT       122/11    123/20
PPR          1375                  30/28 L  117/49    117/49    117/49    117/49    117/49    117/49    117/49
                                    32/47    117/49    117/49    117/49    117/49    117/49    117/49    117/49
                                    54/08    117/49    117/49    117/49    117/49    117/49    117/49    117/49
                                    95/11    117/49    117/49    117/49    117/49    117/49    117/49    117/49
PPRA         1375                  30/29 D   79/02     79/02 S   79/33     79/33 S
PPRL           51   NOSTEXT        13/20     13/26     13/30
PPR1         1377                  30/10     30/32 L   31/47
PPUL           70   NOSTEXT       122/21    122/24
PPX            20                 123/51 D  124/28    124/32    124/36    124/48    124/52
                                   124/26    124/30    124/34    124/46    124/50    124/54
PPXE           20   NOSTEXT        89/08     89/10    122/50
PPXES           4   NOSTEXT        36/55     60/43     64/55     89/30    110/31
                                   40/44     61/22     69/22    109/21    122/49
PPXL           26   NOSTEXT        85/37
PR             67                   9/15 L   49/18     57/27 S   57/38 S  109/41 S
                                   41/29 S   54/10     57/32    109/37
PRLM           15   NOSTEXT        60/38    117/32
PRL1         3405                  60/19     60/49 L   61/27     61/40     61/43
PRL2         3407                  60/24     60/41     60/48     60/51 L
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SYMBOLIC REFERENCE TABLE.

PRQF	11		5/37 L	19/16						
PRR	3225		49/20	54/12	57/16 D	57/20				
PRRA	3262		57/21 S	57/40 D						
PRRX	3224		57/16 L							
PRR1	3252		57/19	57/32 L						
PRR2	3257		57/24	57/37 L						
PRS	7514		7/51	122/10 L						
PRS1	7525		122/21 L							
PRS2	7554		122/33	122/37 L						
PRS3	7565		122/42	122/44 L						
PRS4	7601		122/54 L	123/09						
PRS5	7616		123/04	123/07 L						
PRS8	7510		122/01 L	123/41	128/17	131/03	133/28	135/31	138/08	
PSE	1010		23/31	24/29 D						
PSEA	1027		24/38 L	132/37 S						
PSEB	1032		24/43 D	132/40 S						
PSEX	1007		24/29 L	24/41	24/51	25/04				
PSE1	1032		24/34	24/37	24/41 L					
PSE2	1062		24/54	25/04 L						
PSNI	77		16/39	132/38						
PSXT	3		6/25 L							
PTM	571		20/02	20/19 L						
PTMF	3		19/55	20/01	20/04					
PTM1	601		20/21	20/24	20/27 L					
PTM2	602		20/28 L	20/53						
PTM3	604		20/27	20/30 L						
PTRF	2		19/54	20/31						
PVE	6423		66/28	102/56 D						
PVEA	6401		102/40 D	134/38 S						
PVEX	6422		102/51	102/56 L						
PVE1	6436		103/09 L							
PVE2	6401		102/38 L	103/08						
RC	35		8/34 L	19/25	19/39 S	19/42	19/46 S	20/34 S		
RCE	2245		44/43 L	59/27	59/27					
RCEA	2264		45/03 D	140/47 S						
RCEB	2353		45/51 L	140/22 S	140/25 S					
RCE1	2257		44/50	44/54 L	138/31					
RCE1.1	2270		44/57	45/07 L						
RCE2	2302		45/01	45/16 L						
RCE2.0	2325		45/11	45/30 L						
RCE2.1	2326		45/21	45/32 L						
RCE2.2	2330		45/08	45/16	45/34 L					
RCE3	2345		45/30	45/45 L						
RCE4	2350		45/34	45/48 L						
RCE5	2361		45/26	45/57 L						
RCE6	2362		42/31	43/37	45/28	46/01 L				
RCE7	2371		45/45	45/48	45/56	46/08 L				
RCE8	2373		45/05	46/09 L						
RCHM	16	NOSTEXT	61/19	117/32						
RCH1	3426		61/32 L	61/47						
RCH2	3430		61/31	61/34 L						
RCH3	3435		61/39 L	61/50						
RCH4	3444		61/37	61/46 L						
RCLF	5		5/33 L	114/22						
RCO	2400		46/26 L	59/27						
RCO1	2415		46/12	46/35 L						
RCO2	2421		46/30	46/38 L						

SYMBOLIC REFERENCE TABLE.

RCP	7260		19/20	37/27	114/25 D						
RCPA	7265		114/29 L	136/21	136/22						
RCPX	7257		114/25 L								
RCP1	7233		114/03 L	114/29							
RCP1.1	7243		114/07	114/14 L							
RCP2	7252		114/20 L	136/23							
RCP2.1	7253		114/10	114/21 L							
RCS	7267		72/31	73/36	74/17	114/49 D					
RCSX	7266		114/49 L	114/57							
RCXM	7	NOSTEXT	62/28	117/32	126/47 S						
RER	2511		43/40	47/11	49/18 L	49/28	50/06	51/50	52/32	56/37	
RER1	2515		49/19	49/21 L							
RER2	2521		46/38	49/26 L	57/23						
RJMI	200		136/13								
RPLP	142	NOSTEXT	123/36	128/10	130/51	133/17	135/18	137/50			
RPPM	100	NOSTEXT	24/04								
RQ	36		8/35 L	19/26	19/36	20/33					
RQRL	155	NOSTEXT	8/34	8/35							
RRX	2744		47/06	53/05	53/08	53/12	53/33 L	138/31			
RRXA	2762		53/49 D	137/35 S							
RRX1	2761		53/42	53/46 L							
RRX2	2762		46/06	53/37	53/39	53/45	53/47 L	138/19			
RRX3	2773		53/56	54/01 L	138/31						
RRX4	3012		54/11	54/13 L							
RSB	6444		67/04	94/02	95/27	95/45	98/54	99/32	103/34 D	107/33	
RSBX	6443		103/34 L								
RSB1	6463		103/40	103/48 L							
RSB2	6440		103/31 L	103/44							
RSB3	6442		103/32 L	103/46							
RSJM	101	NOSTEXT	104/46								
RSTA	3545		65/12 L	126/45 S							
RSTB	3630		66/05 L	129/29 S	136/26	136/27					
RSTC	3705		66/52 D	127/39	127/39 S						
RSTE	3701		66/46 L	134/36 S							
RSTM	17	NOSTEXT	64/52	117/32							
RST1	3557		65/19	65/24 L							
RST10	3666		66/21	66/32 L							
RST12	3670		66/24	66/34 L							
RST15	3700		66/42	66/45 L							
RST16	3705		66/48	66/51 L	66/52						
RST17	3712		66/29	66/35	67/03 L						
RST19	3724		66/32	67/10 L							
RST2	3563		65/06	65/08	65/14	65/27 L					
RST20	3726		66/55	67/06	67/11 L	127/39					
RST21	3732		67/08	67/14 L							
RST22	3736		66/30	67/21 L							
RST23	3742		67/23	67/25 L							
RST24	3750		67/28	67/30 L							
RST26	3756		66/56	67/35 L							
RST3	3564		65/17	65/22	65/28 L						
RST4	3616		65/27	65/41	65/43	65/52 L	66/03				
RST5	3620		65/39	65/54 L							
RST6	3627		65/50	66/04 L							
RST7	3644		66/05	66/11	66/17 L	136/28					
RST8	3661		65/56	66/28 L							
RST9	3664		66/30 L	66/40	66/44	66/50					
RSV	2171		42/29	43/02 L	59/27						

SYMBOLIC REFERENCE TABLE.

RSV3	2217		43/16		43/23	L				
RSV4	2224		43/25		43/27	L				
RSV5	2236		43/34		43/36	L				
RSV6	2241		43/28		43/39	L				
RSY	3014		45/04		54/27	L				
RSYA	3122		55/39	L	141/03		141/03	S		
RSYB	3123		55/41	L	141/04		141/04	S		
RSY1	3025		54/36	L	54/56					
RSY10	3134		55/50	L	138/31					
RSY11	3141		55/12		55/55	L				
RSY2	3033		54/39		54/41	L				
RSY3	3034		54/42	L	55/08					
RSY4	3036		54/34		54/47	L	54/57		55/06	
RSY5	3060		55/03		55/05	L				
RSY6	3064		54/49		55/10	L				
RSY7	3100		55/22	L	138/19					
RSY8	3122		55/36		55/38	L				
RSY9	3126		55/41		55/45	L				
RTCL	106	NOSTEXT	16/30		17/14		137/43			
SB0S	4		71/41		71/45	S	75/38			
SB1S	5		75/38							
SB2S	6		75/38							
SB3S	7		75/38							
SB4S	10		75/38							
SC	57		9/04	L	23/20		23/52	77/38	78/47	79/29	127/43
SCC	7514		134/01		134/14	L				
SCCA	7644		134/56		135/36	L				
SCC1	7604		134/56	L	135/14					
SCC2	7607		135/01	L	135/08					
SCC3	7617		134/49		135/10	L				
SCC4	7624		135/02		135/18	L				
SCHE	1	NOSTEXT	45/51							
SCP	6470		65/31		89/48		93/38	96/39	101/28	104/12 D
			88/48		91/51		94/48	96/46	102/43	
SCPA	6476		104/18	D	134/28	S	134/30 S			
SCPX	6467		104/12	L	104/19					
SCP1	6465		104/09	L	104/14		104/15			
SCRL	111	NOSTEXT	9/04							
SCS	3267		43/39		46/28		48/49	56/53	58/38 D	
SCSM	23	NOSTEXT	114/55							
SCSX	3266		58/38	L						
SCS0	3276		58/45	L	58/50					
SCS0.1	3301		58/48	L	59/08					
SCS1	3304		58/43		58/51	L	59/11			
SCS2	3306		58/46		58/52	L				
SCS3	3310		58/54	L	59/19					
SCS4	3311		58/44		58/56	L				
SCS5	3312		58/41		58/57	L				
SCS6	3321		59/06	L	59/16					
SCS7	3336		59/14		59/18	L				
SCS8	3263		58/34	L	58/54					
SDA	30		123/52	D	124/16		124/18			
SDAP	102	NOSTEXT	123/22							
SDSC	267		24/35							
SEB	4164		71/39	L	75/38		75/38	75/38	75/38	75/38
SEBA	4171		71/40	S	71/43	D				
SECD	3		24/32		28/15		128/30			

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SEK          2464                  48/34 L   59/27
SEK1         2477                  48/38     48/42 L
SEK2         2500                  47/37     48/43 L
SEK3         2507                  48/45     48/49 L
SEPW          105   NOSTEXT        45/39     45/41
SEQA         4034                  69/51 D  140/20 S
SEQB         4432                  75/08 D  127/01 S  127/08 S
SEQM           20   NOSTEXT        69/19    117/32
SEQ1         4014                  69/35 L   69/53
SEQ2         4016                  69/34     69/37 L
SEQ3         4033                  69/43     69/45     69/50 L
SEQ4         4037                  69/30     69/32     69/54 L
SES          4533                  78/18 L   81/11
SFL          6515                  67/14    104/48 D
SFLM           10   NOSTEXT        63/15    117/32
SFLX         6514                 104/48 L  104/51    105/09
SFL1         6533                 105/05 L  105/20
SFL2         6535                 105/04    105/08 L
SFL3         6544                 105/06    105/15 L  105/25
SFL4         6550                 105/02    105/19 L
SFL5         6500                 104/38 L  104/57
SFL6         6502                 104/40 L  105/17
SFRA         3511                  63/31 S   63/36 D
SFR1         3516                  63/28     63/41 L
SFR2         3520                  63/20     63/43 L
SHNI         1000                  26/14
SIC          7663                 123/25
SICS            4                  73/35
SJCM          105   NOSTEXT        66/16
SKC          4671                  80/52 L   81/11
SKCF           20                   5/44 L   80/57
SKCS            5                  81/11
SMAM           11   NOSTEXT        89/38     89/40
SMDM           42   NOSTEXT        71/28
SMEM           25   NOSTEXT        89/40
SMN          4176                  72/04 L   75/38
SMNS           20                  75/38
SMN1         4177                  71/23     71/30     71/46     72/06 L
SMRL           67   NOSTEXT        82/12     90/46     91/19     91/37    100/41    100/47    101/25    101/39
SMXT            1                   6/23 L
SNP          1503                  31/31     31/39     32/21 D
SNPX         1502                  32/21 L   32/33
SNP1         1510                  32/19     32/25 L
SNP2         1511                  32/26 L   32/51
SNP3         1521                  32/33 L   32/48
SNP4         1544                  32/40     32/42     32/45     32/49 L
SNP5         1500                  32/18 L   32/30
SPCP           20                  75/26     75/27
SPCS            4                  25/49
SPLG            0                  24/07
SPLS            2                  25/49     25/50
SPTP            1                  18/46     18/47     18/49
SRES           24                  75/38
SSES           22                  75/38
SST          4045                  70/10 L   75/38
SSTL           45   NOSTEXT        60/15    127/34    132/48
SSTS           14                  71/24
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SYMBOLIC REFERENCE TABLE.

SST1         4057                  70/19 L   70/29
SST1.1       4060                  70/20 L   70/30
SST2         4074                  70/22     70/32 L
SST3         4101                  70/15     70/35 L
SST4         4112                  70/13     70/41 L   75/38     75/38     75/38
SST5         4125                  70/56 L   75/38
SST6         4130                  71/03 L   75/38
SST7         4137                  71/12 L   75/38
SST8         4142                  71/16 L   75/38
SST9         4143                  70/52     71/01     71/08     71/14     71/18 L
ST             55                   9/01 L   17/06 S   17/36 S
STA          6560                  65/44     90/01     99/09    103/36    105/39 D
STAA         6563                 105/42 D  134/18 S  134/20 S
STAX         6557                 105/39 L  105/44
STII         4400                 130/01
STLL           15   NOSTEXT        73/22
STP          4657                  80/13 L   81/11
STPS            1                  81/11
STP1         4661                  80/15 L   80/36     81/02
STSW           20   NOSTEXT        37/03     37/05     88/49     90/53    101/29    111/56
SYNW            3                  28/10     28/12    128/25    128/27
TBIS         1247                  25/55     27/43 L
TCH          7303                  33/52     61/30     61/46    115/13 D
TCHR         7530                  41/27     41/31 S   52/16     52/19 S   52/28     52/31 S  119/10 D
TCHS         7350                  13/55     36/30 S   51/55 S   59/12     73/30 S   74/55    117/26
                                   34/18     41/32     52/05     72/22     74/08    115/15    127/15 S
                                   34/20 S   41/40 S   52/54     72/36     74/25    115/22    127/21
                                   36/19     51/18     52/57 S   72/38 S   74/27 S  115/25 S  127/23 S
                                   36/28     51/40     59/09     73/27     74/35 S  117/13 D  127/26 S
TCHSL          52                 117/14 D
TCHX         7302                 115/13 L  115/16    115/18    115/20    115/26
TCMA         7564                  42/09     49/56     50/29     73/50    119/30 D
TCMN         7572                  42/07     44/53 S   47/30     49/54     50/27     55/47 S  119/44 D
TCSF           12                   5/38 L   84/21
TDSRL           6                  81/10 D
TDSRM        4701                  77/55     81/11     81/11     81/11     81/12
                                   81/07 L   81/11     81/11     81/11
TDSWM        3340                  42/33     59/27     59/27     59/27     59/27
                                   59/24 L   59/27     59/27     59/27     59/28
TFSW           72   NOSTEXT        45/37     45/39     91/52    110/22    110/37    112/49
THU          7514                 137/01    137/14 L
THU1         7527                 137/23    137/27 L
THU2         7550                 137/26    137/31    137/36 L
THU3         7561                 137/40    137/43 L
TI             10                   8/12 D   18/14 S   18/27 S   18/35 S   18/41 S
                                   18/02     18/21 S   18/28 S   18/36 S
TIM           343                  13/46     31/38     54/30     86/45     93/56    100/46
                                   15/34     31/46     57/25     87/25     99/21    107/30
                                   16/42 D   49/21     85/36     88/45     99/54
TIMB          345                  16/40 S   16/44 L   87/06     87/06 S
TIML           32   NOSTEXT        18/01     18/13
TIMX          342                  16/21 S   16/29     16/42 L   16/50     16/54     16/54 S   17/16
TIM1          344                  16/22     16/43 L
TIM2          352                  16/47     16/49 L
TIM3          365                  16/52     16/55 L
TIM4          376                  17/02     17/06 L
TIM4.1        407                  17/07     17/14 L
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SYMBOLIC REFERENCE TABLE.

TIM5	311		16/20 L	16/54							
TIM6	315		16/24 L	87/06							
TIM7	333		16/36 L								
TIM8	337		16/34	16/39 L							
TM	47		8/50 L	16/32	17/05 S	20/19	43/23	84/12	84/32		
			14/14	16/37	17/10 S	20/22	83/12	84/15	84/35		
			15/23	16/57 S	17/13 S	20/25	83/15	84/18	137/44 S		
			16/31 S	17/03 S	17/15	43/18	83/18	84/29	137/45		
TMSK	3352		46/10	59/35 L							
TPMS	7727		40/54 S	45/22	48/40	56/19	56/39	109/57			
			43/09	46/32	55/26 S	56/35	56/51	121/09 D			
TPPI	7614		46/29	46/35 S	109/29	109/45 S	120/10 D				
TPPR	7425		30/32	117/32	117/32	117/32	117/32	117/32	117/33		
			117/26 D	117/32	117/32	117/32	117/32	117/32	126/47 S		
			117/27	117/32	117/32	117/32	117/32	117/32			
TR	73	NOSTEXT	9/19 L	29/51							
TREA	7445		13/06 S	13/37	32/46	54/09 S	57/22	95/12 S	117/46 D	123/06 S	
TSCA	7640		41/48	48/46 S	52/37 S	53/38	74/11	120/24 L			
TSCL	161	NOSTEXT	84/07	84/46	114/14						
TSEK	7674		41/50 S	48/35 S	51/28	51/48	52/11	52/23	120/43 L		
TSEQL	27		69/33	75/37 D							
TSEQM	4453		69/54	75/38	75/38	75/38	75/38	75/38	75/38	75/39	
			75/34 L	75/38	75/38	75/38	75/38	75/38	75/38		
			75/38	75/38	75/38	75/38	75/38	75/38	75/38		
TSHS	7515		55/20	118/29 D	140/53 S						
TSIC	7704		123/24	124/12 L							
TSYD	7510		55/10	118/16 D	140/49 S						
TSYM	7522		54/48	55/25	70/21	118/43 D	140/33	140/35	140/49 S	140/53 S	
T0	0	NOSTEXT	7/51 L	21/17	75/09	94/13	107/41	112/41			
			7/53	23/15 S	78/39 S	94/18	112/32 S	127/04 S			
			21/14 S	23/25	78/45	103/32 S	112/33 S	127/07			
T1	1	NOSTEXT	7/55 L	50/01	59/09	73/47 S	107/23 S	127/15	129/44	138/48	
			26/35 S	50/30 S	59/15	73/48 S	107/44 S	127/20 S	133/03 S	138/51 S	
			26/36 S	50/31	61/35 S	73/50	112/29 S	127/21	133/05	138/52	
			32/23 S	53/06 I	61/38 S	75/03	112/35 S	127/23	133/06	138/54 S	
			32/31 S	53/11 I	61/49 S	75/06 I	112/38 S	127/24 S	133/07 S	140/32 S	
			41/34 S	53/43	70/17 S	75/14	112/51	128/02 S	134/57 S	140/43 S	
			41/38	57/17 S	70/20 S	85/40 S	122/53 S	128/03	135/01	141/11 S	
			42/10 S	57/22	70/21	86/47	122/54	128/04	135/04 S	141/20	
			42/11 I	57/28	73/02 S	89/09 S	123/06	128/05 S	135/05		
			42/14 I	59/04 S	73/03 S	89/11 S	123/07 S	129/41 S	135/07 S		
			49/57 S	59/07	73/11	89/29	127/11 S	129/42	138/47 S		
T2	2	NOSTEXT	7/56 L	32/25 S	36/28	52/11	73/27	103/35 S	130/17 S	140/55 I	
			25/46	32/34	36/30	52/16	73/30	107/39	135/03 S	140/56 S	
			25/54 S	32/50 S	51/17 S	52/19	86/48 S	115/15	135/06 I	141/18 I	
			25/55	34/03	51/18	55/33 S	86/50 S	115/22	138/50 S	141/19 S	
			27/27	34/13	51/28	55/35	86/57	115/25	138/53 I		
			27/30 S	34/18	51/31	70/18 S	99/08 S	115/42 S	140/34 S		
			27/33	34/20	51/39 S	70/19 S	99/11	130/09 S	140/49		
			27/36 I	36/19	52/02	70/32	99/36	130/10	140/53		
T3	3	NOSTEXT	7/57 L	15/52 S	19/28 S	98/55 S	107/36	110/29	130/01	130/15 I	
			15/40 S	15/55	19/40 S	99/33 S	107/38 S	110/45	130/12 S		
			15/44 S	19/24 S	94/15 S	107/27 S	110/18 S	110/48	130/13		

SYMBOLIC REFERENCE TABLE.

T4	4	NOSTEXT	8/01 L	32/46	41/48	48/46	53/24 S	59/06 S	106/19	123/19 S	
			23/34 S	40/42 S	41/50	52/43 S	53/38	59/12	106/40 S	123/50	
			23/44	41/25	46/04	52/45 S	54/03	95/28 S	106/54		
			25/44	41/27	46/52	52/53	54/29 S	95/54 S	107/02		
			26/42 S	41/31	46/54 S	52/54	55/52	96/16	107/19 S		
			27/12	41/32	47/03	52/57	56/48 S	98/57 S	107/34		
			32/28 S	41/40	48/35	53/09	58/53	99/39	107/42		
T5	5	NOSTEXT	8/02 L	55/11	65/28	88/53 S	92/10 S	102/07	106/46		
			40/54	55/16 S	65/40	90/27	96/49	104/56			
			41/02	65/11 S	66/04	91/15	97/16	105/43			
T6	6	NOSTEXT	8/03 L	26/25 I	27/10	55/02	65/21 S	98/53	102/42 S		
			25/42	26/28 S	48/36	56/49	65/47 S	99/07			
			26/06 S	26/44 S	54/38	65/05 S	67/03	99/31			
T7	7	NOSTEXT	8/04 L	26/12	27/20 S	67/05	78/06	82/35 S	84/47	107/05 S	
			25/56 S	26/16	27/21	67/30	79/40 S	83/03	94/16	107/09 S	
			26/07 S	26/26	27/24 S	77/54 S	79/41	83/21	102/49 S	107/18	
			26/08	27/17 S	27/25	77/55	79/50	83/48	106/25	114/15 S	
			26/11 S	27/18	66/34 S	77/56 S	79/53 S	84/04 S	106/34	114/19	
T8	15		8/14 L	30/35	42/35	69/55 S	97/14	97/49	106/45 S		
			30/33 S	42/34 S	65/25 S	69/57	97/29	98/10	107/40 S		
UCCF	15		5/41 L								
UCTM	2		45/55								
UFL	6611		67/07	106/37 D							
UFLA	6657		65/07	65/26	107/21 D	134/22 S					
UFLB	6674		107/29 S	107/32 D							
UFLX	6610		106/37 L	106/57	107/06	107/11					
UFL1	6626		106/35	106/51 L							
UFL11	6566		106/19 L	106/47							
UFL12	6603		106/20	106/22	106/28	106/31 L					
UFL13	6606		106/34 L	106/49							
UFL2	6633		106/56 L	107/14							
UFL3	6635		106/52	107/02 L							
UFL4	6641		107/06 L	107/17							
UFL5	6642		107/03	107/08 L							
UFL6	6644		106/55	107/10 L							
UFL7	6653		107/17 L	107/43	107/45						
UFL8	6666		107/28 L	107/46							
UFL9	6711		107/35	107/37	107/44 L						
UIDL	12		24/55	25/02	26/34						
UJNI	300		129/28	132/31	133/11						
UPC	4205		72/17 L	75/38							
UPCS	12		75/38								
UPC1	4222		72/28 L	72/32							
UPC2	4224		72/19	72/24	72/27	72/30 L					
UPC3	4240		72/34	72/39 L							
UPSS	0		72/30								
VCN	7327		36/17	72/21	72/51	112/30	115/14	115/40 D			
VCNA	7332		115/43 L	122/25 S							
VCNB	7334		115/45 L	122/28 S							
VCNC	7336		115/47 L	122/39 S							
VCNX	7326		115/40 L	115/44	115/48						
VCN1	7340		115/46	115/49 L							
WIP	2451		42/27	47/30 L							
WQRL	160	NOSTEXT	84/38								
WXP	5245		14/39	85/32	87/24 D	92/35	101/38				
WXPX	5244		87/24 L	87/30							
WXP1	5246		87/25 L	87/31							

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XBP              7                123/50 D  124/24    124/38    124/40    124/42    124/44    124/56
XCPS             5                 37/10
ZERL            66   NOSTEXT      25/57     82/57     95/15     98/51     99/34    111/15    113/36
ZJNI           400                129/28    132/31
ZR              77                 9/24 L    30/44     36/27     36/53     60/23     91/38     95/07
(1MP)            0                24/05 D
.CCH          1547                33/49 L   117/32
.CDB          1613                34/55 L   117/32
.DCH          1701                36/14 L   117/32
.DRC          1730                36/51 L   117/32
.DSR          4502                77/36 L   117/32
.DSW          1772                40/40 L   117/32
.EST          7346                40/54     69/38     72/06    140/36
.HLT          3362                60/13 L   117/32
.PRL          3373                60/38 L   117/32
.RCH          3411                61/19 L   117/32
.RCX          3452                62/28 L   117/32
.RST          3522                64/52 L   117/32
.SEQ          3773                69/19 L   117/32
.SFL          3470                63/15 L   117/32


                                SYMBOL QUALIFIER =  CPB


CPBA            20                 6/45 L
CPBAL           24                 6/49 L    7/07
CPBP            21                 6/46 L
CPBW            22                 6/47 L
CPFG            23                 6/48 L


                                SYMBOL QUALIFIER =  EXPACS


BXP             20                 7/07 L
IXP             44                 7/08 L
MXP              0                 7/06 L   16/25     85/51     86/19     86/35     87/26    123/29
PXP             70                 7/09 L


                                SYMBOL QUALIFIER =  REM


SETLOC           0                 7/32


                                SYMBOL QUALIFIER =  MSP
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CHFE	5	42/30							
CRSE	20	43/35							
DRVE	17	43/35	43/36						
LNRE	15	45/57							
RDFE	21	45/27							

SYMBOL QUALIFIER = IOU

MRSS	300	22/42							

SYMBOL QUALIFIER = MACRO$

CFI	7342	45/50 D							
EXECUTE	774	24/05 D							
ISTORE	7603	16/54 D	79/02 D	87/06 D	127/39 D	129/26 D	137/27 D		
		17/34 D	79/31 D	122/34 D	127/54 D	129/27 D	141/03 D		
		79/01 D	79/33 D	122/36 D	129/23 D	133/04 D	141/04 D		
MONITOR	7275	24/04 D	66/16 D	70/37 D	71/28 D	90/48 D	92/01 D	104/46 D	114/55 D
MSTA	6770	40/54 D	45/22 D	48/40 D	56/35 D	56/51 D			
		43/09 D	46/32 D	56/19 D	56/39 D	109/57 D			
NSDJ	3073	41/12 D	41/41 D	51/23 D	51/42 D	53/35 D	55/17 D		
N8SJ	3127	41/04 D	41/51 D	44/48 D	53/01 D	53/53 D	55/46 D		
PPR	4502	33/16 D	33/49 D	36/14 D	40/40 D	60/38 D	62/28 D	64/52 D	77/36 D
		33/26 D	34/55 D	36/51 D	60/13 D	61/19 D	63/15 D	69/19 D	
SFA	7541	40/54 D	69/38 D	72/06 D	140/36 D				
SUBFUN	4671	43/02 D	46/26 D	70/10 D	71/03 D	71/39 D	72/47 D	78/18 D	80/13 D
		43/03 D	46/51 D	70/41 D	71/12 D	72/04 D	74/44 D	78/36 D	80/31 D
		44/43 D	48/34 D	70/56 D	71/16 D	72/17 D	75/24 D	79/25 D	80/52 D

SYMBOL QUALIFIER = COMPGFP

ESTB	7343	136/36 S	136/36 S						
IFP	7672	136/36 D	136/36						
IFPX	7671	136/36 L	136/36						
.1	72	136/36 D	136/36						

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