

OPTIONS NODECK,LIST,XREF,NOREL,OBJ(P)

THE LIST OF OPTIONS USED DURING THIS ASSEMBLY IS-- NODECK,LIST,XREF,NOREL,OBJ

0000	1	#EXMSG	START	0
	2		PRINT	ON,NODATA
	3	*	@SYS	EXP-Y
	5+		PRINT	ON

@SYSEQ - SYSTEM SOFTWARE EQUATES

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	03/05/20	PAGE	3
					7+	*****					
					8+	*	CPU EQUATES				*
					9+	*****					
					10+	*					
					11+	***	REGISTER EQUATES				
					12+	*					
				0002	13+	@REGL	EQU 2				HARDWARE REGISTER LENGTH
				0001	14+	@BR	EQU 1				BASE REGISTER
				0002	15+	@XR	EQU 2				USABLE INDEX REGISTER
				0004	16+	@PSR	EQU 4				PROGRAM STATUS REGISTER
				0008	17+	@ARR	EQU 8				ADDRESS RECALL REGISTER
				0010	18+	@IAR	EQU 16				INSTRUCTION ADDRESS REGISTER
				0020	19+	@P1IAR	EQU 32				PROGRAM LEVEL 1 IAR
				00C0	20+	@I1IAR	EQU X'C0'				INTERRUPT LEVEL 1 IAR Q-CODE
					21+	*					
					22+	***	EQUATES FOR BYTES AF AN INSTRUCTION				
					23+	*					
				0001	24+	@Q	EQU 1				Q-CODE BYTE
				0001	25+	@VQ	EQU 1				VARIABLE Q CODE FOR LENGTH
				0002	26+	@D1	EQU 2				1ST DISPLACEMENT
				0003	27+	@OP1	EQU 3				1ST ADDRESS
				0004	28+	@DOP2	EQU 4				2ND ADDR OF 5 BYTE INSTR.
				0004	29+	@OPD2	EQU 4				2ND DISP OF 5 BYTE INSTR.
				0003	30+	@DD2	EQU 3				2ND DISP OF 4 BYTE INSTR.
				0005	31+	@OP2	EQU 5				2ND ADDR OF 5 BYTE INSTR.
				0003	32+	@INST3	EQU 3				LENGTH OF 1 DISP INSTRUCTION
				0004	33+	@INST4	EQU 4				LENGTH OF 1 ADDR INSTRUCTION
				0005	34+	@INST5	EQU 5				LENGTH OF 1 DISP 1 ADDR INSTR.
				0006	35+	@INST6	EQU 6				LENGTH OF 2 ADDR INSTR.
					36+	*					
					37+	***	CONDITION CODES FOR BRANCHES				
					38+	*					
				0087	39+	@UCB	EQU X'87'				UNCONDITIONAL BRANCH
				0080	40+	@NOP	EQU X'80'				NO BRANCH
				0084	41+	@BH	EQU X'84'				BRANCH HIGH
				0082	42+	@BL	EQU X'82'				BRANCH LOW
				0081	43+	@BE	EQU X'81'				BRANCH EQUAL
				0004	44+	@BNH	EQU X'04'				BRANCH NOT HIGH
				0002	45+	@BNL	EQU X'02'				BRANCH NOT LOW
				0001	46+	@BNE	EQU X'01'				BRANCH NOT EQUAL
				0088	47+	@BOZ	EQU X'88'				BRANCH OVERFLOW ZONED
				00A0	48+	@BOL	EQU X'A0'				BRANCH OVERFLOW LOGICAL
				0008	49+	@BNOZ	EQU X'08'				BRANCH NO OVERFLOW ZONED
				0020	50+	@BNOL	EQU X'20'				BRANCH NO OVERFLOW LOGICAL
				0010	51+	@BT	EQU X'10'				BRANCH TRUE
				0090	52+	@BF	EQU X'90'				BRANCH FALSE
				0084	53+	@BP	EQU X'84'				BRANCH PLUS
				0082	54+	@BM	EQU X'82'				BRANCH MINUS
				0081	55+	@BZ	EQU X'81'				BRANCH ZERO
				0004	56+	@BNP	EQU X'04'				BRANCH NOT PLUS
				0002	57+	@BNM	EQU X'02'				BRANCH NOT MINUS
				0001	58+	@BNZ	EQU X'01'				BRANCH NOT ZERO
					59+	*					
					60+	***	MISCELLANEOUS CONSTANTS				
					61+	*					
				0000	62+	@ZERO	EQU 0				ZERO

@SYSEQ - SYSTEM SOFTWARE EQUATES

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 4
		0001	63+@B1	EQU	1	BINARY ONE
		00F0	64+@DZERO	EQU	X'F0'	DECIMAL ZERO
		0040	65+@BLANK	EQU	C' '	EBCDIC BLANK
		006B	66+@COMMA	EQU	C', '	EBCDIC COMMA
		0061	67+@SLASH	EQU	C'/'	EBCDIC FORWARD SLASH
		005B	68+@DOLLAR	EQU	C'\$'	EBCDIC DOLLAR SIGN
		005C	69+@ASTER	EQU	C'*'	EBCDIC ASTERISK
		007B	70+@NUMBR	EQU	C'#'	EBCDIC NUMBER #
		007C	71+@ASIGN	EQU	C'@'	EBCDIC ASSIGN @
		00C1	72+@CHARA	EQU	C'A'	EBCDIC CHAR A
		00C6	73+@CHARF	EQU	C'F'	EBCDIC CHAR F
		00D9	74+@CHARR	EQU	C'R'	EBCDIC CHAR R
		00E9	75+@CHARZ	EQU	C'Z'	EBCDIC CHAR Z
		001E	76+@EOS	EQU	X'1E'	RETURN CARRIAGE
		001C	77+@EOF	EQU	X'1C'	END OF FILE CHARACTER
		005A	78+@UPARW	EQU	X'5A'	UPARROW FROM KEYBOARD INPUT
		004E	79+@CPLUS	EQU	C'+'	EBCDIC PLUS SIGN
		0060	80+@MINUS	EQU	C'-'	EBCDIC MINUS SIGN
		0001	81+@DCALK	EQU	X'01'	DCAL REQUESTED INDICATOR
		0020	82+@PGCSZ	EQU	32	CORE SIZE IN PAGES
		2000	83+@MINCR	EQU	256*@PGCSZ	CORE SIZE IN BYTES
		00F4	84+@LINSZ	EQU	244	LENGTH OF INPUT LINE BUFFER
		0018	85+@DTRSZ	EQU	24	NO. OF DISK SECTORS PER TRACK
		0030	86+@SECCY	EQU	48	SECTORS PER CYLINDER
		0060	87+@CARDL	EQU	96	LENGTH OF 3700 INPUT CARD
		0050	88+@BCRDL	EQU	80	LENGTH OF 5081 INPUT CARD
		0005	89+@MAPEN	EQU	5	DISP TO END OF FE CORE MAP
		0007	90+@SDFLN	EQU	7	LENGTH OF SDF
		0006	91+@VOLID	EQU	6	LENGTH OF DISK ID FIELD
		0007	92+@HDLN	EQU	7	LENGTH OF PROGRAM HEADER
		0011	93+@CLON	EQU	X'11'	TURN ON COMMAND LITE Q-CODE
		0010	94+@CLOFF	EQU	X'10'	TURN off COMMAND LITE Q-CODE
		96+	*****			
		97+*	DISK REGION EQUATES			*
		98+	*****			
		0100	99+@SCTS	EQU	256	LENGTH OF ONE SECTOR
		0500	100+@WSFIT	EQU	X'0500'	SECTOR ADDR OF WS FIT SCTRS
		0503	101+@WSTBL	EQU	X'0503'	SECTOR ADDR OF WORKING STORAGE
		0005	102+@DWBCY	EQU	5	BASE CYL SYSTEM WORK FILE
		0003	103+@DWTB1	EQU	3	LOGICAL SCTR 1ST TEXT BLOCK
		00C0	104+@DWSIZ	EQU	192	NO. OF WORK FILE DISK SECTORS
		0004	105+@DSBCY	EQU	4	BASE CYL SYSTEM ROUTINES
		0000	106+@DSCS1	EQU	0	COMPILER SUBROUTINE 1ST SCTR
		0007	107+@DVBCY	EQU	7	BASE CYL VIRTUAL MEMORY
		0000	108+@VMFD1	EQU	0	FILE DIRECTORY 1 PAGE
		0001	109+@VMFD2	EQU	1	FILE DIRECTORY 2 PAGE
		0001	110+@VMTRL	EQU	1	TRACE REFERENCE LIST PAGE
		0002	111+@VMRS3	EQU	2	START OF VM RESIDENT SUBROUTINE
		0056	112+@VENTA	EQU	86	FIRST PSEUDO CODE PAGE IN VM
		00FE	113+@VMDDV	EQU	254	FUNC AND ARRAY TABLE - PAGE ONE
		0009	114+@DCBCY	EQU	9	BASE CYL COMPILER VADDR TABLES
		0040	115+@DCST1	EQU	64	STMT ADDRESS TABLE 1ST SECTOR
		0050	116+@DCBT1	EQU	80	BRANCH ADDRESS TABLE 1ST SECTOR

118+*****

@SYSEQ - SYSTEM SOFTWARE EQUATES

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 5
				119+	*	DISK IOCR EQUATES	*	
				120+	*****			
				121+	*			
				122+	***	DISK PARAMETER LIST (DPL) EQUATES		
				123+	*			
	0000			124+	@DCTRL	EQU	0	CONTROL PARAMETER
	0001			125+	@DCYL	EQU	1	LOGICAL CYLINDER NUMBER
	0002			126+	@DSAD	EQU	2	HEAD/SECTOR ADDRESS
	0003			127+	@DCNT	EQU	3	SECTOR COUNT
	0004			128+	@DBFR1	EQU	4	1ST BYTE OF DATA AREA
	0005			129+	@DBFR2	EQU	5	DATA AREA ADDRESS
	0002			130+	@DSPIN	EQU	X'02'	SPINDLE BIT IN DISK ADDRESS
	0006			131+	@DPLNG	EQU	6	LENGTH OF DSL
	0000			132+	@DPOS	EQU	X'00'	DPL - SEEK FUNCTION CODE
	0001			133+	@DGET	EQU	X'01'	DPL - READ FUNCTION CODE
	0002			134+	@DPUT	EQU	X'02'	DPL - WRITE FUNCTION CODE
	0031			135+	@DVERFY	EQU	X'31'	DPL - VERIFY FUNCTION CODE
	00FF			136+	@DWAIT	EQU	X'FF'	DPL - WAIT I/O COMPLETE FUNC COD
	0003			137+	@DSIVF	EQU	X'03'	SIO CTRL CODE FOR VERIFY
				138+	*			
	0002			139+	@DADDR	EQU	2	LENGTH OF DISK ADDRESS
	0002			140+	@VADDR	EQU	2	LENGTH OF VIRTUAL ADDRESS
	0002			141+	@CADDR	EQU	2	LENGTH OF CORE ADDRESS
				143+	*****			
				144+	*	PRINT PARAMETER LIST (PPL) EQUATES	*	
				145+	*****			
	0004			146+	@PPLNG	EQU	4	LENGTH OF PPL
	0000			147+	@PCTRL	EQU	0	CONTROL BYTE DISPLACEMENT
	0001			148+	@PRCNT	EQU	1	COUNT BYTE DISPLACEMENT
	0003			149+	@PDATA	EQU	3	DATA ADDR DISPLACEMENT
	0040			150+	@PRINT	EQU	X'40'	PRINT CONTROL
	0080			151+	@RETRN	EQU	X'80'	RETURN CARRIER CONTROL
	00C0			152+	@PRETR	EQU	@PRINT+@RETRN	PRINT AND RETURN CARRIER
	0010			153+	@TBLEF	EQU	X'10'	TAB LEFT CONTROL
	0001			154+	@INDEX	EQU	X'01'	INDEX FORMS CONTROL
	0011			155+	@TBLIX	EQU	@TBLEF+@INDEX	TAB LEFT AND INDEX CONTROL
	00FF			156+	@PWAIT	EQU	X'FF'	WITH AND CHECK ERROR CONTROL
	004F			157+	@RLDWN	EQU	X'4F'	ROLL DOWN CONTROL (CRT ONLY)
	0000			158+	@TBCNT	EQU	0	TAB LEFT COUNT
	0080			159+	@RTRNC	EQU	X'80'	CARRIER RETURN COUNT
	0075			160+	@EOFTC	EQU	X'75'	EOF RECORD TYPE CODE
				161+	*			
				162+	***	STATEMENT/SEGMENT HEADER EQUATES		
				163+	*			
	0000			164+	@SDF0	EQU	0	DISP TO NULL SEG INDICATOR
	0001			165+	@SDF1	EQU	1	DISP TO LENGTH OF SEGMENT
	0002			166+	@SDF2	EQU	2	DISP TO SEGMENTATION CODE
	0003			167+	@SDF3	EQU	3	DISP TO END OF SDF
	0005			168+	@SDLN	EQU	5	DISP TO STMT BINARY LINE NO.
	0006			169+	@STYPE	EQU	6	DISP TO STMT TYPE CODE
	0007			170+	@STEXT	EQU	7	DISP TO 1ST TEXT BYTE OF STMT
	0080			171+	@SNULL	EQU	X'80'	MASK FOR NULL SEG INDICATOR
				172+	*			* 1 = SEGMENT IS NULL
				173+	*			* 0 = SEGMENT IS NOT NULL
				174+	*			

@SYSEQ - SYSTEM SOFTWARE EQUATES

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 6
		175+*			FOLLOWING ARE THE MASKS FOR THE SEGMENTATION	
		176+*			CODE. THE SEGMENTATION IS INDICATED BY VALUE	
		177+*			IN @SDF2 AS FOLLOWS:	
	0000	178+@SONLY	EQU	0	ONLY SEG. IN RECORD	
	0001	179+@SIST	EQU	1	1ST SEG. OF A MULTI-SEG RCD	
	0003	180+@SMIDL	EQU	3	MIDDLE SEG. OF A MULTI-SEG RCD	
	0002	181+@SLAST	EQU	2	LAST SEG. OF MULTI-SEG RCD	
	0002	182+@SBLNL	EQU	2	LENGTH OF STMT BINARY LINE NO.	
		183+*				
		184+****		FILE INDEX TABLE	EQUATES SECTION	
		185+*				
		186+*			ALL DISPLACEMENT ARE CALCULATED FROM THE	
		187+*			FIRST BYTE OF THE FIT TO THE RIGHTMOST BYTE	
		188+*			OF THE SPECIFIED FIELD UNLESS OTHERWISE	
		189+*			NOTED.	
		190+*				
	0002	191+@FDLNC	EQU	2	DISP TO FILE LINE COUNT	
	0002	192+@FLLNC	EQU	2	LNG OF FILE LINE COUNT FIELD	
	0000	193+@FDDBC	EQU	0	DISP TO FILE DATA BLOCK COUNT	
	0001	194+@FLDBC	EQU	1	LNG OF FILE DATA BLOCK COUNT	
	0009	195+@FLACE	EQU	9	DISP O ADDR OF CURR ENTRY	
	000B	196+@FDFNA	EQU	11	DISP TO ADDR OF 1ST NULL ENTRY	
	0002	197+@FLFNA	EQU	2	LNG OF ADDR OF 1ST NULL ENTRY	
	000C	198+@FDE1	EQU	12	DISP TO 1ST BYTE OF 1ST ENTRY	
	0004	199+@FLENT	EQU	4	LNG OF A FIT ENTRY	
		200+*				
		201+*			ENTRY FIELD DISPLACEMENTS ARE CALCULATED FROM	
		202+*			THE 1ST BYTE OF THE ENTRY.	
		203+*				
	0000	204+@FDSD	EQU	0	DISP TO DB SECTOR DISP	
	0001	205+@FLSD	EQU	1	LNG OF DB SECTOR DISP FIELD	
	0002	206+@FDHLN	EQU	2	DISP TO HIGH LINE NO. FIELD	
	0002	207+@FLHLN	EQU	2	LNG OF HIGH LINE NO. FIELD	
	0003	208+@FDNSC	EQU	3	DISP TO DB NULL SPACE CNT FIELD	
	0001	209+@FLNSC	EQU	1	LNG OF DB NULL SPACE CNT FIELD	
		210+*				
		211+*		END OF SYSTEM SOFTWARE EQUATES		
		212+		PRINT ON		
		213 *		@SPF EXP-Y		
		215+		PRINT ON		

@SPFEQ - SYSTEM PROGRAM FILE EQUATES

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	03/05/20	PAGE	7
					217+	*****					
					218+	*	SYSTEM PROGRAM FILE (SPF) EQUATES				*
					219+	*****					
				0004	220+	@SYLVL EQU	4				SYSTEM LEVEL NUMBER 1-4
					221+	*					
				0000	222+	##\$#0TR EQU	X'0000'				DISK ADDR OF ##0TRK
				0700	223+	##\$#0T EQU	X'0700'				CORE LOAD ADDRESS OF ##0TRK
				0018	224+	##\$#@#0T EQU	24				SECTOR COUNT OF ##0TRK
					225+	*					
				0080	226+	##\$#1TR EQU	X'0080'				DISK ADDR OF ##1TRK
				0000	227+	##\$#1T EQU	X'0000'				CORE LOAD ADDRESS OF ##1TRK
				0018	228+	##\$#@#1T EQU	24				SECTOR COUNT OF ##1TRK
					229+	*					
				0000	230+	##\$#DRT EQU	X'0000'				DISK ADDR OF ##DRTY
				0000	231+	##\$#DR EQU	X'0000'				CORE LOAD ADDRESS OF ##DRTY
				0008	232+	##\$#@#DR EQU	08				SECTOR COUNT OF ##DRTY
					233+	*					
				0020	234+	##\$INST EQU	X'0020'				DISK ADDR OF #INSTD
				0600	235+	##\$INS EQU	X'0600'				CORE LOAD ADDRESS OF #INSTD
				0010	236+	##\$@INS EQU	16				SECTOR COUNT OF #INSTD
					237+	*					
				0080	238+	##\$BCOM EQU	X'0080'				DISK ADDR OF #BCOMP
				0600	239+	##\$BCO EQU	X'0600'				CORE LOAD ADDRESS OF #BCOMP
				0018	240+	##\$@BCO EQU	24				SECTOR COUNT OF #BCOMP
					241+	*					
				0100	242+	##\$LOAD EQU	X'0100'				DISK ADDR OF #LOADR
				0600	243+	##\$LOA EQU	X'0600'				CORE LOAD ADDRESS OF #LOADR
				0013	244+	##\$@LOA EQU	19				SECTOR COUNT OF #LOADR
					245+	*					
				014C	246+	##\$DPRI EQU	X'014C'				DISK ADDR OF #DPRIN
				0700	247+	##\$DPR EQU	X'0700'				CORE LOAD ADDRESS OF #DPRIN
				0005	248+	##\$@DPR EQU	05				SECTOR COUNT OF #DPRIN
					249+	*					
				0180	250+	##\$KGOS EQU	X'0180'				DISK ADDR OF #KGOSL
				0C00	251+	##\$KGO EQU	X'0C00'				CORE LOAD ADDRESS OF #KGOSL
				0002	252+	##\$@KGO EQU	02				SECTOR COUNT OF #KGOSL
					253+	*					
				0188	254+	##\$KEDI EQU	X'0188'				DISK ADDR OF #KEDIT
				0C00	255+	##\$KED EQU	X'0C00'				CORE LOAD ADDRESS OF #KEDIT
				000E	256+	##\$@KED EQU	14				SECTOR COUNT OF #KEDIT
					257+	*					
				01C4	258+	##\$KENA EQU	X'01C4'				DISK ADDR OF #KENAB
				0C00	259+	##\$KEN EQU	X'0C00'				CORE LOAD ADDRESS OF #KENAB
				0006	260+	##\$@KEN EQU	06				SECTOR COUNT OF #KENAB
					261+	*					
				0200	262+	##\$DREA EQU	X'0200'				DISK ADDR OF #DREAD
				0889	263+	##\$DRE EQU	X'0889'				CORE LOAD ADDRESS OF #DREAD
				0001	264+	##\$@DRE EQU	01				SECTOR COUNT OF #DREAD
					265+	*					
				0204	266+	##\$KMOU EQU	X'0204'				DISK ADDR OF #KMOUN
				0C00	267+	##\$KMO EQU	X'0C00'				CORE LOAD ADDRESS OF #KMOUN
				0004	268+	##\$@KMO EQU	04				SECTOR COUNT OF #KMOUN
					269+	*					
				0214	270+	##\$KRMO EQU	X'0214'				DISK ADDR OF #KRMOV
				0C00	271+	##\$KRM EQU	X'0C00'				CORE LOAD ADDRESS OF #KRMOV
				0003	272+	##\$@KRM EQU	03				SECTOR COUNT OF #KRMOV

@SPFEQ - SYSTEM PROGRAM FILE EQUATES

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	03/05/20	PAGE	8
					273+*						
				0220	274+##\$KPAS	EQU	X'0220'				DISK ADDR OF #KPASW
				0C00	275+##\$KPA	EQU	X'0C00'				CORE LOAD ADDRESS OF #KPASW
				0005	276+##\$@KPA	EQU	05				SECTOR COUNT OF #KPASW
					277+*						
				0234	278+##\$KEXT	EQU	X'0234'				DISK ADDR OF #KEXTR
				0C00	279+##\$KEX	EQU	X'0C00'				CORE LOAD ADDRESS OF #KEXTR
				0003	280+##\$@KEX	EQU	03				SECTOR COUNT OF #KEXTR
					281+*						
				0240	282+##\$DSPL	EQU	X'0240'				DISK ADDR OF #DSPLY
				2800	283+##\$DSP	EQU	X'2800'				CORE LOAD ADDRESS OF #DSPLY
				0004	284+##\$@DSP	EQU	04				SECTOR COUNT OF #DSPLY
					285+*						
				0250	286+##\$TSYK	EQU	X'0250'				DISK ADDR OF #TSYKT
				1000	287+##\$TSY	EQU	X'1000'				CORE LOAD ADDRESS OF #TSYKT
				0003	288+##\$@TSY	EQU	03				SECTOR COUNT OF #TSYKT
					289+*						
				0280	290+##\$KRNU	EQU	X'0280'				DISK ADDR OF #KRNUM
				1000	291+##\$KRN	EQU	X'1000'				CORE LOAD ADDRESS OF #KRNUM
				0003	292+##\$@KRN	EQU	03				SECTOR COUNT OF #KRNUM
					293+*						
				028C	294+##\$KROV	EQU	X'028C'				DISK ADDR OF #KROVL
				0D00	295+##\$KRO	EQU	X'0D00'				CORE LOAD ADDRESS OF #KROVL
				000A	296+##\$@KRO	EQU	10				SECTOR COUNT OF #KROVL
					297+*						
				0290	298+##\$KOVME	EQU	X'0290'				DISK ADDR OF #KOVME
				0E00	299+##\$KOV	EQU	X'0E00'				CORE LOAD ADDRESS OF #KOVME
				0009	300+##\$@KOV	EQU	09				SECTOR COUNT OF #KOVME
					301+*						
				02B4	302+##\$KWRI	EQU	X'02B4'				DISK ADDR OF #KWRIT
				0C00	303+##\$KWR	EQU	X'0C00'				CORE LOAD ADDRESS OF #KWRIT
				0002	304+##\$@KWR	EQU	02				SECTOR COUNT OF #KWRIT
					305+*						
				02BC	306+##\$KREA	EQU	X'02BC'				DISK ADDR OF #KREAD
				0C00	307+##\$KRE	EQU	X'0C00'				CORE LOAD ADDRESS OF #KREAD
				0002	308+##\$@KRE	EQU	02				SECTOR COUNT OF #KREAD
					309+*						
				02C4	310+##\$KWID	EQU	X'02C4'				DISK ADDR OF #KWIDT
				0C00	311+##\$KWI	EQU	X'0C00'				CORE LOAD ADDRESS OF #KWIDT
				0002	312+##\$@KWI	EQU	02				SECTOR COUNT OF #KWIDT
					313+*						
				02CC	314+##\$KRUN	EQU	X'02CC'				DISK ADDR OF #KRUNI
				0C00	315+##\$KRU	EQU	X'0C00'				CORE LOAD ADDRESS OF #KRUNI
				0003	316+##\$@KRU	EQU	03				SECTOR COUNT OF #KRUNI
					317+*						
				0300	318+##\$KDNT	EQU	X'0300'				DISK ADDR OF #KDNT
				0C00	319+##\$KDN	EQU	X'0C00'				CORE LOAD ADDRESS OF #KDNT
				0010	320+##\$@KDN	EQU	16				SECTOR COUNT OF #KDNT
					321+*						
				030C	322+##\$KMER	EQU	X'030C'				DISK ADDR OF #KMERG
				0D00	323+##\$KME	EQU	X'0D00'				CORE LOAD ADDRESS OF #KMERG
				0003	324+##\$@KME	EQU	03				SECTOR COUNT OF #KMERG
					325+*						
				0350	326+##\$TDCK	EQU	X'0350'				DISK ADDR OF #TDCKT
				1000	327+##\$TDC	EQU	X'1000'				CORE LOAD ADDRESS OF #TDCKT
				0003	328+##\$@TDC	EQU	03				SECTOR COUNT OF #TDCKT

@SPFEQ - SYSTEM PROGRAM FILE EQUATES

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	03/05/20	PAGE	9
					329+*						
				035C	330+##\$KDEL	EQU	X'035C'				DISK ADDR OF #KDELE
				0C00	331+##\$KDE	EQU	X'0C00'				CORE LOAD ADDRESS OF #KDELE
				0010	332+##\$@KDE	EQU	16				SECTOR COUNT OF #KDELE
					333+*						
				03BC	334+##\$KCTL	EQU	X'03BC'				DISK ADDR OF #KCTL0
				0C00	335+##\$KCT	EQU	X'0C00'				CORE LOAD ADDRESS OF #KCTL0
				0009	336+##\$@KCT	EQU	09				SECTOR COUNT OF #KCTL0
					337+*						
				0400	338+##\$KLIS	EQU	X'0400'				DISK ADDR OF #KLIST
				0C00	339+##\$KLI	EQU	X'0C00'				CORE LOAD ADDRESS OF #KLIST
				0008	340+##\$@KLI	EQU	08				SECTOR COUNT OF #KLIST
					341+*						
				0444	342+##\$KLOG	EQU	X'0444'				DISK ADDR OF #KLOGO
				0C00	343+##\$KLO	EQU	X'0C00'				CORE LOAD ADDRESS OF #KLOGO
				0008	344+##\$@KLO	EQU	08				SECTOR COUNT OF #KLOGO
					345+*						
				0484	346+##\$SPSY	EQU	X'0484'				DISK ADDR OF #SPSYN
				0C00	347+##\$SPS	EQU	X'0C00'				CORE LOAD ADDRESS OF #SPSYN
				0001	348+##\$@SPS	EQU	01				SECTOR COUNT OF #SPSYN
					349+*						
				0488	350+##\$KSAV	EQU	X'0488'				DISK ADDR OF #KSAVE
				0C00	351+##\$KSA	EQU	X'0C00'				CORE LOAD ADDRESS OF #KSAVE
				0004	352+##\$@KSA	EQU	04				SECTOR COUNT OF #KSAVE
					353+*						
				04CC	354+##\$SPAC	EQU	X'04CC'				DISK ADDR OF #SPACK
				0C00	355+##\$SPA	EQU	X'0C00'				CORE LOAD ADDRESS OF #SPACK
				0004	356+##\$@SPA	EQU	04				SECTOR COUNT OF #SPACK
					357+*						
				04DC	358+##\$SPOV	EQU	X'04DC'				DISK ADDR OF #SPOVL
				0806	359+##\$SPO	EQU	X'0806'				CORE LOAD ADDRESS OF #SPOVL
				0003	360+##\$@SPO	EQU	03				SECTOR COUNT OF #SPOVL
					361+*						
				0508	362+##\$KPOO	EQU	X'0508'				DISK ADDR OF #KPOOL
				0C00	363+##\$KPO	EQU	X'0C00'				CORE LOAD ADDRESS OF #KPOOL
				000D	364+##\$@KPO	EQU	13				SECTOR COUNT OF #KPOOL
					365+*						
				053C	366+##\$KCHA	EQU	X'053C'				DISK ADDR OF #KCHAN
				0C00	367+##\$KCH	EQU	X'0C00'				CORE LOAD ADDRESS OF #KCHAN
				000C	368+##\$@KCH	EQU	12				SECTOR COUNT OF #KCHAN
					369+*						
				058C	370+##\$KSVL	EQU	X'058C'				DISK ADDR OF #KSVLA
				0980	371+##\$KSV	EQU	X'0980'				CORE LOAD ADDRESS OF #KSVLA
				0002	372+##\$@KSV	EQU	02				SECTOR COUNT OF #KSVLA
					373+*						
				0594	374+##\$KSSP	EQU	X'0594'				DISK ADDR OF #KSSPN
				0C00	375+##\$KSS	EQU	X'0C00'				CORE LOAD ADDRESS OF #KSSPN
				000B	376+##\$@KSS	EQU	11				SECTOR COUNT OF #KSSPN
					377+*						
				05C0	378+##\$KNAM	EQU	X'05C0'				DISK ADDR OF #KNAME
				0C00	379+##\$KNA	EQU	X'0C00'				CORE LOAD ADDRESS OF #KNAME
				0008	380+##\$@KNA	EQU	08				SECTOR COUNT OF #KNAME
					381+*						
				0600	382+##\$KSYM	EQU	X'0600'				DISK ADDR OF #KSYMB
				0C00	383+##\$KSY	EQU	X'0C00'				CORE LOAD ADDRESS OF #KSYMB
				000F	384+##\$@KSY	EQU	15				SECTOR COUNT OF #KSYMB

@SPFEQ - SYSTEM PROGRAM FILE EQUATES

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 10
					385+*			
				063C	386+##\$KPRT	EQU	X'063C'	DISK ADDR OF #KPRTC
				0C00	387+##\$KPR	EQU	X'0C00'	CORE LOAD ADDRESS OF #KPRTC
				0009	388+##\$@KPR	EQU	09	SECTOR COUNT OF #KPRTC
					389+*			
				0680	390+##\$KSET	EQU	X'0680'	DISK ADDR OF #KSETI
				0E00	391+##\$KSE	EQU	X'0E00'	CORE LOAD ADDRESS OF #KSETI
				0004	392+##\$@KSE	EQU	04	SECTOR COUNT OF #KSETI
					393+*			
				0690	394+##\$GRAP	EQU	X'0690'	DISK ADDR OF #GRAPR
				0889	395+##\$GRA	EQU	X'0889'	CORE LOAD ADDRESS OF #GRAPR
				0003	396+##\$@GRA	EQU	03	SECTOR COUNT OF #GRAPR
					397+*			
				06A4	398+##\$KALL	EQU	X'06A4'	DISK ADDR OF #KALLO
				0C00	399+##\$KAL	EQU	X'0C00'	CORE LOAD ADDRESS OF #KALLO
				000F	400+##\$@KAL	EQU	15	SECTOR COUNT OF #KALLO
					401+*			
				0700	402+##\$KRLA	EQU	X'0700'	DISK ADDR OF #KRLAB
				0700	403+##\$KRL	EQU	X'0700'	CORE LOAD ADDRESS OF #KRLAB
				0004	404+##\$@KRL	EQU	04	SECTOR COUNT OF #KRLAB
					405+*			
				0710	406+##\$KRVL	EQU	X'0710'	DISK ADDR OF #KRVLA
				0800	407+##\$KRV	EQU	X'0800'	CORE LOAD ADDRESS OF #KRVLA
				000D	408+##\$@KRV	EQU	13	SECTOR COUNT OF #KRVLA
					409+*			
				0744	410+##\$KDIS	EQU	X'0744'	DISK ADDR OF #KDISP
				0D00	411+##\$KDI	EQU	X'0D00'	CORE LOAD ADDRESS OF #KDISP
				0005	412+##\$@KDI	EQU	05	SECTOR COUNT OF #KDISP
					413+*			
				0780	414+##\$KDOV	EQU	X'0780'	DISK ADDR OF #KDOVR
				0E00	415+##\$KDO	EQU	X'0E00'	CORE LOAD ADDRESS OF #KDOVR
				000C	416+##\$@KDO	EQU	12	SECTOR COUNT OF #KDOVR
					417+*			
				07B4	418+##\$VCRT	EQU	X'07B4'	DISK ADDR OF #VCRTI
				2000	419+##\$VCR	EQU	X'2000'	CORE LOAD ADDRESS OF #VCRTI
				0008	420+##\$@VCR	EQU	08	SECTOR COUNT OF #VCRTI
					421+*			
				07D4	422+##\$EXMS	EQU	X'07D4'	DISK ADDR OF #EXMSG
				0C00	423+##\$EXM	EQU	X'0C00'	CORE LOAD ADDRESS OF #EXMSG
				0003	424+##\$@EXM	EQU	03	SECTOR COUNT OF #EXMSG
					425+*			
				0800	426+##\$#COR	EQU	X'0800'	DISK ADDR OF ##CORE
				0000	427+##\$#CO	EQU	X'0000'	CORE LOAD ADDRESS OF ##CORE
				003A	428+##\$@#CO	EQU	58	SECTOR COUNT OF ##CORE
					429+*			
				0928	430+##\$#ERM	EQU	X'0928'	DISK ADDR OF ##ERMS
				0000	431+##\$#ER	EQU	X'0000'	CORE LOAD ADDRESS OF ##ERMS
				0032	432+##\$@#ER	EQU	50	SECTOR COUNT OF ##ERMS
					433+*			
				0A30	434+##\$KHEL	EQU	X'0A30'	DISK ADDR OF #KHELP
				0C00	435+##\$KHE	EQU	X'0C00'	CORE LOAD ADDRESS OF #KHELP
				000C	436+##\$@KHE	EQU	12	SECTOR COUNT OF #KHELP
					437+*			
				0A80	438+##\$MIPP	EQU	X'0A80'	DISK ADDR OF #MIPPE
				0C00	439+##\$MIP	EQU	X'0C00'	CORE LOAD ADDRESS OF #MIPPE
				000D	440+##\$@MIP	EQU	13	SECTOR COUNT OF #MIPPE

@SPFEQ - SYSTEM PROGRAM FILE EQUATES

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	03/05/20	PAGE 11
					441+*					
				0AC8	442+##\$KSOV	EQU	X'0AC8'			DISK ADDR OF #KSOVR
				0C20	443+##\$KSO	EQU	X'0C20'			CORE LOAD ADDRESS OF #KSOVR
				000D	444+##\$@KSO	EQU	13			SECTOR COUNT OF #KSOVR
					445+*					
				0B00	446+##\$VXIT	EQU	X'0B00'			DISK ADDR OF #VXITI
				0600	447+##\$VXI	EQU	X'0600'			CORE LOAD ADDRESS OF #
				0002	448+##\$@VXI	EQU	02			SECTOR COUNT OF #
					449+*					
				0B08	450+##\$#VUF	EQU	X'0B08'			DISK ADDR OF ##VUFA
				0600	451+##\$#VU	EQU	X'0600'			CORE LOAD ADDRESS OF #
				0002	452+##\$@#VU	EQU	02			SECTOR COUNT OF #
					453+*					
				0B80	454+##\$VLOA	EQU	X'0B80'			DISK ADDR OF #VLOAD
				0600	455+##\$VLO	EQU	X'0600'			CORE LOAD ADDRESS OF #
				0002	456+##\$@VLO	EQU	02			SECTOR COUNT OF #
					457+*					
				0B88	458+##\$VODK	EQU	X'0B88'			DISK ADDR OF #VODKA
				0600	459+##\$VOD	EQU	X'0600'			CORE LOAD ADDRESS OF #
				0016	460+##\$@VOD	EQU	22			SECTOR COUNT OF #
					461+*					
				0BAC	462+##\$TVKB	EQU	X'0BAC'			DISK ADDR OF #TVKBT
				0FC0	463+##\$TVK	EQU	X'0FC0'			CORE LOAD ADDRESS OF #TVKBT
				0001	464+##\$@TVK	EQU	01			SECTOR COUNT OF #TVKBT
					465+*					
				0C00	466+##\$VVMR	EQU	X'0C00'			DISK ADDR OF #VVMRS
				0000	467+##\$VVM	EQU	X'0000'			CORE LOAD ADDRESS OF #
				0030	468+##\$@VVM	EQU	48			SECTOR COUNT OF #
					469+*					
				0D00	470+##\$FMST	EQU	X'0D00'			DISK ADDR OF #FMSTD
				0200	471+##\$FMS	EQU	X'0200'			CORE LOAD ADDRESS OF #
				0052	472+##\$@FMS	EQU	82			SECTOR COUNT OF #
					473+*					
				0EA8	474+##\$UEXL	EQU	X'0EA8'			DISK ADDR OF #UEXLI
				0C00	475+##\$UEX	EQU	X'0C00'			CORE LOAD ADDRESS OF #
				000E	476+##\$@UEX	EQU	14			SECTOR COUNT OF #
					477+*					
				0F00	478+##\$UALL	EQU	X'0F00'			DISK ADDR OF #UALLO
				0C00	479+##\$UAL	EQU	X'0C00'			CORE LOAD ADDRESS OF #
				0011	480+##\$@UAL	EQU	17			SECTOR COUNT OF #
					481+*					
				0F80	482+##\$KCND	EQU	X'0F80'			DISK ADDR OF #KCNDI
				0C00	483+##\$KCN	EQU	X'0C00'			CORE LOAD ADDRESS OF #
				0010	484+##\$@KCN	EQU	16			SECTOR COUNT OF #
					485+*					
				1000	486+##\$#CSA	EQU	X'1000'			DISK ADDR OF #CSAV
				0000	487+##\$#CS	EQU	X'0000'			CORE LOAD ADDRESS OF #
				003A	488+##\$@#CS	EQU	58			SECTOR COUNT OF #
					489+*					
				1128	490+##\$#SSA	EQU	X'1128'			DISK ADDR OF #SSAV
				0000	491+##\$#SS	EQU	X'0000'			CORE LOAD ADDRESS OF #
				0001	492+##\$@#SS	EQU	01			SECTOR COUNT OF #
					493+*					
				1180	494+##\$#SAV	EQU	X'1180'			DISK ADDR OF ##SAVM
				0000	495+##\$#SA	EQU	X'0000'			CORE LOAD ADDRESS OF #
				0108	496+##\$@#SA	EQU	264			SECTOR COUNT OF #

@SPFEQ - SYSTEM PROGRAM FILE EQUATES

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	03/05/20	PAGE 12
			497+*					
		1700	498+##\$FIST	EQU	X'1700'			DISK ADDR OF #FISTD
		0E00	499+###\$FIS	EQU	X'0E00'			CORE LOAD ADDRESS OF #
		0009	500+###\$@FIS	EQU	09			SECTOR COUNT OF #
			501+*					
		1724	502+##\$FILN	EQU	X'1724'			DISK ADDR OF #FILNG
		0E00	503+###\$FIL	EQU	X'0E00'			CORE LOAD ADDRESS OF #
		0009	504+###\$@FIL	EQU	09			SECTOR COUNT OF #
			505+*					
		1780	506+###\$#RSP	EQU	X'1780'			DISK ADDR OF ##RSPG
		0000	507+###\$#RS	EQU	X'0000'			CORE LOAD ADDRESS OF #
		0030	508+###\$@#RS	EQU	48			SECTOR COUNT OF #
			509+*					
		1780	510+##\$BOLV	EQU	X'1780'			DISK ADDR OF #BOLVY
		0800	511+###\$BOV	EQU	X'0800'			CORE LOAD ADDRESS OF #
		0018	512+###\$@BOV	EQU	24			SECTOR COUNT OF #
			513+*					
		1800	514+###\$SFSY	EQU	X'1800'			DISK ADDR OF #SFSYN
		0C00	515+###\$SFS	EQU	X'0C00'			CORE LOAD ADDRESS OF #
		0011	516+###\$@SFS	EQU	17			SECTOR COUNT OF #
			517+*					
		1844	518+###\$SFOV	EQU	X'1844'			DISK ADDR OF #SFOVR
		1500	519+###\$SFO	EQU	X'1500'			CORE LOAD ADDRESS OF #
		0003	520+###\$@SFO	EQU	03			SECTOR COUNT OF #
			521+*					
		1850	522+##\$STRO	EQU	X'1850'			DISK ADDR OF #STROV
		1600	523+###\$STR	EQU	X'1600'			CORE LOAD ADDRESS OF #
		0002	524+###\$@STR	EQU	02			SECTOR COUNT OF #
			525+*					
		1880	526+###\$#FSP	EQU	X'1880'			DISK ADDR OF ##FSPG
		0000	527+###\$#FS	EQU	X'0000'			CORE LOAD ADDRESS OF #
		0030	528+###\$@#FS	EQU	48			SECTOR COUNT OF #
			529+*					
		1880	530+##\$GUFU	EQU	X'1880'			DISK ADDR OF ##GUFUD
		0C00	531+###\$GUF	EQU	X'0C00'			CORE LOAD ADDRESS OF #
		0010	532+###\$@GUF	EQU	16			SECTOR COUNT OF #
			533+*					
		18C0	534+##\$ERRP	EQU	X'18C0'			DISK ADDR OF #ERRPG
		0C00	535+###\$ERR	EQU	X'0C00'			CORE LOAD ADDRESS OF #
		0003	536+###\$@ERR	EQU	03			SECTOR COUNT OF #
			537+*					
		18D4	538+###\$#BLN	EQU	X'18D4'			DISK ADDR OF ##BLNB
		0000	539+###\$#BL	EQU	X'0000'			CORE LOAD ADDRESS OF #
		0001	540+###\$@#BL	EQU	01			SECTOR COUNT OF #
			541+*					
		1900	542+##\$ECMA	EQU	X'1900'			DISK ADDR OF #ECMAN
		0C00	543+###\$ECM	EQU	X'0C00'			CORE LOAD ADDRESS OF #
		0006	544+###\$@ECM	EQU	06			SECTOR COUNT OF #
			545+*					
		1918	546+###\$SFLO	EQU	X'1918'			DISK ADDR OF #SFLOA
		0F00	547+###\$SFL	EQU	X'0F00'			CORE LOAD ADDRESS OF #
		0005	548+###\$@SFL	EQU	05			SECTOR COUNT OF #
			549+*					
		192C	550+##\$SDSY	EQU	X'192C'			DISK ADDR OF #SDSYN
		0C00	551+###\$SDS	EQU	X'0C00'			CORE LOAD ADDRESS OF #
		0004	552+###\$@SDS	EQU	04			SECTOR COUNT OF #

@SPFEQ - SYSTEM PROGRAM FILE EQUATES

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	03/05/20	PAGE 13
					553+*					
	193C				554+##\$SFFI	EQU	X'193C'			DISK ADDR OF #SFFIN
	0E00				555+##\$SFF	EQU	X'0E00'			CORE LOAD ADDRESS OF #
	0008				556+##\$@SFF	EQU	08			SECTOR COUNT OF #
					557+*					
	1980				558+##\$UPAC	EQU	X'1980'			DISK ADDR OF #UPACK
	0C00				559+##\$UPA	EQU	X'0C00'			CORE LOAD ADDRESS OF #
	0004				560+##\$@UPA	EQU	04			SECTOR COUNT OF #
					561+*					
	1990				562+##\$EFKE	EQU	X'1990'			DISK ADDR OF #EFKEY
	0C00				563+##\$EFK	EQU	X'0C00'			CORE LOAD ADDRESS OF #
	0002				564+##\$@EFK	EQU	02			SECTOR COUNT OF #
					565+*					
	19B8				566+##\$UCNF	EQU	X'19B8'			DISK ADDR OF #UCNFI
	0C00				567+##\$UCN	EQU	X'0C00'			CORE LOAD ADDRESS OF #
	0009				568+##\$@UCN	EQU	09			SECTOR COUNT OF #
					569+*					
	19DC				570+##\$UCPL	EQU	X'19DC'			DISK ADDR OF #UCPLI
	0700				571+##\$UCP	EQU	X'0700'			CORE LOAD ADDRESS OF #
	000F				572+##\$@UCP	EQU	15			SECTOR COUNT OF #
					573+*					
	1A38				574+##\$UATR	EQU	X'1A38'			DISK ADDR OF #UATRC
	0900				575+##\$UAT	EQU	X'0900'			CORE LOAD ADDRESS OF #
	000C				576+##\$@UAT	EQU	12			SECTOR COUNT OF #
					577+*					
	1A88				578+##\$UINI	EQU	X'1A88'			DISK ADDR OF #UINIT
	0C00				579+##\$UIN	EQU	X'0C00'			CORE LOAD ADDRESS OF #
	000F				580+##\$@UIN	EQU	15			SECTOR COUNT OF #
					581+*					
	1AD8				582+##\$UCDI	EQU	X'1AD8'			DISK ADDR OF #UCDIS
	0900				583+##\$UCD	EQU	X'0900'			CORE LOAD ADDRESS OF #
	000B				584+##\$@UCD	EQU	11			SECTOR COUNT OF #
					585+*					
	1B24				586+##\$UDEL	EQU	X'1B24'			DISK ADDR OF #UDELV
	0C00				587+##\$UDE	EQU	X'0C00'			CORE LOAD ADDRESS OF #
	000E				588+##\$@UDE	EQU	14			SECTOR COUNT OF #
					589+*					
	1B5C				590+##\$UDIS	EQU	X'1B5C'			DISK ADDR OF #UDISV
	0C00				591+##\$UDI	EQU	X'0C00'			CORE LOAD ADDRESS OF #
	0008				592+##\$@UDI	EQU	08			SECTOR COUNT OF #
					593+*					
	1B9C				594+##\$ZTRA	EQU	X'1B9C'			DISK ADDR OF #ZTRAC
	1000				595+##\$ZTR	EQU	X'1000'			CORE LOAD ADDRESS OF #
	0001				596+##\$@ZTR	EQU	01			SECTOR COUNT OF #
					597+*					
	1BA4				598+##\$ZDUM	EQU	X'1BA4'			DISK ADDR OF #ZDUMP
	1100				599+##\$ZDU	EQU	X'1100'			CORE LOAD ADDRESS OF #
	0008				600+##\$@ZDU	EQU	08			SECTOR COUNT OF #
					601+*					
	1BC4				602+##\$ZLOA	EQU	X'1BC4'			DISK ADDR OF #ZLOAD
	1100				603+##\$ZLO	EQU	X'1100'			CORE LOAD ADDRESS OF #
	000C				604+##\$@ZLO	EQU	12			SECTOR COUNT OF #
					605+*					
	1C14				606+##\$ZUTM	EQU	X'1C14'			DISK ADDR OF #ZUTMO
	0C00				607+##\$ZUT	EQU	X'0C00'			CORE LOAD ADDRESS OF #
	0014				608+##\$@ZUT	EQU	20			SECTOR COUNT OF #

@SPFEQ - SYSTEM PROGRAM FILE EQUATES

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	03/05/20	PAGE 14
					609+*					
				1C84	610+##\$INLN	EQU	X'1C84'			DISK ADDR OF #INLNG
				0600	611+##\$\$INL	EQU	X'0600'			CORE LOAD ADDRESS OF #
				0010	612+##\$@INL	EQU	16			SECTOR COUNT OF #
					613+*					
				1CC4	614+##\$KCAL	EQU	X'1CC4'			DISK ADDR OF #KCALL
				0C00	615+##\$\$KCA	EQU	X'0C00'			CORE LOAD ADDRESS OF #
				000C	616+##\$@KCA	EQU	12			SECTOR COUNT OF #
					617+*					
				1D24	618+##\$KRSU	EQU	X'1D24'			DISK ADDR OF #KRSUM
				0C00	619+##\$\$KRS	EQU	X'0C00'			CORE LOAD ADDRESS OF #
				000A	620+##\$@KRS	EQU	10			SECTOR COUNT OF #
					621+*					
				1D5C	622+##\$UPTF	EQU	X'1D5C'			DISK ADDR OF #UPTFI
				0C00	623+##\$\$UPT	EQU	X'0C00'			CORE LOAD ADDRESS OF #
				0012	624+##\$@UPT	EQU	18			SECTOR COUNT OF #
					625+*					
				1D24	626+##\$UPOV	EQU	X'1D24'			DISK ADDR OF #UPOVL
				0C00	627+##\$\$UPO	EQU	X'0C00'			CORE LOAD ADDRESS OF #
				0005	628+##\$@UPO	EQU	05			SECTOR COUNT OF #
					629+*					
				1E00	630+##\$FMLN	EQU	X'1E00'			DISK ADDR OF #FMLNG
				0200	631+##\$\$FML	EQU	X'0200'			CORE LOAD ADDRESS OF #
				0052	632+##\$@FML	EQU	82			SECTOR COUNT OF #
					633+*					
				2000	634+##\$#CNF	EQU	X'2000'			DISK ADDR OF ##CNFI
				0000	635+##\$\$#CN	EQU	X'0000'			CORE LOAD ADDRESS OF #
				0001	636+##\$@#CN	EQU	01			SECTOR COUNT OF #
					637+*					
				2004	638+##\$KLLA	EQU	X'2004'			DISK ADDR OF #KLLAY
				0920	639+##\$\$KLL	EQU	X'0920'			CORE LOAD ADDRESS OF #
				0001	640+##\$@KLL	EQU	01			SECTOR COUNT OF #
					641+*					
				2008	642+##\$ZLBM	EQU	X'2008'			DISK ADDR OF #ZLBMA
				1100	643+##\$\$ZLB	EQU	X'1100'			CORE LOAD ADDRESS OF #
				0002	644+##\$@ZLB	EQU	02			SECTOR COUNT OF #
					645+*					
				2010	646+##\$ZL1M	EQU	X'2010'			DISK ADDR OF #ZL1MA
				0F00	647+##\$\$ZL1	EQU	X'0F00'			CORE LOAD ADDRESS OF #
				0007	648+##\$@ZL1	EQU	07			SECTOR COUNT OF #
					649+*					
				2030	650+##\$ZL2M	EQU	X'2030'			DISK ADDR OF #ZL2MA
				0F00	651+##\$\$ZL2	EQU	X'0F00'			CORE LOAD ADDRESS OF #
				000D	652+##\$@ZL2	EQU	13			SECTOR COUNT OF #
					653+*					
				2088	654+##\$ZL3M	EQU	X'2088'			DISK ADDR OF #ZL3MA
				0C00	655+##\$\$ZL3	EQU	X'0C00'			CORE LOAD ADDRESS OF #
				000A	656+##\$@ZL3	EQU	10			SECTOR COUNT OF #
					657+*					
				20B0	658+##\$ZLVR	EQU	X'20B0'			DISK ADDR OF #ZLVRL
				0F00	659+##\$\$ZLV	EQU	X'0F00'			CORE LOAD ADDRESS OF #
				0006	660+##\$@ZLV	EQU	06			SECTOR COUNT OF #
					661+*					
				2100	662+##\$KKEY	EQU	X'2100'			DISK ADDR OF #KKEYS
				0C00	663+##\$\$KKE	EQU	X'0C00'			CORE LOAD ADDRESS OF #
				0006	664+##\$@KKE	EQU	06			SECTOR COUNT OF #

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	03/05/20	PAGE 15
			665+*					
		2118	666+##\$#CKT	EQU	X'2118'			DISK ADDR OF #CKTB
		0000	667+##\$#CK	EQU	X'0000'			CORE LOAD ADDRESS OF #
		0004	668+##\$#@#CK	EQU	04			SECTOR COUNT OF #
			669+*					
		212C	670+##\$#INV	EQU	X'212C'			DISK ADDR OF ##INVD
		0000	671+##\$#IN	EQU	X'0000'			CORE LOAD ADDRESS OF ##INVD
		003A	672+##\$#@#IN	EQU	58			SECTOR COUNT OF ##INVD
			673+*					
		2300	674+##\$#PWR	EQU	X'2300'			DISK ADDR OF ##PWRK
		0000	675+##\$#PW	EQU	X'0000'			CORE LOAD ADDRESS OF ##PWRK
		00C0	676+##\$#@#PW	EQU	192			SECTOR COUNT OF ##PWRK
			677+*		END OF SYSTEM PROGRAM FILE EQUATES			
			678+		PRINT ON			
			679 *		@HDW EXP-Y			
			681+		PRINT ON			

@HDWEQ - SYSTEM HARDWARE I/O EQUATES

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 16
			683+	*****	*****	
			684+	*	DISK HARDWARE EQUATES	*
			685+	*****	*****	
			686+	*		
			687+	***	DISK CONTROL FIELD EQUATES	
			688+	*		
	0000	689+	@PFLAG	EQU	0	F-BYTE
	0001	690+	@PCYL	EQU	1	C-BYTE
	0002	691+	@PSAD	EQU	2	S-BYTE
	0003	692+	@PCNT	EQU	3	N-BYTE
			693+	*		
	0004	694+	@DCFLN	EQU	4	LENGTH OF DISK CTRL FIELD
	0001	695+	@DCYMV	EQU	X'01'	DIRECTION BIT IN SEEK S-BYTE
			696+	*		
	0006	697+	@DFCR	EQU	6	DFCR Q-CODE FOR LIO
	0004	698+	@DFDR	EQU	4	DFDR Q-CODE FOR LIO
			699+	*		
	0000	700+	@DSEEK	EQU	X'00'	SIO Q-CODE SEEK FUNCTION
	0001	701+	@DREAD	EQU	X'01'	SIO Q-CODE READ FUNCTION
	0002	702+	@DWRTIT	EQU	X'02'	SIO Q-CODE WRITE FUNCTION
			703+	*		
	0001	704+	@DCWID	EQU	X'01'	CTRL BYTE FOR SIO WRITE ID
	0000	705+	@SKCTL	EQU	X'00'	CTRL BYTE FOR SIO SEEK
	0003	706+	@DVERY	EQU	X'03'	CTRL BYTE FOR SIO VERIFY
	0000	707+	@DCTRW	EQU	X'00'	SIO CTRL FOR READ/WRITE DATA
	0001	708+	@DCRID	EQU	X'01'	SIO CTRL FOR READ ID
			709+	*		
	0002	710+	@DBUSY	EQU	2	CONDITION CODE FOR DISK BUSY
	0000	711+	@DERR	EQU	0	CONDITION CODE FOR DISK ERROR
	0002	712+	@DVST1	EQU	X'02'	SNS I/O CODE FOR BYTES 0,1
	0003	713+	@DVST2	EQU	X'03'	SNS I/O CODE FOR BYTES 2,3
	00A0	714+	@SPINA	EQU	X'A0'	DEV CODE ADDR DISK SPINDLE A
	00B0	715+	@SPINB	EQU	X'B0'	DEV CODE ADDR DISK SPINDLE B
	0001	716+	@ALTFL	EQU	1	ALTERNATE TRACK FLAG BYTE
	0002	717+	@DEFLG	EQU	2	DEFECTIVE TRACK FLAG BYTE
	0000	718+	@NORFL	EQU	0	NORMAL TRACK FLAG BYTE
	0001	719+	@HSTQR	EQU	1	Q+R BYTE ENTRIES IN HISTORY LOG
	0005	720+	@HSTSN	EQU	5	SENSE BYTE ENTRY IN HISTORY LOG
	0006	721+	@HSTPE	EQU	6	ERROR TYPE ENTRY IN HISTORY LOG
	0007	722+	@HSTEN	EQU	7	END OF 1ST ENTRY IN HISTORY LOG
	0009	723+	@HSTAD	EQU	9	DISK ADDR ENTRY IN HISTORY LOG
	000F	724+	@HSTVI	EQU	15	VOL-ID ENTRY IN HISTORY LOG
	0000	725+	@DHARD	EQU	0	HARD ERR INDR MASK FOR @ HSTPE
			726+	*		
			727+	***	DISK ERROR STATUS BITS	
			728+	*		
	0000	729+	@SNSB0	EQU	0	SENSE BYTE 0 DISPLACEMENT
	0001	730+	@SNSB1	EQU	1	SENSE BYTE 1 DISPLACEMENT
	0002	731+	@SNSB2	EQU	2	SENSE BYTE 2 DISPLACEMENT
	0003	732+	@SNSB3	EQU	3	SENSE BYTE 3 DISPLACEMENT
			733+	*		
			734+	***	BYTE 0	
			735+	*		
	0080	736+	@DUNSF	EQU	X'80'	UNSAFE CONDITION
	0040	737+	@DERIN	EQU	X'40'	INTERVENTION REQUIRED
	0020	738+	@DERMA	EQU	X'20'	MISSING ADDR MARK

@HDWEQ - SYSTEM HARDWARE I/O EQUATES

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 17
				0010	739+	@DEREQ EQU	X'10'	EQUIPMENT CHECK
				0008	740+	@DERD2 EQU	X'08'	DATA CHECK
				0004	741+	@DERNR EQU	X'04'	NO RECORD FOUND
				0002	742+	@DERTC EQU	X'02'	TRACK CONDITION CHECK
				0001	743+	@DERSC EQU	X'01'	SEEK CHECK
					744+	*		
					745+	***	BYTE 1	
					746+	*		
				0020	747+	@DERCE EQU	X'20'	END OF CYLINDER
				0004	748+	@OVRUN EQU	X'04'	OVERRUN
					750+	*****		
					751+	*	MATRIX PRINTER I/O EQUATES	*
					752+	*****		
				0004	753+	@PLNGH EQU	4	LENGTH OF PCF
				0002	754+	@SYCNT EQU	2	DISP OF CNT IN SYNC CK PCF
				0003	755+	@RTCNT EQU	3	RETURN CNT BYTE IN PCF
				00E4	756+	@PDAR EQU	X'E4'	DATA LSR FOR MP
				00E6	757+	@PCAR EQU	X'E6'	CONTROL LSR FOR MP
				0000	758+	@PSIOR EQU	X'00'	SIO CTRL CODE FOR MP
				00E0	759+	@PSIOQ EQU	X'E0'	SIO Q-CODE FOR MP
				00E2	760+	@PBUSY EQU	X'E2'	TIO BUSY CODE
				00E1	761+	@PFORM EQU	X'E1'	TIO FORMS CHECK CODE
				00E2	762+	@PLITE EQU	X'E2'	LIO INDR LIGHT CODE
				00E0	763+	@PERR EQU	X'E0'	TIO ERROR CHECK CODE
				0020	764+	@PMGCK EQU	X'20'	MARGIN CHECK BIT
				00E2	765+	@PSNSQ EQU	X'E2'	MP SENSE I/O Q-CODE
					767+	*****		
					768+	*	KEYBOARD EQUATES FOR DEPRES	*
					769+	*****		
				001E	770+	@KENAB EQU	X'1E'	ENABLE, UNLOCK KEYBOARD CTRL
				001F	771+	@KEXIT EQU	X'1F'	RESTORE ENABLE KEYBOARD EXIT CTR
				001B	772+	@KELOK EQU	X'1B'	LOCK, EXIT, DISABLE CTRL
				0020	773+	@KCMDK EQU	X'20'	COMMAND KEY MASK
				0001	774+	@CKY01 EQU	1	COMMAND KEY 1
				0002	775+	@CKY02 EQU	2	COMMAND KEY 2
				0003	776+	@CKY03 EQU	3	COMMAND KEY 3
				0004	777+	@CKY04 EQU	4	COMMAND KEY 4
				0005	778+	@CKY05 EQU	5	COMMAND KEY 5
				0006	779+	@CKY06 EQU	6	COMMAND KEY 6
				0007	780+	@CKY07 EQU	7	COMMAND KEY 7
				0008	781+	@CKY08 EQU	8	COMMAND KEY 8
				0009	782+	@CKY09 EQU	9	COMMAND KEY 9
				000A	783+	@CKY10 EQU	10	COMMAND KEY 10
				000B	784+	@CKY11 EQU	11	COMMAND KEY 11
				000C	785+	@CKY12 EQU	12	COMMAND KEY 12
				000D	786+	@CKY13 EQU	13	COMMAND KEY 13
				000E	787+	@CKY14 EQU	14	COMMAND KEY 14
				000F	788+	@CKY15 EQU	15	COMMAND KEY 15
				0010	789+	@CKY16 EQU	16	COMMAND KEY 16
				0010	790+	@KEYBD EQU	X'10'	KEYBOARD Q-CODE
				0000	791+	@CMOFF EQU	X'00'	LIO M+N BYTE CMND INDRS OFF
				0001	792+	@CMLON EQU	X'01'	LIO M+N BYTE CMND INDRS ON
				0010	793+	@KFUNK EQU	X'10'	FUNCTION KEY MASK
				000D	794+	@KLEAR EQU	X'0D'	CLEAR COMMAND KEY MASK

@HDWEQ - SYSTEM HARDWARE I/O EQUATES

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 18
		001C	795+	@TYPO EQU	X'1C'	SIO CTRL FOR TYPAMATIC
		0002	796+	@TYPAM EQU	X'02'	TYPAMATIC FUNCTION BIT
		0080	797+	@PRITY EQU	X'80'	PARITY ERROR BIT
		0011	798+	@KHARD EQU	X'11'	SIO CTRL FOR HARD ERROR
		0012	799+	@FLDIN EQU	X'12'	LIGHT FIELD INDR Q-BYTE
			801+	*****		
			802+	CRT I/O EQUATES *		
			803+	*****		
		0092	804+	@CRTDS EQU	X'92'	SIO Q-BYTE
		0092	805+	@DSBSY EQU	X'92'	CRT BUSY MASK
		0090	806+	@CRTQ EQU	X'90'	LIO Q-BYTE
		0090	807+	@CRERR EQU	X'90'	CRT ERROR MASK
		0040	808+	@CURSR EQU	X'40'	CURSOR BIT
		0040	809+	@DLNLG EQU	64	LENGTH OF CRT LINE
		000F	810+	@DLNCT EQU	15	NUMBER OF LINES IN BUFFER
		0004	811+	@CRPRY EQU	X'04'	PARITY ERROR BIT
		0010	812+	@BKSPC EQU	X'10'	BACKSPACE CTRL BYTE
		0010	813+	@4K EQU	16	NUMBER OF SCTR = 4K
			815+	*****		
			816+	GENERAL EQUATES FOR 3.7B CARD READER/PUNCH *		
			817+	*****		
			818+	*****		
			819+	SIO FUNCTION CODES		
			820+	*****		
		0000	821+	@CC37B EQU	X'00'	SIO CONTROL CODE
			822+	*****		
			823+	TIO FUNCTION CODES		
			824+	*****		
		00F2	825+	@BZ37B EQU	X'F2'	DEVICE BUSY CODE
		00F0	826+	@ER37B EQU	X'F0'	I/O CHECK OR NOT READY
			827+	*****		
			828+	LIO FUNCTION CODES		
			829+	*****		
		00F0	830+	@LO37B EQU	X'F0'	LOAD READ ADDESS REGISTER
			831+	*****		
			832+	SNS FUNCTION CODES		
			833+	*****		
		00F2	834+	@SN37B EQU	X'F2'	STORE ERROR STATUS BYTES
			836+	*****		
			837+	3.7B CARD READER EQUATES *		
			838+	*****		
		00F0	839+	@CD37B EQU	X'F0'	DEVICE ADDRESS - READER
		00F1	840+	@RD37B EQU	X'F1'	SIO READ FUNCTION
			842+	*****		
			843+	3.7B CARD PUNCH EQUATES *		
			844+	*****		
		00F0	845+	@PN37B EQU	X'F0'	DEVICE ADDRESS - PUNCH
		00F2	846+	@PC37B EQU	X'F2'	SIO PUNCH FUNCTION
			848+	*****		
			849+	ERROR FUNCTION CODES *		
			850+	*****		

@HDWEQ - SYSTEM HARDWARE I/O EQUATES

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 19
		0040	851+	@TJ37B EQU	X'40'	TRANSPORT JAM
		0004	852+	@CP37B EQU	X'04'	COMPARE ERROR
		0005	853+	@RT37B EQU	X'05'	RETRY COUNT
		00A0	854+	@NTRDY EQU	X'A0'	CARD READER NOT READY TEST
			856+	*****		
			857+	*	PPL EQUATES	*
			858+	*****		
	00FF	859+	@WA37B EQU	X'FF'		WAIT AND CHECK FOR ERRORS
	0080	860+	@PD37B EQU	X'80'		PUNCH DATA
	00C0	861+	@IP37B EQU	X'C0'		INSERT AND PUNCH DATA
	0040	862+	@ID37B EQU	X'40'		INSERT DATA
		863+	*	END OF SYSTEM HARDWARE I/O EQUATES		
		864+		PRINT ON		
		865	*	@FXD	EXP-Y	
		867+		PRINT ON		

@FXDEQ - FIXED ADDRESSES FOR SYSTEM NUCLEUS

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 20
			869+		*****	
			870+		GLOBAL INDICATORS STORED IN THE SYSTEM NUCLEUS, ENTRY POINTS *	
			871+		FOR SYSNUC INTERFACE ROUINES. *	
			872+		*****	
0000			873+	ORG	X'0000'	*
	0000		874+	\$\$ZERO EQU	*	ENTRY POINT TO LOAD DUMP PGM
	0004		875+	\$FEARR EQU	\$\$ZERO+4	VALUE OF ADDR IN ARR ON FE AID
			876+			
	0025		877+	\$DISKN EQU	\$\$ZERO+37	ADDR OF ENTRY TO DISK IOCS
	00DE		878+	\$KE090 EQU	\$\$ZERO+X'00DE'	ADDR OF DKDISK ERR-PEND EXIT
	01D5		879+	\$KE130 EQU	\$\$ZERO+X'01D5'	ADDR OF DKDISK HARD ERROR EXIT
0345			881+	ORG	X'0345'	*
	0345		882+	\$ERLOG EQU	*	ADDR OF ENTRY TO LOG I/O ERRORS
	0363		883+	\$ER050 EQU	\$\$ZERO+X'0363'	START OF DISK OPS IN NERLOG
			885+		*****	
			886+		COMMUNICATION AREA REFERENCING NUCLEUS *	
			887+		*****	
03C0			888+	ORG	X'03C0'	*
	03C0		889+	\$NUCBS EQU	*	START OF COMMUNICATION AREA
	03C0		890+	\$RMRGN EQU	\$NUCBS	ADDR OF BYTE CONTAINING THE
			891+			* SOFTWARE RIGHT MARGIN VALUE
	03C1		892+	\$LMRGN EQU	\$RMRGN+1	ADDR OF BYTE CONTAINING THE
			893+			* SOFTWARE LEFT MARGIN VALUE
	03C2		894+	\$PRPOS EQU	\$LMRGN+1	ADDR OF BYTE CONTAINING CURRENT
			895+			* POSITION OF MATRIX PRINTER
			896+			* HEAD
	03C3		897+	\$KEYCD EQU	\$PRPOS+1	ADDR OF BYTE CONTAINING KEYBOARD
			898+			* INDICATORS. A LIST OF THE
			899+			* INDICATORS AND MASKS FOLLOW
	0001		900+	\$CARDI EQU	X'01'	INPUT SOURCE INDR MASK
			901+			* 0 - KEYBOARD INPUT
			902+			* 1 - CARD OR PROC INPUT
	0002		903+	\$IOYES EQU	X'02'	I/O ROUTINES IN CORE INDR MASK
			904+			* 0 - I/O ROUTINES NOT IN CORE
			905+			* 1 - I/O ROUTINES IN CORE
	0004		906+	\$NOLST EQU	X'04'	NO LIST INDR MASK
			907+			* 0 - LISTING REQUIRED
			908+			* 1 - NO LISTING RESIRED
	0008		909+	\$GUFIR EQU	X'08'	GUFUDI ABORT INDR
			910+			* 1 - GUFUDI INTERRUPT, NOT ABOR
			911+			* 0 - GUFUDI ABORTED
			912+			* FOR THE ABOVE INDICATOR TO BE
			913+			* VALID, \$INTRP MUST BE PRESENT
	0010		914+	\$KYBSY EQU	X'10'	KEYBOARD BUSY INDR
			915+			* 0 - LINE FINISHED
			916+			* 1 - LINE NOT YET COMPLETE
	0020		917+	\$INRPT EQU	X'20'	INTERRUPT INDR
			918+			* 0 - PROGRAM NOT ABORTED
			919+			* 1 - PROGRAM ABOPRTED
	0040		920+	\$DTNMB EQU	X'40'	* 1 - AUTOMATIC LINE NUMBERS
			921+			* GENERATED FOR CARD INPUT
	0080		922+	\$TRUNK EQU	X'80'	TRUNCATED LINE INDR
			923+			* 1 - LAST LINE TRUNCATED
			924+			* 0 - LAST LINE COMPLETED

@FXDEQ - FIXED ADDRESSES FOR SYSTEM NUCLEUS

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 03/05/20 PAGE 21
		926+	*****		
		927+*		REGISTER SAVE AREAS. THESE AREAS ARE AVAILABLE FOR	*
		928+*		TEMPORARELY USE BY ANY PROGRAM	*
		929+	*****		
	03C5	931+\$BRS	AV EQU	\$KEYCD+2	ADDR OF 2 BYTE BASE REG SAVE
	03C7	932+\$XRS	AV EQU	\$BRS+2	ADDR OF 2 BYTE XR SAVE AREA
	03CB	934+\$TAB	LN EQU	\$XRS+4	CURRENT AUTOMATIC LINE NUMBER
		935+*			* TO BE INSERTED IF TAB KEY
		936+*			* PRESSED. (ADDR OF LINE NO.)
	03CD	937+\$CA	ERR EQU	\$TABLN+2	ADDR OF ERROR CODE SAVED FOR
		938+*			* INTERFACE WITH ERRPGM
	03CF	939+\$IN	LNO EQU	\$CAERR+2	ADDR OF EXECUTION TIME LINE
		940+*			* NUMBER FOR INTERPRETER
	03CE	941+\$ERR	PG EQU	\$INLNO-1	ADDR OF INDICATOR BYTE IF
		942+*			* SPECIAL FUNCTION REQUESTED
		943+*			* OF ERROR PROGRAM
	0030	944+\$ER	STK EQU	X'30'	TO BE MOVED TO \$ERRPG IF A STACK
		945+*			* OF ERROR CODES IS TO BE PROCES
	0035	946+\$ER	SFL EQU	X'35'	SYNTAX CHECKERS \$ERRPG SETTING
	0040	947+\$ER	FIL EQU	X'40'	TO BE MOVED TO \$ERRPG IF FILE
		948+*			* LINE ERROR OCCURS
	0050	949+\$ER	1N2 EQU	X'50'	TO BE MOVED TO \$ERRPG IF LEVEL
		950+*			* 1 AND 2 MESSAGES REQUIRED
	0080	951+\$ER	KEY EQU	X'80'	STANDARD ERROR SETTING USED BY
		952+*			* COMMAND ANALYZER ONLY
	03CF	953+\$ERR	CT EQU	\$INLNO	ADDR OF COUNT BYTE FOR STACK
		954+*			* OF ERROR MESSAGES

@FXDEQ - FIXED ADDRESSES FOR SYSTEM NUCLEUS

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 03/05/20 PAGE 22
		956+	*****	*****	*****
		957+	*	SYSTEM STATUS EQUATES	*
		958+	*****	*****	*****
		03D0	960+\$XIND1 EQU	\$INLNO+1	ADDR OF PRIMARY EXEC MODE INDRS
			961+	*	* ENTRIES FOLLOW
		0001	962+\$RUNIT EQU	X'01'	1 - EXECUTE IN RUN MODE
		0002	963+\$STEPT EQU	X'02'	1 - EXECUTE IN STEP MODE
		0004	964+\$TRACE EQU	X'04'	1 - EXECUTE IN TRACE MODE
			965+	*	THE THREE MODE INDICATORS ARE
			966+	*	MUTUALLY EXCLUSIVE. IF \$TRACE
			967+	*	IS ON, AT LEAST 1 OF THE TRACE
			968+	*	TYPE CODE MUST ALSO BE ON.
		0008	969+\$TFLOW EQU	X'08'	1 - TRACE FLOW
		0010	970+\$TRALL EQU	X'10'	1 - TRACE ALL
		0020	971+\$TRVAR EQU	X'20'	1 - TRACE SELECTED VARIABLES
		0040	972+\$XPREC EQU	X'40'	EXECUTION PRECISION INDR
			973+	*	* 0 - SHORT PRECISION
			974+	*	* 1 - LONG PRECISION
		0080	975+\$VMDEF EQU	X'80'	VM USAGE INDR
			976+	*	* 1 - VIRTUAL MEMORY NOT EMPTY
			977+	*	* 0 - VIRTUAL MEMORY EMPTY
		03D1	979+\$XIND2 EQU	\$XIND1+1	ADDR OF EXECUTION INDICATORS
			980+	*	* MASK AND INDRS FOLLOW
		0001	981+\$EXCMD EQU	X'01'	EXECUTION INDR
			982+	*	* 1 - IN EXECUTION
		0002	983+\$PAUSE EQU	X'02'	1 - PROGRAM IN PAUSE STATE
		0004	984+\$PSTEP EQU	X'04'	1 - PAUSE CAUSED BY STEP MODE
		0008	985+\$PSTMT EQU	X'08'	1 - PAUSE CAUSED BY PAUSE STMT
		0010	986+\$ABORT EQU	X'10'	1 - ABORT EXECUTION
		03D2	988+\$IOIND EQU	\$XIND2+1	I/O STATUS INDICATORS
			989+	*	* MASKS AND EXPLANATION FOLLOW
		0001	990+\$MPDWN EQU	X'01'	MP STATE
			991+	*	* 0 - MATRIX PRINTER OPERATIONAL
			992+	*	* 1 - MATRIX PRINTER DOWN
		0002	993+\$CRTAV EQU	X'02'	CRT AVAILABILITY
			994+	*	* 0 - NO CRT ON SYSTEM
			995+	*	* 1 - CRT ON THE SYSTEM
		0004	996+\$CRTNO EQU	X'04'	SYSPRNT ON CRT
			997+	*	* 0 - CRT NOT AVAIL FOR SYSPRNT
			998+	*	* 1 - CRT MAY BE USED FOR SYSPRN
		0008	999+\$CMDKY EQU	X'08'	KEYBOARD MODE
			1000+	*	* 0 - NORMAL KEYBOARD INPUT
			1001+	*	* 1 - COMMAND KEYS USE ONLY
		0010	1002+\$PGMST EQU	X'10'	PGM START KEY
			1003+	*	* 0 - MAY BE USED FOR AUTO LINE
			1004+	*	* 1 - NOT USED FOR AUTO LINE #
		0020	1005+\$HRDER EQU	X'20'	HARD ERROR INDICATOR
			1006+	*	* 0 - SOFT ERROR
			1007+	*	* 1 - HARD ERROR
		0040	1008+\$DTRDR EQU	X'40'	DATA RECORDER
			1009+	*	* 0 - DATA RECORDER NOT ON SYSTE
			1010+	*	* 1 - DATA RECORDER IS ON SYSTEM
		0080	1011+\$LNPTR EQU	X'80'	MP OPTION

@FXDEQ - FIXED ADDRESSES FOR SYSTEM NUCLEUS

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 23
			1012+*			* 1 - 50 LPM OPTION AVAILABLE
	03D3	1014+	\$CRTIN EQU	\$	\$IOIND+1	CRT COMMAND INDICATORS
		1015+*				* MASKS AND EXPLANATION FOLLOW
	0001	1016+	\$CRTUP EQU	X	'01'	1 - CRT IN ROLL UP MODE
	0002	1017+	\$CRTDN EQU	X	'02'	1 - CRT IN ROLL DOWN MODE
	0004	1018+	\$CRTPU EQU	X	'04'	1 - POP UP CONDITION REQUESTED
	0008	1019+	\$CRTSP EQU	X	'08'	1 - ROLL STOP REQUESTED
	03D4	1021+	\$INDR1 EQU	\$	\$CRTIN+1	WORK FILE STATUS INDICATORS
		1022+*				* MASKS AND EXPLANATION FOLLOW
	0001	1023+	\$PROCI EQU	X	'01'	PROCEDURE FILE INDR
		1024+*				* 0 - NOT A PROCEDURE
		1025+*				* 1 - A PROCEDURE
	0002	1026+	\$PRESN EQU	X	'02'	WORK FILE PRECISION INDR
		1027+*				* 0 - SHORT PRECISION USED
		1028+*				* 1 - LONG PRECISION BEING USED
	0004	1029+	\$WSIND EQU	X	'04'	WORKING STORAGE INDR MASK
		1030+*				* 0 - WORKING STOR ON DISK IS EM
		1031+*				* 1 - WORKING STORAGE IS NOT EMP
	0008	1032+	\$WFLOK EQU	X	'08'	WORK FILE LOCK INDR
		1033+*				* 0 - FILE NOT PROTECTED
		1034+*				* 1 - FILE PROTECTED
	0010	1035+	\$FITIN EQU	X	'10'	FIT SECTORS INDR MASK
		1036+*				* 0 - FIT SECTORS NOT PRESENT
		1037+*				* 1 - FIT SECTORS IN CORE
	0020	1038+	\$PGMDT EQU	X	'20'	PGM DATA FILE INDR
		1039+*				* 1 - PROGRAM GENERATED
		1040+*				* DATA FILE IN WORK FILE
	0040	1041+	\$KEYDT EQU	X	'40'	KEYBOARD OR CARD FILE INDR
		1042+*				* 1 - KYBRD OR CARD GENERATED
		1043+*				* DATA FILE IN WORK FILE
	0080	1044+	\$BASIC EQU	X	'80'	BASIC PROGRAM INDR
		1045+*				* 1 - BASIC PGM IN WORK FILE
	03D5	1047+	\$INDR2 EQU	\$	\$INDR1+1	ADDR OF SYSTEM 1-BIT INDRS
		1048+*				* MASKS AND EXPLANATION FOLLOW
	0002	1049+	\$CMODE EQU	X	'02'	CONVERSATIONAL MODE INDR MASK
		1050+*				* 0 - UTILITY MODE
		1051+*				* 1 - CONVERSATIONAL MODE
	0004	1052+	\$ERPND EQU	X	'04'	ERROR LOG PENDING INDR
		1053+*				* 0 - NO LOGGING REQUIRED
		1054+*				* 1 - ERROR LOGGING PENDING
	0008	1055+	\$DKERR EQU	X	'08'	DISK ERROR INDR
		1056+*				* 0 - ERROR WAS NOT DISK
		1057+*				* 1 - ERROR WAS DISK, 2 ENTRIES
		1058+*				* REQUIRED IN HISTORY LOG
	0010	1059+	\$FCIND EQU	X	'10'	CRUSH INDR MASK
		1060+*				* 1 - SINGLE LINE NO DELETION
		1061+*				* THROUGH THE CMD ANALYZER REQUI
		1062+*				* IF \$FUIND, \$FCIND AND \$FDIND A
		1063+*				* ALL ZERO, CRUCHING OP REQUIRED
	0020	1064+	\$FUIND EQU	X	'20'	LINE PASSED INDR MASK
		1065+*				* 1 - LINE PASSED
	0040	1066+	\$FDIND EQU	X	'40'	LINE NUMBER LIST
		1067+*				* 1 - LINE NO LIST IS DELETED

@FXDEQ - FIXED ADDRESSES FOR SYSTEM NUCLEUS

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 24
		0080	1068+\$READY	EQU	X'80'	PRINT READY INDR * 0 - READY WILL BE PRINTED * 1 - READY WON'T BE PRINTED
			1069+*			
			1070+*			
		03D6	1072+\$INDR3	EQU	\$INDR2+1	ADDR OF SYSTEM 1-BIT INDRS * MASKS AND EXPLANATION FOLLOW
			1073+*			
		0001	1074+\$DBLOK	EQU	X'01'	SAVE PROTECTED WORK FILE MASK * 1 - FILE MAY BE SAVED TO \$\$LIB
			1075+*			
		0002	1076+\$LIST	EQU	X'02'	KLISTN INDR * 0 - IGNORE ROLL DOWN KEY * 1 - EXCEPT ROLL DOWN KEY
			1077+*			
			1078+*			
		0004	1079+\$ERHRD	EQU	X'04'	ERRPGM HARD ERROR INDR * 1 - ERRPGM WILL EXECUTE HARD * HALT AFTER PRINTING MSG
			1080+*			
			1081+*			
		0008	1082+\$NOENB	EQU	X'08'	KEYBOARD ENABLE INDR * 0 - KEYBOARD NOT ENABLED - * GUFUDI WILL ENABLE * 1 - KEYBOARD HAS ALREADY * BEEN ENABLED
			1083+*			
			1084+*			
			1085+*			
			1086+*			
		0010	1087+\$CLBFR	EQU	X'10'	CLEAR INPUT LINE BUFFER INDR * 0 - DON'T CLEAR LINE BUFFER * 1 - CLEAR THE INPUT LINE BUFF
			1088+*			
			1089+*			
		0020	1090+\$MOUNT	EQU	X'20'	MOUNT KEYBOARD INDR MASK * 1 - ONLY MOUNT COMMAND VALID
			1091+*			
		0040	1092+\$NWRKR	EQU	X'40'	REMOVABLE DISK WORK AREA INDR * 0 - CORRECT WORK AREA ON R1 * 1 - NO WORK AREA ON R1
			1093+*			
			1094+*			
		0080	1095+\$NWRKF	EQU	X'80'	FIXED DISK WORK AREA INDR * 0 - CORRECT WORK AREA ON F1 * 1 - NO WORK AREA ON F1
			1096+*			
			1097+*			
		03D7	1099+\$DKSIZ	EQU	\$INDR3+1	ADDR OF DISK SIZE INDR * MASKS AND EXPLANATION FOLLOW
			1100+*			
		0001	1101+\$DK100	EQU	X'01'	1 - SYSTEM HAS 100 CYLS
		0002	1102+\$DK200	EQU	X'02'	1 - SYSTEM HAS 200 CYLS
		0004	1103+\$DK400	EQU	X'04'	1 - SYSTEM HAS 400 CYLS
		0008	1104+\$DK600	EQU	X'08'	1 - SYSTEM HAS 600 CYLS
		0010	1105+\$DK800	EQU	X'10'	1 - SYSTEM HAS 800 CYLS
		03D8	1107+\$XIND3	EQU	\$DKSIZ+1	PAST \$XIND1 * SEE \$XIND1 FOR INDR MASKS
			1108+*			
		03DA	1110+\$FILIB	EQU	\$XIND3+2	ADDR OF CURRENT FILE LIB DADDR
		03DC	1111+\$USRDR	EQU	\$FILIB+2	ADDR OF REL DISP TO 1ST USER BK
		03DD	1112+\$CONFIG	EQU	\$USRDR+1	CONFIGURATION INDRS
		0001	1113+\$22IMP	EQU	X'01'	0 - 13 INCH MATRIX PRINTER 1 - 22 INCH MATRIX PRINTER
			1114+*			
		0002	1115+\$16K	EQU	X'02'	1 - CPU HAS 12 KBYTE
		0004	1116+\$12K	EQU	X'04'	1 - CPU HAS 16 KBYTE * IF BOTH OFF: CPU HAS 8 KBYTE
			1117+*			
		0008	1118+\$16CKY	EQU	X'08'	0 - KEYBOARD HAS 8 CMD KEYS 1 - KEYBOARD HAS 16 CMD KEYS
			1119+*			
		0080	1120+\$BIGCD	EQU	X'80'	1 - CPU HAS 129 DATA RECORDER
		03DF	1122+\$LEVEL	EQU	\$CONFIG+2	ADDR OF SYSTEM LEVEL NUMBER

@FXDEQ - FIXED ADDRESSES FOR SYSTEM NUCLEUS

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 25
		03E0	1124+	\$DBGUF EQU	\$LEVEL+1	ADDR OF GUFUDI DEBUG INDR
		0080	1125+	\$CRUSH EQU	X'80'	0 - CRUSH THE FILE
		0040	1126+	\$REORD EQU	X'40'	0 - REORDER THE FILE
		0020	1127+	\$IRKEY EQU	X'20'	1 - ENABLE KEYBOARD INPUT
		0010	1128+	\$IOPGS EQU	X'10'	D1 PAGES INDR: 0 - ONE
		0008	1129+	\$CALLI EQU	X'08'	PROCEDURE CALL INDR
			1130+*			* 0 - NOT A CALL
			1131+*			* 1 - A CALL
		03E1	1133+	\$KEYBD EQU	\$DBGUF+1	KEYBOARD TYPE INDR
			1134+*			* THIS VALUE WILL BE A BINARY
			1135+*			* VALUE FROM 1 TO 12 INDICATING
			1136+*			* WHICH DATA TABLE IS IN USE
		03E2	1138+	\$CRPOS EQU	\$KEYBD+1	ADDR OF CURRENT CURSOR POSITION
		03E3	1139+	\$BUFPT EQU	\$CRPOS+1	LINE PRINTER BUFFER POINTER
		03E4	1140+	\$LPRP3 EQU	\$BUFPT+1	LINE PRINTER FLAGS
		03E5	1141+	\$LPROS EQU	\$LPRP3+1	TRUE LINE PRINTER PRINT POSITION
		03E6	1143+	\$NEXTB EQU	\$LPROS+1	REL DADDR PROCEDURE CALL
		03E7	1144+	\$NEXTL EQU	\$NEXTB+1	DISPLACEMENT WITHIN DB
		03E8	1145+	\$DFDET EQU	\$NEXTL+1	GRAPRO INTERNAL INDR
		03E9	1146+	\$LPRI0 EQU	\$DFDET+1	LINE PRINTER BUFF INC. + PDAR
		03F5	1148+	\$PTCH1 EQU	\$DKSIZ+30	LAST BYTE OF NUCLUES AREA
			1149+	*****		
			1150+*	TABLES AND SYSTEM WORK AREAS		*
			1151+	*****		
		03F6	1152+	\$VOLID EQU	\$PTCH1+1	ADDR OF LEFT BYTE VOLID TABLE
		03F6	1153+	\$VOLR1 EQU	\$VOLID	ADDR LEFT BYTE VOLID FOR R1
		03FE	1154+	\$VOLF1 EQU	\$VOLR1+8	ADDR LEFT BYTE VOLID FOR F1
		0406	1155+	\$VOLR2 EQU	\$VOLF1+8	ADDR LEFT BYTE VOLID FOR R2
		040E	1156+	\$VOLF2 EQU	\$VOLR2+8	ADDR LEFT BYTE VOLID FOR F2
		0419	1157+	\$PKERT EQU	\$VOLID+35	ADDR OF 1ST ENTRY IN PACK ERROR
			1158+*			* RATE TABLE
		042D	1159+	\$PASWD EQU	\$PKERT+20	ADDR OF CURRENT PASSWORD
		042E	1160+	\$HISTE EQU	\$PASWD+1	LEFT BYTE OF HISTORY LOG ENTRY
		0435	1161+	\$HIST1 EQU	\$HISTE+7	ADDR OF 1ST ENTRY OF HIST LOG
		043A	1162+	\$DATE EQU	\$HIST1+5	ADDR OF CURRENT DATE
		043B	1163+	\$EXFTR EQU	\$DATE+1	ADDR OF CORE EXPANSION FACTOR
			1164+*			* THIS VALUE WILL BE ADDED TO
			1165+*			* BUFFER ADDRESS (SET FOR 8K)
			1166+*			* TO RE-POSITION THEM FOR
			1167+*			* LARGER MACHINES
		0443	1168+	\$WFNME EQU	\$EXFTR+8	ADDR OF WORK FILE NAME
		0040	1169+	\$WFDEF EQU	X'40'	WORK FILE DEFINED INDR
			1170+*			* THIS MASK IS USED ON \$WFNME
			1171+*			* 0 - WORK FILE UNDEFINED
			1172+*			* 1 - WORK FILE DEFINED
		0449	1173+	\$DPLSV EQU	\$WFNME+6	ADDR OF 6 BYTE DPL SAVE AREA
			1174+*			* FOR KEYBOARD PROGRAMS
		044B	1175+	\$PRDEV EQU	\$DPLSV+2	ADDR OF 2 BYTE FIELD POINTING
			1176+*			* TO THE SYSTEM PRINTER IOCR
		044D	1177+	\$CRTAD EQU	\$PRDEV+2	ADDR OF ENTRY TO RELOCATE CRT
		0454	1178+	\$PLST1 EQU	\$CRTAD+7	ADDR OF THREE 7-BYTES ENTRY I/O
		045B	1179+	\$PLST2 EQU	\$PLST1+7	* PARM LISTS MOST RECENTLY USED

[illegible]

@FXDEQ - FIXED ADDRESSES FOR SYSTEM NUCLEUS

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 27
		1183+	*****			
		1184+	*	ENTRY POINTS TO INTERFACE ROUTINES AND THEIR WORK AREAS		*
		1185+	*****			
		0465	1187+	\$SPRNT EQU	\$C0001+1	ADDR OF ENTRY TO THE SYSTEM
			1188+	*		* PRINTER IOCR
		0469	1189+	\$CAERK EQU	\$SPRNT+4	ADDR OF ENTRY TO ERR ROUTINE
			1190+	*		* INTERFACE. ERROR CODE MUST
			1191+	*		* BE STORED PREVIOUS TO ENTRY
		046F	1192+	\$ERDPL EQU	\$CAERK+6	ADDR OF LEFT BYTE OF ERRPGM
			1193+	*		* LOAD DPL
		0472	1194+	\$ERMAD EQU	\$ERDPL+3	ADDR OF DK ADDR, CNT OF ERRPGM
		0476	1195+	\$CIMSK EQU	\$ERMAD+4	ADDR OF THE INQUIRY REQUEST INDR
			1196+	*		* X'87' IR NOT DISABLED
			1197+	*		* X'80' IR MASKED
		0480	1198+	\$CIEXT EQU	\$CIMSK+10	ADDR OF IR EXIT INSTRUCTION
		0483	1199+	\$CIENT EQU	\$CIEXT+3	ADDR OF ENTRY FOR IR
		048D	1200+	\$UNMSK EQU	\$CIENT+10	ADDR OF ENTRY TO UNMASK IR
			1201+	*		* IF NO SUSPENDED IR, CALLING
			1202+	*		* PROGRAM RETURNED TO
		0496	1203+	\$CISUS EQU	\$UNMSK+9	ADDR OF INDR FOR SUSPENDED IR
			1204+	*		* IF X'80' AN IR OCCURRED WHILE
			1205+	*		* IR WAS MASKED
			1206+	*		* IF X'87' NO IR TOOK PLACE
			1207+	*		* WHILE IR WAS MASKED
		049D	1208+	\$CAIPL EQU	\$CISUS+7	ADDR OF ENTRY TO ABORT CURRENT
			1209+	*		* OP AND RE-ENABLE KEYBOARD AND
		04A1	1210+	\$CARPL EQU	\$CAIPL+4	ADDR OF ENTRY TO ABORT CURRENT
			1211+	*		* OP AND ENABLE IR
		04B4	1212+	\$CABLD EQU	\$CARPL+X'13'	ADDR OF ENTRY TO ABORT CURRENT O
		04BA	1213+	\$PAUSD EQU	\$CABLD+6	ADDR OF ENTRY OF ROUTINE TO
			1214+	*		* SWAP CORE
		04D6	1215+	\$RSTR EQU	\$PAUSD+X'1C'	ADDR OF ENTRY TO ENTRY CORE
			1216+	*		* FROM DISK
		04F2	1217+	\$PSDXR EQU	\$RSTR+X'1C'	ADDR OF SAVED XR IN NPAUSE
		04FA	1218+	\$PSDBR EQU	\$PSDXR+8	ADDR OF SAVED BR IN NPAUSE
		04FE	1219+	\$SRTRN EQU	\$RSTR+X'28'	ADDR OF RETURN ADDR FROM \$PAUSD
		050D	1220+	\$SFAID EQU	\$SRTRN+15	ADDR OF RETURN IF FE AID REQUEST
			1221+	*		* IF THE ABOVE TWO ADDRESSES ARE
			1222+	*		* EQUAL, RETURN TO \$RSTR WILL BE
			1223+	*		* BE FROM THE FE AID PROGRAM
		050E	1224+	\$CSDPL EQU	\$RSTR+X'38'	ADDR OF LEFT BYTE OF SAVE/RSTR D
		0511	1225+	\$SWPCR EQU	\$CSDPL+3	ADDR OF DKADDR, COUNT FOR CORE
			1226+	*		* SAVE AREA
		0517	1227+	\$EXADR EQU	\$SWPCR+6	ADDRR OF DK ADDR, COUNT OF EXEC
			1228+	*		* TIME MESSAGE PROGRAM
		051A	1229+	\$LOADR EQU	\$EXADR+3	ADDR OF ENTRY TO BLAST LOAD
			1230+	*		* PROGRAM NOT RESIDING ON CYL 4
			1231+	*		* RETURN IS TO CALLING PROGRAM
		051E	1232+	\$RLOAD EQU	\$LOADR+4	ADDR OF ENTRY TO BLAST LOAD
			1233+	*		* PROGRAM NOT RESIDING ON CYL 4
		0522	1234+	\$BLOAD EQU	\$RLOAD+4	ADDR OF ENTRY TO BLAST LOAD
			1235+	*		* PROGRAM RESIDING ON CYL 4
		054A	1236+	\$LOADB EQU	\$BLOAD+X'28'	ADDR OF SPECIAL ENTRY TO
			1237+	*		* NBLOAD FOR SFLOAD/SFFIND
			1238+	*		* AND FZPINV

@FXDEQ - FIXED ADDRESSES FOR SYSTEM NUCLEUS

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 28
		054E	1239+	\$TROVR EQU	\$BLOAD+X'2C'	ADDR OF FE TRACE INDR
			1240+*			* @NOP - NO TRACE PERFORMED
			1241+*			* @UCB - TRACE PERFORMED
		0550	1242+	\$BLRTN EQU	\$TROVR+2	ADDR OF RETURN POINT FROM ZTRACE
		0569	1243+	\$BLNOE EQU	\$BLRTN+X'19'	ADDR OF NO EXECUTE INDR-NBLOAD
			1244+*			* @NOP - CALLING PGM RETURNED TO
			1245+*			* @UCB - LOADED PROGRAM EXECUTED
			1246+*			* ENTRY TO \$LOADR SETS THE ABOVE
			1247+*			* INDR TO @NOP. IF THE CALLING
			1248+*			* SETS THE INDR TO @NOP BEFORE
			1249+*			* CALLING \$BLOAD, RETURN WILL BE
			1250+*			* MADE UPON COMPLETION OF THE
			1251+*			* ABSOLUE LOAD
		0571	1252+	\$LDRTN EQU	\$BLOAD+X'4F'	ADDR OF THE RETURN ADDR IN NBLOA
		0579	1253+	\$BLDPL EQU	\$BLOAD+X'57'	ADDR OF LEFT BYTE OF \$BLOAD'S
			1254+*			* DPL (DPL OF LAST PGM LOADED)
		057F	1255+	\$WAITF EQU	\$BLDPL+6	ADDR OF LEFT BYTE OF DISK
			1256+*			* WAIT AND CHECK ERRORS DPL
		0583	1257+	\$GUFIO EQU	\$WAITF+4	ADDR OF DK ADDR, COUNT OF GUFUDI
		0587	1258+	\$BSADR EQU	\$GUFIO+4	ADDR OF DADDR RELOCATION FACTOR
			1259+*			* FOR PGMS NOT RESIDING ON CYL 6
		0588	1260+	\$FEMAP EQU	\$BSADR+1	ADDR OF START OF CORE MAP
		05A2	1261+	\$ZTRAD EQU	\$FEMAP+X'1A'	ADDR OF ZTRACE DADDR
05FF			1263+	ORG	X'05FF'	
		05FF	1264+	\$IPLDV EQU	*	ADDR OF IPL INDR
			1265+*			* X'00' - IPL WAS FROM R1
			1266+*			* X'01' - IPL WAS FROM F1
		0600	1267+	\$ENDNU EQU	\$IPLDV+1	ADDR OF THE FIRST BYTE
			1268+*			* FOLLOWING SYSNUC
			1269+*		END OF FIXED ADDRESSES SYSTEM NUCLEUS EQUATES	
			1270+		PRINT ON	
			1271 *	@CAN	EXP-Y	
			1273+		PRINT ON	

@CANEQ - COMMON CORE LOCATIONS OUTSIDE NUCLEUS

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 03/05/20 PAGE 29
		1275+	*****		
		1276+	*	INPUT LINE HEADER	*
		1277+	*****		
0600		1278+	\$\$\$ILHD EQU	\$ENDNU	FIRST BYTE OF INPUT LINE HEADER
		1279+	*		
0601		1280+	\$\$\$ILEN EQU	\$\$\$ILHD+1	SECOND BYTE OF SDF LENGTH FIELD
		1281+	*		
0602		1282+	\$\$\$UPAR EQU	\$\$\$ILEN+1	UP ARROW LOCATION IN LAST LINE
		1283+	*		
0603		1284+	\$\$\$CKEY EQU	\$\$\$UPAR+1	CMD KEY FUNCTION CODE
		1285+	*		* EXECUTABLE CMD KEYS
0605		1286+	\$\$\$BNLN EQU	\$\$\$ILEN+4	SECOND BYTE OF BINARY LINE NO.
		1287+	*		
0606		1288+	\$\$\$TPCD EQU	\$\$\$BNLN+1	TYPE CODE FIELD
		1290+	*****		
		1291+	*	INPUT LINE TEXT	*
		1292+	*****		
0607		1293+	\$\$\$INLN EQU	\$\$\$TPCD+1	FIRST BYTE CHAR OF INPUT LINE
		1294+	*		
0666		1295+	\$\$\$CDND EQU	\$\$\$INLN+@CARDL-1	LAST CHAR OF CARD INPUT
		1296+	*		
06FA		1297+	\$\$\$INND EQU	\$\$\$INLN+@LINSZ-1	LAST CHAR OF INPUT LINE BUFFER
		1299+	*****		
		1300+	*	KEYBOARD ROUTINE LOCATIONS AND MASKS	*
		1301+	*****		
0890		1302+	\$\$\$PRES EQU	\$ENDNU+X'0290'	ENABLE KEYBOARD ENTRY TO DEPRES
		1303+	*		
09E1		1304+	\$\$\$KBDT EQU	\$\$\$PRES+X'0151'	DATA BYTE FROM KEYBOARD
0081		1305+	\$\$\$STD EQU	B'10000001'	CLI MASK FOR START KEY DATA
0091		1306+	\$\$\$EPL EQU	B'10010001'	CLI MASK FOR ENTER PLUS KEY
		1307+	*		
09E2		1308+	\$\$\$KBSN EQU	\$\$\$KBDT+1	TYPE BYTE FROM KEYBOARD
0040		1309+	\$\$\$DAT EQU	B'01000000'	TBM MASK FOR DATA KEY
0020		1310+	\$\$\$CMD EQU	B'00100000'	TBM MASK FOR COMMAND KEY
0010		1311+	\$\$\$FUN EQU	B'00010000'	TBM MASK FOR FUNCTION KEY
		1312+	*		
09EB		1313+	\$\$\$LPOS EQU	\$\$\$KBSN+9	PRINT HEAD POSITION ADDR
0AFE		1314+	\$\$\$EOSA EQU	\$\$\$PRES+X'026E'	LOCATION OF EOS ADDR
0B44		1315+	\$\$\$COFF EQU	\$\$\$PRES+X'02B4'	ENTRY TO TURN OFF CMD LIGHTS
0B3D		1316+	\$\$\$CKFF EQU	\$\$\$PRES+X'02AD'	ENTRY TO TURN OFF CMD LIGHTS 1-1
0BBF		1317+	\$\$\$DATB EQU	\$\$\$PRES+X'032F'	ADDR OF DATA TABLE TYPE INDR IN
		1318+	*		* DEPRES (VALUE: 1-9)
		1320+	*****		
		1321+	*	MATRIX PRINTER ROUTINE ENTRY POINT	*
		1322+	*****		
0707		1323+	\$\$\$PRNT EQU	\$ENDNU+X'0100'+@HDRLN	DPRINT ENTRY
0782		1324+	\$\$\$PRTN EQU	\$\$\$PRNT+X'007B'	ADDR OF CARRIER RETURN TEST IN
		1325+	*		* DPRINT. MASKS FOLLOE
		1326+	*		* @NOP - NO TEST MADE
		1327+	*		* @BNL - TEST WILL BE MADE
07CE		1328+	\$\$\$PSIO EQU	\$\$\$PRNT+X'00C7'	ADDR OF SIO CTRL IN DPRINT
07E9		1329+	\$\$\$PCNT EQU	\$\$\$PRNT+X'00E2'	ADDR OF PPL CNT IN DPRINT

@CANEQ - COMMON CORE LOCATIONS OUTSIDE NUCLEUS

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 30
			1331+	*****	*****	
			1332+	*	CARD READER LOCATIONS	*
			1333+	*****	*****	
0890		1334+	\$\$\$CDRD	EQU	\$\$PRES	ENTRY POINT TO READ CARDS
			1335+	*		
08C0		1336+	\$\$\$CDBS	EQU	\$\$\$CDRD+X'0030'	ENTRY POINT TO WAIT FOR READ
			1338+	*****	*****	
			1339+	*	CRT OUTPUT ROUTINE LOCATIONS	*
			1340+	*****	*****	
2000		1341+	\$\$\$PYMP	EQU	\$\$ZERO+X'2000'	ENTRY POINT TO CRT PLUS PRINT
			1342+	*		
2004		1343+	\$\$\$PLYN	EQU	\$\$\$PYMP+4	ENTRY POINT TO CRT ONLY
			1344+	*		
209C		1345+	\$\$\$CSNS	EQU	\$\$\$PYMP+X'009C'	LOCATION OF SENSE BYTE IN
			1346+	*		* DSPLYN
2143		1347+	\$\$\$PRFL	EQU	\$\$\$PYMP+X'0143'	ENTRY POINT FOR PRINTER FAILURE
			1348+	*		
2200		1349+	\$\$\$PYCD	EQU	\$\$\$PYMP+X'0200'	ENTRY POINT FOR COMMAND KEYS
			1350+	*		* OR CLEAR CRT FUNCTION
			1352+	*****	*****	
			1353+	*	MISCELLANEOUS LOCATIONS	*
			1354+	*****	*****	
1C00		1355+	\$\$\$ERSK	EQU	X'1C00'	START ADDR OF ERROR CODE STACK
00A0		1356+	\$\$\$NLN	EQU	X'00A0'	HIGH ORDER BYTE OF LINE NUMBER
			1357+	*		* IN STACK IF NO. NOT DESIRED
1C00		1358+	\$\$\$SLIB	EQU	X'1C00'	SECONDARY LINE INPUT BUFFER
06FF		1359+	\$\$\$XIND	EQU	\$\$ENDNU+X'00FF'	EXEC INDR PASS AREA
0080		1360+	\$\$\$ERN	EQU	B'10000000'	RUN FUNC SAVED FILE INDR MASK
1E00		1361+	\$\$\$WSPB	EQU	X'1E00'	LOCATION OF BAGETC BUFFER
06FF		1362+	\$\$\$FLIB	EQU	\$\$\$XIND	FILE LIB ADDR PASS AREA
1D00		1363+	\$\$\$FITS	EQU	X'1D00'	LOCATION OF FIT
			1365+	*****	*****	
			1366+	*	KEYWORD COMMAND LOAD ADDRESSES	*
			1367+	*****	*****	
0600		1368+	\$\$\$KLD1	EQU	\$\$ENDNU	PROGRAMS THAT LOAD BEHIND
			1369+	*		* SYSNUC
0700		1370+	\$\$\$KLD2	EQU	\$\$ENDNU+X'0100'	PROGRAMS THAT LOAD BEHIND
			1371+	*		* THE INPUT LINE BUFFER
0C00		1372+	\$\$\$KLD3	EQU	\$\$ENDNU+X'0600'	STANDARD LOAD ADDRESS BEHIND
			1373+	*		* I/O ROUTINES
			1374+	*	END OF COMMON CORE LOCATIONS EQUATES	
			1375+	*	PRINT ON	
			1376	*	@CY0 EXP-Y	
			1378+	*	PRINT ON	

@CY0EQ - CYLINDER ZERO EQUATES

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 31
					1380+*****	
					1381+* DISK TABLE EQUATES *	
					1382+*****	
0006		1383+	#VOLNG	EQU 6	LENGTH OF VOL ID	
0005		1384+	#VOLOC	EQU 5	DISPLACEMENT OF VOL ID ON SCTR	
0008		1385+	#VLTBE	EQU #VOLNG+2	LENGTH OF VOLID TABLE ENTRY	
					1387+*****	
					1388+* SDS (ERROR LOG) EQUATES *	
					1389+*****	
0003		1390+	#PKRTD	EQU 3	DISP TO END OF PK ERR/RATE ENTRY	
0003		1391+	#PKRDD	EQU 3	DISP TO RESPECTIVE READ COUNTER	
0001		1392+	#PKWDD	EQU 1	DISP TO RESPECTIVE WRITE COUNTER	
0002		1393+	#PKCNT	EQU 2	LENGTH OF IN-CORE COUNTERS	
002B		1394+	#PKMRW	EQU 43	DISP TO MASTER RD/WT COUNTERS	
000B		1395+	#PKVRD	EQU 11	DISP TO VOLUME RD COUNTERS IN SD	
0007		1396+	#PKVWD	EQU 7	DISP TO VOLUME WT COUNTERS IN SD	
0004		1397+	#PKRTL	EQU 4	LENGTH PACK ERROR RATE ENTRY	
0004		1398+	#PKWTL	EQU 4	LENGTH RD/WT ERROR RATE COUNTER	
0001		1400+	#CNDIS	EQU 1	SECTOR DISPLACEMENT OF	
		1401+*			* CONFIGURATION RECORD	
					1403+*****	
					1404+* ERROR HISTORY TABLE EQUATES *	
					1405+*****	
0008		1406+	#HISLN	EQU 8	LENGTH OF HISTORY TABLE ENTRY	
0002		1407+	#DKEXT	EQU #HISLN-#VOLNG	HIST LOG EXTENSION FOR DISK ERRO	
0001		1408+	#HSENT	EQU 1	DISP OF DISP TO NEXT OBR ENTRY	
0003		1409+	#HISDX	EQU 3	DISP OF DISP PAST LAST ENTRY	
0000		1410+	#HISTQ	EQU 0	DISP OF SIO Q BYTE	
0001		1411+	#HISTR	EQU 1	DISP OF SIO CNTL BYTE	
0003		1412+	#HISN1	EQU 3	DISP OF PRIMARY SENSE REG	
0005		1413+	#HISN2	EQU 5	DISP OF SECONDARY SENSE REG	
0006		1414+	#HISCT	EQU 6	DISP OF RETRY COUNT	
0007		1415+	#HSEND	EQU 7	DISP OF END OF 1ST ENTRY	
0007		1416+	#HISTC	EQU 7	DISP OF DCF F-BYTE	
0008		1417+	#HISTS	EQU 8	DISP OF DCF S-BYTE	
0009		1418+	#HISTN	EQU 9	DISP OF DCF N-BYTE	
000F		1419+	#HISTV	EQU 15	DISP OF DISK VOL-ID	
					1421+*****	
					1422+* CYLINDER ZERO DISK ADDRESSES *	
					1423+*****	
0010		1424+	#CORSV	EQU X'0010'	DADDR OF TEMP CORE SAVE AREA	
0005		1425+	#@CORS	EQU 5	SCTR COUNT TEMP CORE SAVE AREA	
009C		1426+	#NEROV	EQU X'009C'	DADDR OF NERLOG OVERLAY	
0003		1427+	#@NERO	EQU 3	SCTR COUNT NERLOG OVERLAY	
001D		1428+	#OBRAD	EQU X'001D'	DADDR OF OBR TABLE	
0002		1429+	#@OBRA	EQU 2	SCTR COUNT OF OBR	
000C		1430+	#VLSDR	EQU X'000C'	DADDR OF VOL STATISTICS SCTR R1	
0001		1431+	#@VLSD	EQU 1	SCTR COUNT OF VOL STATISTICS	
000D		1432+	#MVSDR	EQU X'000D'	DADDR OF MASTER VOL STAT SCTR	
0001		1433+	#@MVSD	EQU 1	SCTR COUNT OF MASTER VOL STAT	
0011		1434+	#SDRDK	EQU X'0011'	DADDR OF DISK SDR SCTR	
0019		1435+	#IOSDR	EQU X'0019'	DADDR OF NON-DISK SDR SCTR	

@CY0EQ - CYLINDER ZERO EQUATES

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 32
		0005	1436+	#CNFIG EQU	X'0005'	DADDR OF CONFIG RECORD
		0001	1437+	#FIGSC EQU	1	SCTR COUNT OF CONFIG RECORD
		0009	1438+	#VOLF1 EQU	X'0009'	DADDR OF VOLUME LABEL (F1)
		0008	1439+	#VOLR1 EQU	X'0008'	DADDR OF VOLUME LABEL (R1)
		0001	1440+	#@VLAB EQU	1	SCTR COUNT OF VOLUME LABEL
		0024	1441+	#VTCR1 EQU	X'0024'	DADDR OF R1 VTOC
		0025	1442+	#VTCF1 EQU	X'0025'	DADDR OF F1 VTOC
		0026	1443+	#VTCR2 EQU	X'0026'	DADDR OF R2 VTOC
		0027	1444+	#VTCF2 EQU	X'0027'	DADDR OF F2 VTOC
		0002	1445+	#@VCNT EQU	2	SCTR COUNT OF VTOC
		00DC	1446+	#PTFDA EQU	X'00DC'	DADDR OF PTF LOG
		0001	1447+	#@PTFS EQU	1	SCTR COUNT FOR PTF LOG
		0006	1448+	#@PTFL EQU	6	LENGTH OF ENTRY IN PTF LOG
			1449+*	END OF CYLINDER ZERO EQUATES		
			1450+	PRINT ON		

#EXMSG - PROGRAM INTERRUPTION PROCESSOR

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 03/05/20 PAGE 33
		1452		*****	*
		1453	*	5703-XM1 COPYRIGHT IBM CORP 1970	*
		1454	*	REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE. 120-2083	*
		1455	*		*
		1456		*****	*
		1457	*	*STATUS -	*
		1458	*	VERSION 1 MODIFICATION 0	*
		1459	*		*
		1460	*	*FUNCTION	*
		1461	*	* EXMSGs PROCESSES PROGRAM INTERRUPTIONS AND SUPPLIES THE USER	*
		1462	*	WITH A MESSAGE CONTAINING THE TYPE OF INTERRUPTION AND THE LINE	*
		1463	*	NUMBER AT WHICH THE PROGRAM WAS INTERRUPTED.	*
		1464	*	* THE TYPES OF INTERRUPTIONS HANDLED ARE:	*
		1465	*	1. CONSOLE INTERRUPT	*
		1466	*	2. PAUSE STATEMENT	*
		1467	*	3. STEP MODE	*
		1468	*	* AFTER THE RESPECTIVE MESSAGE IS PRINTED, THE PROGRAM LOOPS	*
		1469	*	WAITING FOR AN OPERATOR ENTRY FROM THE KEYBOARD. IF THE PROGRAM	*
		1470	*	START KEY IS HIT, CONTROL IS RETURNED TO THE POINT IN THE BASIC	*
		1471	*	PROGRAM WHERE THE PAUSE CONDITION OCCURRED. OTHERWISE, CONTROL	*
		1472	*	IS RETURNED TO THE NORMAL INPUT MODE WITH THE PAUSE STATE STILL	*
		1473	*	IN EFFECT.	*
		1474	*		*
		1475	*	*ENTRY POINTS	*
		1476	*	* THE ENTRY IS EXMSGs. THE BASE AND INDEX REGISTERS ARE SAVED AND	*
		1477	*	RESTORED ON RETURN. EXMSGs IS CALLED BY \$PAUSD.	*
		1478	*		*
		1479	*	*INPUT	*
		1480	*	* THE INPUT IS THE OPERATOR ENTRY FROM THE KEYBOARD.	*
		1481	*		*
		1482	*	*OUTPUT	*
		1483	*	THE OUTPUT IS THE PARTICULAR INTERRUPT MESSAGE.	*
		1484	*		*
		1485	*	*EXTERNAL REFERENCES	*
		1486	*	\$CIMSK - ADDRESS OF INQUIRY REQUEST	*
		1487	*	\$INDR3 - ADDRESS OF SYSTEM 1-BIT INDICATORS	*
		1488	*	4KEYCD - ADDRESS OF KEYBOARD INDICATORS	*
		1489	*	\$LOADR - ADDRESS OF ENTRY TO BLAST LOAD	*
		1490	*	\$SRTRN - ADDRESS OF RETURN ADDRESS FROM \$PAUSD	*
		1491	*	\$SFAID - ADDRESS OF RETURN IF FE AID REQUESTED	*
		1492	*	\$RLOAD - ADDRESS OF ENTRY TO BLAST LOAD PGM NOT RESIDING ON CYL4	*
		1493	*	\$SPRNT - ADDRESS OF ENTRY TO SYSTEM PRINTER IOCR	*
		1494	*	\$XIRD2 - ADDRESS OF EXECUTION INDRS	*
		1495	*	\$INLNO - ADDRESS OF EXECUTION LINE NUMBER	*
		1496	*	C2DEC5 - ENTRY POINT TO BINARY-DECIMAL CONVERSION ROUTINE	*
		1497	*	\$\$INND - ADDRESS OF LAST BYTE OF INPUT LINE BUFFER	*
		1498	*	\$IOIND - I/O STATUS INDICATOR	*
		1499	*	\$UNMSK - ADDRESS OF ENTRY TO UNMASK IR	*
		1500	*	\$\$PRES - ADDRESS OF ENTRY TO ENABLE KEYBOARD	*
		1501	*	SSKBSN - ADDRESS OF BYTE TO TEST FOR FUNCTION KEY	*
		1502	*	\$PRPOS - MATRIX PRINTER PRINT POSITION /MOD3E	*
		1503	*	\$LPPOS - LINE PRINTER PRINT POSITION /MOD3E	*
		1504	*	\$LPRP3 - LINE PRINTER INDICATORS /MOD3E	*
		1505	*	\$\$KBDT - ADDRESS OF BYTE TO TEST PROGRAM START KEY	*
		1506	*	\$XIND3 - ADDRESS OF EXECUTION INDRS	*
		1507	*	\$RSTR - ADDRESS OF ENTRY TO RESTORE CORE	*

#EXMSG - PROGRAM INTERRUPTION PROCESSOR

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 03/05/20 PAGE 34
		1508	*	\$INDR2 - ADDRESS OF SYSTEM 1-BIT INDRS	*
		1509	*	\$INDR3 - ADDRESS OF SYSTEM 1-BIT INDRS	*
		1510	*	\$CARPL - ADDRESS OF ENTRY TO ABORT CURRENT OPERATION	*
		1511	*		*
		1512	*	*EXITS, NORMAL	*
		1513	*	NORMAL EXIT IS TO SRSTR OR SCARP_ DEPENDING UPON WHETHER THE	*
		1514	*	OPERATOR RESPECTIVELY HITS THE PROGRAM START FIT OR NOT.	*
		1515	*		*
		1516	*	*EXITS, ERROR	*
		1517	*	NONE	*
		1518	*		*
		1519	*	*TABLES/NORK AREAS	*
		1520	*	* DPL LISTS TO LOAD IOCR ROUTINES.PRINT MESSAGES. AND LOAD FE	*
		1521	*	UTILITY AID PROGRAM ARE AT THE END OF THE EXECUTABLE CODE.	*
		1522	*		*
		1523	*	*ATTRIBUTES	*
		1524	*	* RELOCATABLE	*
		1525	*		*
		1526	*	*CHARACTER CODE DEPENDENCY	*
		1527	*	THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR	*
		1528	*	INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.	*
		1529	*		*
		1530	*	*NOTES	*
		1531	*	ERROR PROCEDURES	*
		1532	*	NONE	*
		1533	*		*
		1534	*	* REGISTER USAGE	*
		1535	*	INDEX REGISTER 1 (@BR) AND INDEX REGISTER 2 (@XR) ARE BOTH	*
		1536	*	SAVED AND RESTORED.	*
		1537	*		*
		1538	*	SAVED/RESTORED AREAS	*
		1539	*	NONE	*
		1540	*		*
		1541	*	MODIFICATION CONSIDERATIONS	*
		1542	*	NONE	*
		1543	*		*
		1544	*	REQUIRED MODULES	*
		1545	*	@SYSEQ - COMMON SYSTEM EQUATES	*
		1546	*	@SPFEQ - SYSTEM PROGRAM FILE EQUATES	*
		1547	*	@HDWEQ - SYSTEM HARDWARE EQUATES	*
		1548	*	@FXDEQ - SYSTEM NUCLEUS ADDRESSES AND INDICATOR VALUES EQUATES.	*
		1549	*	@CANEQ - SYSTEM LOCATION EQUATES	*
		1550	*	@CY0EQ - CYLINDER ZERO EQUATES	*
		1551	*	C2DEC5 - BINARY TO DECIMAL CONVERSION ROUTINE	*
		1552	*		*
		1553	*	OTHER	*
		1554	*	NONE	*
		1555	*	*****	*

#EXMSG - PROGRAM INTERRUPTION PROCESSOR

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 35
					1557	*	HDR IEXHSG,0	
					1558	*****		
					1559	*	PROGRAM HEADER FOR DISK LOAD	*
					1560	*****		
					1561	*#\$EXMS EQU	X'07D4'	DISK ADDR OF #EXMSG
					1562	*#\$EXM EQU	X'0C00'	CORE LOAD ADDRESS OF #EXMSG
					1563	*#\$@EXM EQU	003	SECTOR CNT OF #EXMSG
	0C00				1564	ORG	#\$EXM	CORE LOAD ADDRESS
				0C00	1565	\$\$\$\$\$ EQU	*	FIRST LOCATION IN PROGRAM
	0C00	7BC5E7D4E2C7		0C05	1566	DC	CL6'#EXMSG'	PROGRAM NAME
	0C06	30		0C06	1567	DC	IL1'048'	PROGRAM NUMBER OF #EXMSG
					1568	***	END OF EXPANSION ***	
	0C07	C0 87 0C61			1569	B	EXMSGs	BRANCH TO ENTRY POINT
					1570	*	MTEXT @@M010-@PRINT,@M011-@PRINT,@M012-@PRINT	
					1571	*****		
					1572	*	PPL'S AND TEXT FOR MESSAGE	*
					1573	*****		
	0C0B	40		0C0B	1574	@M010 DC	AL1(@PRINT)	PRINT CONTROL FUNCTION
	0C0C	18		0C0C	1575	DC	IL1'24'	LENGTH OF MESSAGE
	0C0D	0C17		0C0E	1576	DC	AL(@CADDR)(@T010)	ADDR OF MESSAGE
					1577	*		
	0C0F	40		0C0F	1578	@M011 DC	AL1(@PRINT)	PRINT CONTROL FUNCTION
	0C10	10		0C10	1579	DC	IL1'16'	LENGTH OF MESSAGE
	0C11	0C2F		0C12	1580	DC	AL(@CADDR)(@T011)	ADDR OF MESSAGE
					1581	*		
	0C13	40		0C13	1582	@M012 DC	AL1(@PRINT)	PRINT CONTROL FUNCTION
	0C14	13		0C14	1583	DC	IL1'19'	LENGTH OF MESSAGE
	0C15	0C3F		0C16	1584	DC	AL(@CADDR)(@T012)	ADDR OF MESSAGE
					1585	*		
				0C17	1586	@T010 EQU	*	LEFT BYTE OF MESSAGE
	0C17	C3D6D5E2D6D3C540		0C2E	1587	DC	CL024'CONSOLE INTERRUPT AFTER '	
					1588	*		
				0C2F	1589	@T011 EQU	*	LEFT BYTE OF MESSAGE
	0C2F	E2E3C5D740D4D6C4		0C3E	1590	DC	CL016'STEP MODE AFTER '	
					1591	*		
				0C3F	1592	@T012 EQU	*	LEFT BYTE OF MESSAGE
	0C3F	D7C1E4E2C540E2E3		0C51	1593	DC	CL019'PAUSE STATEMENT AT '	
					1595	*	PATCH AREA FOR MESSAGES	
	0C52			0C60	1596	\$\$\$001 DS	CL15	MSG EXPANSION PATCH AREA
					1597	***	END OF EXPANSION ***	
					1598	*		
					1599	*	INITIALIZATION	
					1600	*		
				0C61	1601	EXMSGs EQU	*	ENTRY POINT TO PROGRA
	0C61	34 02 0D28			1602	ST	EXM166+@OP1,@XR	SAVE INDEX REGISTER
	0C65	34 01 0D2C			1603	ST	EXM167+@OP1,@BR	SAVE BASE REGISTER
	0C69	3C 80 0476			1604	MVI	\$CIMSK,@NOP	MASK CONSOLE INTERRUPTS
	0C6D	3B 08 03E0			1605	SBF	\$DBGUF,\$CALLI	SET OFF 'CALL' INDR 1-4
	0C71	3B 10 03D6			1606	SBF	\$INDR3,\$CLBFR	SET OFF BUFFER CLEAR BIT
	0C75	3B 05 03C3			1607	SBF	\$KEYCD,\$CARDI+\$NOLST	SET OFF CARD INPUT INDR
	0C79	38 01 03E4			1608	TBN	\$LPRP3,@INDEX	TEST DUMMY PRINT POS. 1-3
	0C7D	F2 90 0A			1609	JF	EXM100	JUMP TRUE
	0C80	0C 00 03C2 03E5			1610	MVC	\$PRPOS(1),\$LPROS	RESTORE TRUE POSITION
	0C86	3B 01 03E4			1611	SBF	\$LPRP3,@INDEX	RESET DUMMY PRINT POS. 1-3
					1612	*		

#EXMSG - PROGRAM INTERRUPTION PROCESSOR

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 36
					1613	*	LOAD KEYBOARD-PRINT ROUTINES	
					1614	*		
0C8A	C0	87	051A		1615	EXM100	B \$LOADR	LOAD PROGRAM OFF DISK
0C8E	0D5D			0C8F	1616		DC AL2(EXMPRI)	DPL OF PARAMETER LIST
0C90	C2	01	0CD1		1617	EXM105	LA EXM140,@BR	POINT BR TO ORIGIN
				0CD1	1618		USING EXM140,@BR	BASE REGISTER DISPLACEMENT
					1619	*		
					1620	*	DETERMINE INTERRUPT SOURCE	
					1621	*		
0C94	0D	01	04FE 050D		1622	EXM110	CLC \$SRTRN(@CADDR),\$SFAID	TEST FOR F.E UTILITY AID CALL
0C9A	F2	01	06		1623		JNE EXM120	JUMP IF NOT F.E. AID
0C9D	C0	87	051E		1624		B \$RLOAD	LOAD F.E. UTILITY AID
0CA1	0D67			0CA2	1625		DC AL2(EXMRDL)	DPL OF PARAMETER LIST
0CA3	C0	87	0465		1626	EXM120	B \$SPRNT	CARRIAGE RETURN
0CA7	0D6F			0CA8	1627		DC AL2(EXMRGN)	DPL OF PARAMETER LIST
0CA9	38	02	03D1		1628		TBN \$XIND2,\$SPAUSE	SET ON PAUSE BIT
0CAD	F2	10	11		1629		JT EXM130	JUMP IF TRUE INDICATOR
0CB0	3A	02	03D1		1630		SBN \$XIND2,\$SPAUSE	SET ON SPAUSE INDICATOR
					1631	*		
					1632	*	PRINT 'CONSOLE INTERRUPT'	
					1633	*		
0CB4	C0	87	0465		1634	*	\$PRNT @@M010	PRINT MESSAGE
0CB8	0C0B			0CB9	1635		B \$SPRNT	PRINT ON SYSTEM PRINTER
					1636		DC AL2(@@M010)	PPL ADDRESS
					1637	***	END OF EXPANSION ***	
0CBA	3B	20	03C3		1638		SBF \$KEYCD,\$INRPT	SET OFF IR INTERPT IDR
0CBE	F2	87	16		1639		J EXM145	JUMP TO PROCESS LINE NUMBER
0CC1	38	08	03D1		1640	EXM130	TBN \$XIND2,\$PSTMT	DETERMINE IF PAUSE/STEP MODE
0CC5	F2	10	09		1641		JT EXM140	JUMP IF PAUSE STATEMENT
					1642	*		
					1643	*	PRINT 'STEP MODE'	
					1644	*		
					1645	*	\$PRNT @@M011	PRINT MESSAGE
0CC8	C0	87	0465		1646		B \$SPRNT	PRINT ON SYSTEM PRINTER
0CCC	0C0F			0CCD	1647		DC AL2(@@M011)	PPL ADDRESS
					1648	***	END OF EXPANSION ***	
0CCE	F2	87	06		1649		J EXM145	JUMP TO PROCESS LINE NUMBER
					1650	*		
					1651	*	PRINT 'PAUSE STATEMENT'	
					1652	**EXM140	\$PRNT @@M012	PRINT MESSAGE
0CD1	C0	87	0465		1653	EXM140	B \$SPRNT	PRINT ON SYSTEM PRINTER
0CD5	0C13			0CD6	1654		DC AL2(@@M012)	PPL ADDRESS
					1655	***	END OF EXPANSION ***	
					1656	*		
					1657	*	CONVERT LINE NUMBER	
					1658	*		
0CD7	C2	02	03CE		1659	EXM145	LA \$INLNO-1,@XR	POINT XR TO LINE NO.
0CDB	C0	87	0D71		1660		B C2DEC5	CONVERT LINE NO. TO DECIMAL
					1661	*		
					1662	*	PRINT CONVERTED LINE NUMBER	
					1663	*		
0CDF	C0	87	0465		1664	EXM150	B \$SPRNT	PRINT LINE NO.
0CE3	0D63			0CE4	1665		DC AL2(EXMPRN)	DPL OF PARAMETER LIST
0CE5	C0	87	0465		1666		B \$SPRNT	WAIT FUNCTION
0CE9	0D5C			0CEA	1667		DC AL2(EXMWIT)	DPI OF PARM LIST
					1668	*		

#EXMSG - PROGRAM INTERRUPTION PROCESSOR

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 37
					1669	*	ENABLE KEYBOARD AND WAIT FOR KEYBOARD INPUT.	
					1670	*	THEN DETERMINE IF KEYBOARD START KEY	
					1671	*		
	0CEB	3B	01	03D1	1672	SBF	\$XIND2,\$EXCMD	SET OFF EXEC MODE INDR
	0CEF	3C	40	06FA	1673	MVI	\$\$INND,@BLANK	CLEAR INPUT LINE BUFFER
	0CF3	0C	F2	06F9 06FA	1674	MVC	\$\$INND-1(\$\$INND-\$INLN),\$\$INND	BUFFER
	0CF9	3A	10	03D2	1675	SBN	\$IOIND,\$PGMST	SET SPGMST INDICATOR ON
	0CFD	3A	08	03C3	1676	SBN	\$KEYCD,\$GUFIR	SET ON GUFIR INTRP BIT
	0D01	C0	87	048D	1677	B	\$UNMSK	UNMASK KEYBOARD
	0D05	C0	87	0890	1678	B	\$\$PRES	KEYBOARD ENABLE
	0D09	3C	FF	09E2	1679	EXM155 MVI	\$\$KBSN,@DWAIT	SET BIT ZERO
	0D0D	3D	FF	09E2	1680	EXM160 CLI	\$\$KBSN,@DWAIT	TEST TYPE BYTE
	0D11	C0	81	0D0D	1681	BE	EXM160	NOT DETECTED
	0D15	38	10	09E2	1682	EXMI65 TBN	\$\$KBSN,\$\$\$FUN	TEST MASK FOR FUNCTION KEY
	0D19	C0	90	0D44	1683	BF	EXM170	BRANCH IF ZERO
	0D1D	3D	81	09E1	1684	CLI	\$\$KBDT,\$\$\$STD	TEST DATA BYTE FROM KEYBOARD
	0D21	C0	01	0D44	1685	BNE	EXM170	BRANCH IF ZERO
					1686	*		
					1687	*	RESTORE CORE AND CONTINUE EXECUTION	
					1688	*		
	0D25	C2	02	0000	1689	EXM166 LA	*-*,@XR	RESTORE INDEX REGISTER
	0D29	C2	01	0000	1690	EXM167 LA	*-*,@BR	RESTORE BASE REGISTER
	0D2D	3A	01	03D1	1691	SBN	\$XIND2,\$EXCMD	SET ON EXEC MODE INDR
	0D31	F3	10	1A	1692	SIO	X'1A',X'10'	
	0D34	35	C0	0D6E	1693	L	EXMLAB,@I1IAR	
	0D38	3A	10	03D6	1694	SBN	\$INDR3,\$CLBFR	SET ON BUFFER CLEAR BIT
	0D3C	3C	80	0476	1695	MVI	\$CIMSK,@NOP	MASK INTERRUPTS
	0D40	C0	87	04D6	1696	B	\$RSTR	RESTORE CORE FROM DISK
	0D44	3A	02	03C3	1697	EXM170 SBN	\$KEYCD,\$IOYES	SET ON I/O IN CORE
					1698	*		I/O ROUTINES ARE IN CORE
	0D48	3A	80	03D5	1699	SBN	\$INDR2,\$READY	SET ON READY BIT
	0D4C	3A	0A	03C3	1700	SBN	\$KEYCD,\$GUFIR+\$IOYES	SET GUFID INTRP BIT
	0D50	3A	08	03D6	1701	SBN	\$INDR3,\$NOENB	SET ON INDR IF NOT START KEY
	0D54	C0	87	048D	1702	B	\$UNMSK	UNMASK KEYBOARD
	0D58	C0	87	04A1	1703	B	\$CARPL	LOAD GUFUDI INTO CORE
					1704	*		
					1705	*	PARAMETER LIST TO LOAD KEYBOARD/PRINT ROUTINES	
					1706	*		
	0D5C	FF		0D5C	1707	EXMWIT DC	AL1(@DWAIT)	DPL OF FARM LIST
	0D5D	01		0D5D	1708	EXMPRI DC	AL1(@DGET)	READ FUNCTION
	0D5E	014C		0D5F	1709	DC	AL2(\$DPRI)	DISK ADDRESS
	0D60	05		0D60	1710	DC	AL1(\$@DPR)	SECTOR COUNT
	0D61	0700		0D62	1711	DC	AL2(\$KLD2)	DATA ADDRESS
					1712	*		
					1713	*	PARAMETER LIST FOR PRINTER ROUTINE	
					1714	*		
	0D63	C0		0D63	1715	EXMPRN DC	AL1(@PRETR)	PRINT AND CARRIAGE RETURN.
	0D64	04		0D64	1716	DC	AL1(EXMFIV-1)	LENGTH OF MESSAGE
	0D65	0DAC		0D66	1717	DC	AL2(C2DVAL-3)	DPL OF PAM LIST
					1718	*		
					1719	*	PARAMETER LIST TO LOAD F.E. UTILITY AID	
					1720	*		
	0D67	01		0D67	1721	EXMRDL DC	AL1(@DGET)	READ FUNCTION
	0D68	1C14		0D69	1722	DC	AL2(\$ZUTM)	DISK ADDRESS
	0D6A	14		0D6A	1723	DC	AL1(\$@ZUT)	SECTOR COUNT
	0D6B	0C00		0D6C	1724	DC	AL2(\$KLD3)	DATA ADDRESS

#EXMSG - PROGRAM INTERRUPTION PROCESSOR

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT VER 15, MOD 00 03/05/20 PAGE 38

0D6D 0483 0D6E 1725 EXMLAB DC AL2(\$CIENT)
0D6F 1726 EXMRGN EQU *
0D6F 8080 0D70 1727 DC 2AL1(@RETRN) CARRIAGE RETURN

1728 *
1729 * EQUATES USED IN EXMSGs
1730 *

0005 1731 EXMFIV EQU 5 LENGTH OF LINE NUMBER

#EXMSG - PROGRAM INTERRUPTION PROCESSOR

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 03/05/20 PAGE 39
					1733	*****	*****	
					1734	*	SERIALLY REUSABLE SUBROUTINE TO CONVERT A 2 BYTE BINARY VALUE TO A *	
					1735	*	5 BYTE POSITIVE DECIMAL NUMBER.	*
					1736	*	ON ENTRY @XR POINTS TO THE LEFT BYTE OF THE BINARY VALUE.	*
					1737	*	ON RETURN C2DVAL IS THE RIGHT BYTE OF THE FIVE BYTE DECIMAL VALUE	*
					1738	*	WITH LEADING ZEROS WHICH MAY BE MODIFIED BY THE USER IN ANY MAY IN *	*
					1739	*	ITS LOCATION. THE TWO BYTE BINARY VALUE IS NOT ALTERED.	*
					1740	*	@XR IS NOT ALTERED. @BR IS SAVED AND RESTORED.	*
					1741	*****	*****	
					1742	*C2DEC5	ENTER BASE.C2DECS,EXIT=C2D05,@BR,,@ARR	
				0D71	1743	USING	C2DEC5,@BR	BASE ADDRESS SPECIFICATION
				0D71	1744	C2DEC5	EQU *	MODULE ENTRY POINT
0D71	34	01	0DA5		1745	ST	C2D050+@OP1,@BR	SAVE @BR
0D75	C2	01	0D71		1746	LA	C2DEC5,@BR	LOAD BASE REGISTER
0D79	74	08	38		1747	ST	C2D052+@OP1(,@BR),@ARR	SAVE RETURN ADDRESS
					1748	***	END OF EXPANSION ***	
					1749	*	INITIALIZE DECIMAL INCREMENTER AND DECIMAL SUM TO 1 AND 0 RESP	
0D7C	54	90	43 39		1750	ZAZ	C2D903(C2D903-C2D901,@BR),C2D901(C2D902-C2D901,@BR)	
0D80	7C	01	17		1751	MVI	C2D030+@D1(,@BR),@B1	INITIALIZE DISP TO BYTE ONE
0D83	7C	01	16		1752	C2D020	MVI C2D030+@Q(,@BR),@B1	INIT TEST TO BIT 7
					1753	*		
0D86	B8	00	00		1754	C2D030	TBN *-*(,@XR),*-*	IF THIS BIT IS OFF
0D89	F2	90	04		1755	JF	C2D040	* BR AROUND SUM INCR
					1756	*	INCREMENT DECIMAL SUM BY DECIMAL VALUE OF THIS BIT	
0D8C	56	04	3E 43		1757	AZ	C2DVAL(C2D903-C2DVAL,@BR),C2D903(C2D903-C2DVAL,@BR)	
					1758	*	DOUBLE DECIMAL VALUE OF INCREMENT TO VALUE OF NEXT BIT	
0D90	56	04	43 43		1759	C2D040	AZ C2D903(C2D903-C2DVAL,@BR),C2D903(C2D903-C2DVAL,@BR)	
0D94	5E	00	16 16		1760	ALC	C2D030+@Q(1,@BR),C2D030+@Q(,@BR)	SHIFT BIT MASK LEFT ONE
0D98	D0	20	15		1761	BNOL	C2D030(,@BR)	CONTINUE LOOP UNLESS ALL BITS
					1762	*		
0D9B	5F	00	17 12		1763	SLC	C2D030+@D1(1,@BR),C2D020(,@BR)	DECR DISP TO BYTE 0
0D9F	D0	81	12		1764	BZ	C2D020(,@BR)	FALL THROUGH IF UNDERFLOW
					1765	*C2D05	EXIT @BR,,RETURN	
0DA2	C2	01	0000		1766	C2D050	LA *-*,@BR	RESTORE @BR
0DA6	C0	87	0000		1767	C2D052	B *-*	RETURN TO CALLING PROGRAM
					1768	***	END OF EXPANSION ***	
					1769	*		
					1770	*	WORK AREA	
					1771	*		
0DAA	F1			0DAA	1772	C2D901	DC DL1'1'	INIT WORK AREA
				0DAB	1773	C2D902	EQU *	FIRST BYTE OF DECIMAL VALUE
0DAB				0DAF	1774	C2DVAL	DS CL5	DECIMAL VALUE
0DB0				0DB4	1775	C2D903	DS CL5	INCREMENTER
					1776	*	PATCH	
					1777	*****	*****	
					1778	*	PATCH AREA 1	*
					1779	*****	*****	
					1780	*	CALCULATE AREA LEFT IN THIS SECTOR	
					1781	*		
				0DB5	1782	\$\$\$\$L1	EQU *	START PATCH AREA 1
0E00					1783	ORG	*,256,0	SET LOC CNTR TO NEXT SECTORSTART PATCH AREA 1
				0E00	1784	\$\$\$\$T1	EQU *	DEFINE ADDR OF SCTR BNDRY
0DB5					1785	ORG	\$\$\$\$L1	SET LOC CNTR OF START OF
					1786	*		* PATCH AREA
0DB5				0DF5	1787	\$\$\$\$\$1	DS CL(\$\$\$T1-\$\$\$\$L1)	PATCH AREA
					1788	***	END OF EXPANSION ***	

#EXMSG - PROGRAM INTERRUPTION PROCESSOR

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	03/05/20	PAGE	40
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		1789		PRINT ON	
		FFFF 1790		END	

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY = 0

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$\$\$\$\$\$	001	0C00	1565	
\$\$\$\$\$1	075	0DFF	1787	
\$\$\$\$L1	001	0DB5	1782	1785 1787
\$\$\$\$T1	001	0E00	1784	1787
\$\$\$CMD	001	0020	1310	
\$\$\$DAT	001	0040	1309	
\$\$\$EPL	001	0091	1306	
\$\$\$ERN	001	0080	1360	
\$\$\$FUN	001	0010	1311	1682
\$\$\$NLN	001	00A0	1356	
\$\$\$STD	001	0081	1305	1684
\$\$\$001	015	0C60	1596	
\$\$BNLN	001	0605	1286	1288
\$\$CDBS	001	08C0	1336	
\$\$CDND	001	0666	1295	
\$\$CDRD	001	0890	1334	1336
\$\$CKEY	001	0603	1284	
\$\$CKFF	001	0B3D	1316	
\$\$COFF	001	0B44	1315	
\$\$CSNS	001	209C	1345	
\$\$DATB	001	0BBF	1317	
\$\$EOSA	001	0AFE	1314	
\$\$ERSK	001	1C00	1355	
\$\$FITS	001	1D00	1363	
\$\$FLIB	001	06FF	1362	
\$\$ILEN	001	0601	1280	1282 1286
\$\$ILHD	001	0600	1278	1280
\$\$INLN	001	0607	1293	1295 1297 1674
\$\$INND	001	06FA	1297	1673* 1674 1674 1674*
\$\$KBDT	001	09E1	1304	1308 1684
\$\$KBSN	001	09E2	1308	1313 1679* 1680 1682
\$\$KLD1	001	0600	1368	
\$\$KLD2	001	0700	1370	1711
\$\$KLD3	001	0C00	1372	1724
\$\$LPOS	001	09EB	1313	
\$\$PCNT	001	07E9	1329	
\$\$PLYN	001	2004	1343	
\$\$PRES	001	0890	1302	1304 1314 1315 1316 1317 1334 1678
\$\$PRFL	001	2143	1347	
\$\$PRNT	001	0707	1323	1324 1328 1329
\$\$PRTN	001	0782	1324	
\$\$PSIO	001	07CE	1328	
\$\$PYCD	001	2200	1349	
\$\$PYMP	001	2000	1341	1343 1345 1347 1349
\$\$SLIB	001	1C00	1358	
\$\$TPCD	001	0606	1288	1293
\$\$UPAR	001	0602	1282	1284
\$\$WSPB	001	1E00	1361	
\$\$XIND	001	06FF	1359	1362
\$\$ZERO	001	0000	0874	0875 0877 0878 0879 0883 1341
\$ABORT	001	0010	0986	
\$BASIC	001	0080	1044	
\$BIGCD	001	0080	1120	
\$BLDPL	001	0579	1253	1255
\$BLNOE	001	0569	1243	
\$BLOAD	001	0522	1234	1236 1239 1252 1253

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$BLRTN	001	0550	1242	1243
\$BRSAV	001	03C5	0931	0932
\$BSADR	001	0587	1258	1260
\$BUFPT	001	03E3	1139	1140
\$CABLD	001	04B4	1212	1213
\$CAERK	001	0469	1189	1192
\$CAERR	001	03CD	0937	0939
\$CAIPL	001	049D	1208	1210
\$CALLI	001	0008	1129	1605
\$CARDI	001	0001	0900	1607
\$CARPL	001	04A1	1210	1212 1703
\$CIENT	001	0483	1199	1200 1725
\$CIEXT	001	0480	1198	1199
\$CIMSK	001	0476	1195	1198 1604* 1695*
\$CISUS	001	0496	1203	1208
\$CLBFR	001	0010	1087	1606 1694
\$CMDKY	001	0008	0999	
\$CMODE	001	0002	1049	
\$CONFG	001	03DD	1112	1122
\$CRPOS	001	03E2	1138	1139
\$CRTAD	001	044D	1177	1178
\$CRTAV	001	0002	0993	
\$CRTDN	001	0002	1017	
\$CRTIN	001	03D3	1014	1021
\$CRTNO	001	0004	0996	
\$CRTPU	001	0004	1018	
\$CRTSP	001	0008	1019	
\$CRTUP	001	0001	1016	
\$CRUSH	001	0080	1125	
\$CSDPL	001	050E	1224	1225
\$C0001	001	0464	1181	1187
\$DATE	001	043A	1162	1163
\$DBGUF	001	03E0	1124	1133 1605*
\$DBLOK	001	0001	1074	
\$DFDET	001	03E8	1145	1146
\$DISKN	001	0025	0877	
\$DKERR	001	0008	1055	
\$DKSIZ	001	03D7	1099	1107 1148
\$DK100	001	0001	1101	
\$DK200	001	0002	1102	
\$DK400	001	0004	1103	
\$DK600	001	0008	1104	
\$DK800	001	0010	1105	
\$DOLAR	001	005B	0068	
\$DPLSV	001	0449	1173	1175
\$DTNMB	001	0040	0920	
\$DTRDR	001	0040	1008	
\$ENDNU	001	0600	1267	1278 1302 1323 1359 1368 1370 1372
\$ERDPL	001	046F	1192	1194
\$ERFIL	001	0040	0947	
\$ERHRD	001	0004	1079	
\$ERKEY	001	0080	0951	
\$ERLOG	001	0345	0882	
\$ERMAD	001	0472	1194	1195
\$ERPND	001	0004	1052	
\$ERRCT	001	03CF	0953	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$ERRPG	001	03CE	0941	
\$ERSFL	001	0035	0946	
\$ERSTK	001	0030	0944	
\$ER050	001	0363	0883	
\$ER1N2	001	0050	0949	
\$EXADR	001	0517	1227	1229
\$EXCMD	001	0001	0981	1672 1691
\$EXFTR	001	043B	1163	1168
\$FCIND	001	0010	1059	
\$FDIND	001	0040	1066	
\$FEARR	001	0004	0875	
\$FEMAP	001	0588	1260	1261
\$FILIB	001	03DA	1110	1111
\$FITIN	001	0010	1035	
\$FUIND	001	0020	1064	
\$GUFIO	001	0583	1257	1258
\$GUFIR	001	0008	0909	1676 1700
\$HISTE	001	042E	1160	1161
\$HIST1	001	0435	1161	1162
\$HRDER	001	0020	1005	
\$INDR1	001	03D4	1021	1047
\$INDR2	001	03D5	1047	1072 1699*
\$INDR3	001	03D6	1072	1099 1606* 1694* 1701*
\$INLNO	001	03CF	0939	0941 0953 0960 1659
\$INRPT	001	0020	0917	1638
\$IOIND	001	03D2	0988	1014 1675*
\$IOPGS	001	0010	1128	
\$IOYES	001	0002	0903	1697 1700
\$IPLDV	001	05FF	1264	1267
\$IRKEY	001	0020	1127	
\$KEYBD	001	03E1	1133	1138
\$KEYCD	001	03C3	0897	0931 1607* 1638* 1676* 1697* 1700*
\$KEYDT	001	0040	1041	
\$KE090	001	00DE	0878	
\$KE130	001	01D5	0879	
\$KYBSY	001	0010	0914	
\$LDRTN	001	0571	1252	
\$LEVEL	001	03DF	1122	1124
\$LIST	001	0002	1076	
\$LMRGN	001	03C1	0892	0894
\$LNPTR	001	0080	1011	
\$LOADB	001	054A	1236	
\$LOADR	001	051A	1229	1232 1615
\$LPRIO	001	03E9	1146	
\$LPROS	001	03E5	1141	1143 1610
\$LPRP3	001	03E4	1140	1141 1608 1611*
\$MOUNT	001	0020	1090	
\$MPDWN	001	0001	0990	
\$NEXTB	001	03E6	1143	1144
\$NEXTL	001	03E7	1144	1145
\$NOENB	001	0008	1082	1701
\$NOLST	001	0004	0906	1607
\$NUCBS	001	03C0	0889	0890
\$NWRKF	001	0080	1095	
\$NWRKR	001	0040	1092	
\$PASWD	001	042D	1159	1160

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$PAUSD	001	04BA	1213	1215
\$PAUSE	001	0002	0983	1628 1630
\$PGMDT	001	0020	1038	
\$PGMST	001	0010	1002	1675
\$PKERT	001	0419	1157	1159
\$PLST1	001	0454	1178	1179
\$PLST2	001	045B	1179	1180
\$PLST3	001	0462	1180	1181
\$PRDEV	001	044B	1175	1177
\$PRESN	001	0002	1026	
\$PROCI	001	0001	1023	
\$PRPOS	001	03C2	0894	0897 1610*
\$PSDBR	001	04FA	1218	
\$PSDXR	001	04F2	1217	1218
\$PSTEP	001	0004	0984	
\$PSTMT	001	0008	0985	1640
\$PTCH1	001	03F5	1148	1152
\$READY	001	0080	1068	1699
\$REORD	001	0040	1126	
\$RLOAD	001	051E	1232	1234 1624
\$RMGRN	001	03C0	0890	0892
\$RSTR	001	04D6	1215	1217 1219 1224 1696
\$RUNIT	001	0001	0962	
\$SFAID	001	050D	1220	1622
\$SPRNT	001	0465	1187	1189 1626 1635 1646 1653 1664 1666
\$SRTRN	001	04FE	1219	1220 1622
\$STEPT	001	0002	0963	
\$SWPCR	001	0511	1225	1227
\$TABLN	001	03CB	0934	0937
\$TFLOW	001	0008	0969	
\$TRACE	001	0004	0964	
\$TRALL	001	0010	0970	
\$TROVR	001	054E	1239	1242
\$TRUNK	001	0080	0922	
\$TRVAR	001	0020	0971	
\$UNMSK	001	048D	1200	1203 1677 1702
\$USRDR	001	03DC	1111	1112
\$VMDEF	001	0080	0975	
\$VOLF1	001	03FE	1154	1155
\$VOLF2	001	040E	1156	
\$VOLID	001	03F6	1152	1153 1157
\$VOLR1	001	03F6	1153	1154
\$VOLR2	001	0406	1155	1156
\$WAITF	001	057F	1255	1257
\$WFDEF	001	0040	1169	
\$WFLOK	001	0008	1032	
\$WFNME	001	0443	1168	1173
\$WSIND	001	0004	1029	
\$XIND1	001	03D0	0960	0979
\$XIND2	001	03D1	0979	0988 1628 1630* 1640 1672* 1691*
\$XIND3	001	03D8	1107	1110
\$XPREC	001	0040	0972	
\$XRSAB	001	03C7	0932	0934
\$ZTRAD	001	05A2	1261	
\$12K	001	0004	1116	
\$16CKY	001	0008	1118	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$16K	001	0002	1115	
\$22IMP	001	0001	1113	
###BL	001	0000	0539	
###CK	001	0000	0667	
###CN	001	0000	0635	
###CO	001	0000	0427	
###CS	001	0000	0487	
###DR	001	0000	0231	
###ER	001	0000	0431	
###FS	001	0000	0527	
###IN	001	0000	0671	
###PW	001	0000	0675	
###RS	001	0000	0507	
###SA	001	0000	0495	
###SS	001	0000	0491	
###VU	001	0600	0451	
###0T	001	0700	0223	
###1T	001	0000	0227	
###BCO	001	0600	0239	
###BOV	001	0800	0511	
###DPR	001	0700	0247	
###DRE	001	0889	0263	
###DSP	001	2800	0283	
###ECM	001	0C00	0543	
###EFK	001	0C00	0563	
###ERR	001	0C00	0535	
###EXM	001	0C00	0423	1564
###FIL	001	0E00	0503	
###FIS	001	0E00	0499	
###FML	001	0200	0631	
###FMS	001	0200	0471	
###GRA	001	0889	0395	
###GUF	001	0C00	0531	
###INL	001	0600	0611	
###INS	001	0600	0235	
###KAL	001	0C00	0399	
###KCA	001	0C00	0615	
###KCH	001	0C00	0367	
###KCN	001	0C00	0483	
###KCT	001	0C00	0335	
###KDE	001	0C00	0331	
###KDI	001	0D00	0411	
###KDN	001	0C00	0319	
###KDO	001	0E00	0415	
###KED	001	0C00	0255	
###KEN	001	0C00	0259	
###KEX	001	0C00	0279	
###KGO	001	0C00	0251	
###KHE	001	0C00	0435	
###KKE	001	0C00	0663	
###KLI	001	0C00	0339	
###KLL	001	0920	0639	
###KLO	001	0C00	0343	
###KME	001	0D00	0323	
###KMO	001	0C00	0267	
###KNA	001	0C00	0379	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$\$\$KOV	001	0E00	0299	
\$\$\$KPA	001	0C00	0275	
\$\$\$KPO	001	0C00	0363	
\$\$\$KPR	001	0C00	0387	
\$\$\$KRE	001	0C00	0307	
\$\$\$KRL	001	0700	0403	
\$\$\$KRM	001	0C00	0271	
\$\$\$KRN	001	1000	0291	
\$\$\$KRO	001	0D00	0295	
\$\$\$KRS	001	0C00	0619	
\$\$\$KRU	001	0C00	0315	
\$\$\$KRV	001	0800	0407	
\$\$\$KSA	001	0C00	0351	
\$\$\$KSE	001	0E00	0391	
\$\$\$KSO	001	0C20	0443	
\$\$\$KSS	001	0C00	0375	
\$\$\$KSV	001	0980	0371	
\$\$\$KSY	001	0C00	0383	
\$\$\$KWI	001	0C00	0311	
\$\$\$KWR	001	0C00	0303	
\$\$\$LOA	001	0600	0243	
\$\$\$MIP	001	0C00	0439	
\$\$\$SDS	001	0C00	0551	
\$\$\$SFF	001	0E00	0555	
\$\$\$SFL	001	0F00	0547	
\$\$\$SFO	001	1500	0519	
\$\$\$SFS	001	0C00	0515	
\$\$\$SPA	001	0C00	0355	
\$\$\$SPO	001	0806	0359	
\$\$\$SPS	001	0C00	0347	
\$\$\$STR	001	1600	0523	
\$\$\$TDC	001	1000	0327	
\$\$\$TSY	001	1000	0287	
\$\$\$TVK	001	0FC0	0463	
\$\$\$UAL	001	0C00	0479	
\$\$\$UAT	001	0900	0575	
\$\$\$UCD	001	0900	0583	
\$\$\$UCN	001	0C00	0567	
\$\$\$UCP	001	0700	0571	
\$\$\$UDE	001	0C00	0587	
\$\$\$UDI	001	0C00	0591	
\$\$\$UEX	001	0C00	0475	
\$\$\$UIN	001	0C00	0579	
\$\$\$UPA	001	0C00	0559	
\$\$\$UPO	001	0C00	0627	
\$\$\$UPT	001	0C00	0623	
\$\$\$VCR	001	2000	0419	
\$\$\$VLO	001	0600	0455	
\$\$\$VOD	001	0600	0459	
\$\$\$VVM	001	0000	0467	
\$\$\$VXI	001	0600	0447	
\$\$\$ZDU	001	1100	0599	
\$\$\$ZLB	001	1100	0643	
\$\$\$ZLO	001	1100	0603	
\$\$\$ZLV	001	0F00	0659	
\$\$\$ZL1	001	0F00	0647	

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SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 03/05/20 PAGE 47

\$\$\$ZL2	001	0F00	0651	
\$\$\$ZL3	001	0C00	0655	
\$\$\$ZTR	001	1000	0595	
\$\$\$ZUT	001	0C00	0607	
\$\$#BLN	001	18D4	0538	
\$\$#CKT	001	2118	0666	
\$\$#CNF	001	2000	0634	
\$\$#COR	001	0800	0426	
\$\$#CSA	001	1000	0486	
\$\$#DRT	001	0000	0230	
\$\$#ERM	001	0928	0430	
\$\$#FSP	001	1880	0526	
\$\$#INV	001	212C	0670	
\$\$#PWR	001	2300	0674	
\$\$#RSP	001	1780	0506	
\$\$#SAV	001	1180	0494	
\$\$#SSA	001	1128	0490	
\$\$#VUF	001	0B08	0450	
\$\$#0TR	001	0000	0222	
\$\$#1TR	001	0080	0226	
\$\$@#BL	001	0001	0540	
\$\$@#CK	001	0004	0668	
\$\$@#CN	001	0001	0636	
\$\$@#CO	001	003A	0428	
\$\$@#CS	001	003A	0488	
\$\$@#DR	001	0008	0232	
\$\$@#ER	001	0032	0432	
\$\$@#FS	001	0030	0528	
\$\$@#IN	001	003A	0672	
\$\$@#PW	001	00C0	0676	
\$\$@#RS	001	0030	0508	
\$\$@#SA	001	0108	0496	
\$\$@#SS	001	0001	0492	
\$\$@#VU	001	0002	0452	
\$\$@#0T	001	0018	0224	
\$\$@#1T	001	0018	0228	
\$\$@BCO	001	0018	0240	
\$\$@BOV	001	0018	0512	
\$\$@DPR	001	0005	0248	1710
\$\$@DRE	001	0001	0264	
\$\$@DSP	001	0004	0284	
\$\$@ECM	001	0006	0544	
\$\$@EFK	001	0002	0564	
\$\$@ERR	001	0003	0536	
\$\$@EXM	001	0003	0424	
\$\$@FIL	001	0009	0504	
\$\$@FIS	001	0009	0500	
\$\$@FML	001	0052	0632	
\$\$@FMS	001	0052	0472	
\$\$@GRA	001	0003	0396	
\$\$@GUF	001	0010	0532	
\$\$@INL	001	0010	0612	
\$\$@INS	001	0010	0236	
\$\$@KAL	001	000F	0400	
\$\$@KCA	001	000C	0616	
\$\$@KCH	001	000C	0368	

CROSS REFERENCE

SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 03/05/20 PAGE 48

#\$@KCN	001	0010	0484	
#\$@KCT	001	0009	0336	
#\$@KDE	001	0010	0332	
#\$@KDI	001	0005	0412	
#\$@KDN	001	0010	0320	
#\$@KDO	001	000C	0416	
#\$@KED	001	000E	0256	
#\$@KEN	001	0006	0260	
#\$@KEX	001	0003	0280	
#\$@KGO	001	0002	0252	
#\$@KHE	001	000C	0436	
#\$@KKE	001	0006	0664	
#\$@KLI	001	0008	0340	
#\$@KLL	001	0001	0640	
#\$@KLO	001	0008	0344	
#\$@KME	001	0003	0324	
#\$@KMO	001	0004	0268	
#\$@KNA	001	0008	0380	
#\$@KOV	001	0009	0300	
#\$@KPA	001	0005	0276	
#\$@KPO	001	000D	0364	
#\$@KPR	001	0009	0388	
#\$@KRE	001	0002	0308	
#\$@KRL	001	0004	0404	
#\$@KRM	001	0003	0272	
#\$@KRN	001	0003	0292	
#\$@KRO	001	000A	0296	
#\$@KRS	001	000A	0620	
#\$@KRU	001	0003	0316	
#\$@KRV	001	000D	0408	
#\$@KSA	001	0004	0352	
#\$@KSE	001	0004	0392	
#\$@KSO	001	000D	0444	
#\$@KSS	001	000B	0376	
#\$@KSV	001	0002	0372	
#\$@KSY	001	000F	0384	
#\$@KWI	001	0002	0312	
#\$@KWR	001	0002	0304	
#\$@LOA	001	0013	0244	
#\$@MIP	001	000D	0440	
#\$@SDS	001	0004	0552	
#\$@SFF	001	0008	0556	
#\$@SFL	001	0005	0548	
#\$@SFO	001	0003	0520	
#\$@SFS	001	0011	0516	
#\$@SPA	001	0004	0356	
#\$@SPO	001	0003	0360	
#\$@SPS	001	0001	0348	
#\$@STR	001	0002	0524	
#\$@TDC	001	0003	0328	
#\$@TSY	001	0003	0288	
#\$@TVK	001	0001	0464	
#\$@UAL	001	0011	0480	
#\$@UAT	001	000C	0576	
#\$@UCD	001	000B	0584	
#\$@UCN	001	0009	0568	

CROSS REFERENCE

SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 03/05/20 PAGE 49

#\$@UCP 001 000F 0572
#\$@UDE 001 000E 0588
#\$@UDI 001 0008 0592
#\$@UEX 001 000E 0476
#\$@UIN 001 000F 0580
#\$@UPA 001 0004 0560
#\$@UPO 001 0005 0628
#\$@UPT 001 0012 0624
#\$@VCR 001 0008 0420
#\$@VLO 001 0002 0456
#\$@VOD 001 0016 0460
#\$@VVM 001 0030 0468
#\$@VXI 001 0002 0448
#\$@ZDU 001 0008 0600
#\$@ZLB 001 0002 0644
#\$@ZLO 001 000C 0604
#\$@ZLV 001 0006 0660
#\$@ZL1 001 0007 0648
#\$@ZL2 001 000D 0652
#\$@ZL3 001 000A 0656
#\$@ZTR 001 0001 0596
#\$@ZUT 001 0014 0608
#\$BCOM 001 0080 0238
#\$BOLV 001 1780 0510
#\$DPRI 001 014C 0246
#\$DREA 001 0200 0262
#\$DSPL 001 0240 0282
#\$ECMA 001 1900 0542
#\$EFKE 001 1990 0562
#\$ERRP 001 18C0 0534
#\$EXMS 001 07D4 0422
#\$FILN 001 1724 0502
#\$FIST 001 1700 0498
#\$FMLN 001 1E00 0630
#\$FMST 001 0D00 0470
#\$GRAP 001 0690 0394
#\$GUFU 001 1880 0530
#\$INLN 001 1C84 0610
#\$INST 001 0020 0234
#\$KALL 001 06A4 0398
#\$KCAL 001 1CC4 0614
#\$KCHA 001 053C 0366
#\$KCND 001 0F80 0482
#\$KCTL 001 03BC 0334
#\$KDEL 001 035C 0330
#\$KDIS 001 0744 0410
#\$KDNT 001 0300 0318
#\$KDOV 001 0780 0414
#\$KEDI 001 0188 0254
#\$KENA 001 01C4 0258
#\$KEXT 001 0234 0278
#\$KGOS 001 0180 0250
#\$KHEL 001 0A30 0434
#\$KKEY 001 2100 0662
#\$KLIS 001 0400 0338
#\$KLLA 001 2004 0638

1723

1709

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
#\$KLOG	001	0444	0342	
#\$KMER	001	030C	0322	
#\$KMOU	001	0204	0266	
#\$KNAM	001	05C0	0378	
#\$KOVN	001	0290	0298	
#\$KPAS	001	0220	0274	
#\$KPOO	001	0508	0362	
#\$KPRT	001	063C	0386	
#\$KREA	001	02BC	0306	
#\$KRLA	001	0700	0402	
#\$KRMO	001	0214	0270	
#\$KRNU	001	0280	0290	
#\$KROV	001	028C	0294	
#\$KRSU	001	1D24	0618	
#\$KRUN	001	02CC	0314	
#\$KRVL	001	0710	0406	
#\$KSAV	001	0488	0350	
#\$KSET	001	0680	0390	
#\$KSOV	001	0AC8	0442	
#\$KSSP	001	0594	0374	
#\$KSVL	001	058C	0370	
#\$KSYM	001	0600	0382	
#\$KWID	001	02C4	0310	
#\$KWRI	001	02B4	0302	
#\$LOAD	001	0100	0242	
#\$MIPP	001	0A80	0438	
#\$SDSY	001	192C	0550	
#\$SFFI	001	193C	0554	
#\$SFLO	001	1918	0546	
#\$SFOV	001	1844	0518	
#\$SFSY	001	1800	0514	
#\$SPAC	001	04CC	0354	
#\$SPOV	001	04DC	0358	
#\$SPSY	001	0484	0346	
#\$STRO	001	1850	0522	
#\$TDCK	001	0350	0326	
#\$TSYK	001	0250	0286	
#\$TVKB	001	0BAC	0462	
#\$UALL	001	0F00	0478	
#\$UATR	001	1A38	0574	
#\$UCDI	001	1AD8	0582	
#\$UCNF	001	19B8	0566	
#\$UCPL	001	19DC	0570	
#\$UDEL	001	1B24	0586	
#\$UDIS	001	1B5C	0590	
#\$UEXL	001	0EA8	0474	
#\$UINI	001	1A88	0578	
#\$UPAC	001	1980	0558	
#\$UPOV	001	1D24	0626	
#\$UPTF	001	1D5C	0622	
#\$VCRT	001	07B4	0418	
#\$VLOA	001	0B80	0454	
#\$VODK	001	0B88	0458	
#\$VVMR	001	0C00	0466	
#\$VXIT	001	0B00	0446	
#\$ZDUM	001	1BA4	0598	

CROSS REFERENCE

SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 03/05/20 PAGE 51

#\$ZLBM 001 2008 0642
#\$ZLOA 001 1BC4 0602
#\$ZLVR 001 20B0 0658
#\$ZL1M 001 2010 0646
#\$ZL2M 001 2030 0650
#\$ZL3M 001 2088 0654
#\$ZTRA 001 1B9C 0594
#\$ZUTM 001 1C14 0606
#@CORS 001 0005 1425
#@MVSD 001 0001 1433
#@NERO 001 0003 1427
#@OBRA 001 0002 1429
#@PTFL 001 0006 1448
#@PTFS 001 0001 1447
#@VCNT 001 0002 1445
#@VLAB 001 0001 1440
#@VLSD 001 0001 1431
#CNDIS 001 0001 1400
#CNFIG 001 0005 1436
#CORSV 001 0010 1424
#DKEXT 001 0002 1407
#EXMSG 001 0000 0001
#FIGSC 001 0001 1437
#HISCT 001 0006 1414
#HISDX 001 0003 1409
#HISLN 001 0008 1406
#HISN1 001 0003 1412
#HISN2 001 0005 1413
#HISTC 001 0007 1416
#HISTN 001 0009 1418
#HISTQ 001 0000 1410
#HISTR 001 0001 1411
#HISTS 001 0008 1417
#HISTV 001 000F 1419
#HSEND 001 0007 1415
#HSENT 001 0001 1408
#IOSDR 001 0019 1435
#MVSDR 001 000D 1432
#NEROV 001 009C 1426
#OBRAD 001 001D 1428
#PKCNT 001 0002 1393
#PKMRW 001 002B 1394
#PKRDD 001 0003 1391
#PKRTD 001 0003 1390
#PKRTL 001 0004 1397
#PKVRD 001 000B 1395
#PKVWD 001 0007 1396
#PKWDD 001 0001 1392
#PKWTL 001 0004 1398
#PTFDA 001 00DC 1446
#SDRDK 001 0011 1434
#VLSDR 001 000C 1430
#VLTBE 001 0008 1385
#VOLF1 001 0009 1438
#VOLNG 001 0006 1383
#VOLOC 001 0005 1384

1722

1407

1385 1407

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
#VOLR1	001	0008	1439	
#VTCF1	001	0025	1442	
#VTCF2	001	0027	1444	
#VTCR1	001	0024	1441	
#VTCR2	001	0026	1443	
@M010	001	0C0B	1574	1636
@M011	001	0C0F	1578	1647
@M012	001	0C13	1582	1654
@T010	001	0C17	1586	1576
@T011	001	0C2F	1589	1580
@T012	001	0C3F	1592	1584
@ALTFL	001	0001	0716	
@ARR	001	0008	0017	1747
@ASIGN	001	007C	0071	
@ASTER	001	005C	0069	
@BCRDL	001	0050	0088	
@BE	001	0081	0043	
@BF	001	0090	0052	
@BH	001	0084	0041	
@BKSPC	001	0010	0812	
@BL	001	0082	0042	
@BLANK	001	0040	0065	1673
@BM	001	0082	0054	
@BNE	001	0001	0046	
@BNH	001	0004	0044	
@BNL	001	0002	0045	
@BNM	001	0002	0057	
@BNOL	001	0020	0050	
@BNOZ	001	0008	0049	
@BNP	001	0004	0056	
@BNZ	001	0001	0058	
@BOL	001	00A0	0048	
@BOZ	001	0088	0047	
@BP	001	0084	0053	
@BR	001	0001	0014	1603 1617* 1618 1690* 1743 1745 1746* 1747 1750 1750 1751 1752 1757 1757 1759 1759 1760 1760 1761 1763 1763 1764 1766*
@BT	001	0010	0051	
@BZ	001	0081	0055	
@BZ37B	001	00F2	0825	
@B1	001	0001	0063	1751 1752
@CADDR	001	0002	0141	1576 1580 1584 1622
@CARDL	001	0060	0087	1295
@CC37B	001	0000	0821	
@CD37B	001	00F0	0839	
@CHARA	001	00C1	0072	
@CHARF	001	00C6	0073	
@CHARR	001	00D9	0074	
@CHARZ	001	00E9	0075	
@CKY01	001	0001	0774	
@CKY02	001	0002	0775	
@CKY03	001	0003	0776	
@CKY04	001	0004	0777	
@CKY05	001	0005	0778	
@CKY06	001	0006	0779	
@CKY07	001	0007	0780	
@CKY08	001	0008	0781	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@CKY09	001	0009	0782	
@CKY10	001	000A	0783	
@CKY11	001	000B	0784	
@CKY12	001	000C	0785	
@CKY13	001	000D	0786	
@CKY14	001	000E	0787	
@CKY15	001	000F	0788	
@CKY16	001	0010	0789	
@CLOFF	001	0010	0094	
@CLON	001	0011	0093	
@CMLON	001	0001	0792	
@CMOFF	001	0000	0791	
@COMMA	001	006B	0066	
@CPLUS	001	004E	0079	
@CP37B	001	0004	0852	
@CRERR	001	0090	0807	
@CRPRY	001	0004	0811	
@CRTDS	001	0092	0804	
@CRTQ	001	0090	0806	
@CURSR	001	0040	0808	
@DADDR	001	0002	0139	
@DBFR1	001	0004	0128	
@DBFR2	001	0005	0129	
@DBUSY	001	0002	0710	
@DCALK	001	0001	0081	
@DCBCY	001	0009	0114	
@DCBT1	001	0050	0116	
@DCFLN	001	0004	0694	
@DCNT	001	0003	0127	
@DCRID	001	0001	0708	
@DCST1	001	0040	0115	
@DCTRL	001	0000	0124	
@DCTRW	001	0000	0707	
@DCWID	001	0001	0704	
@DCYL	001	0001	0125	
@DCYMV	001	0001	0695	
@DD2	001	0003	0030	
@DEFLG	001	0002	0717	
@DERCE	001	0020	0747	
@DERD2	001	0008	0740	
@DEREQ	001	0010	0739	
@DERIN	001	0040	0737	
@DERMA	001	0020	0738	
@DERNR	001	0004	0741	
@DERR	001	0000	0711	
@DERSC	001	0001	0743	
@DERTC	001	0002	0742	
@DFCR	001	0006	0697	
@DFDR	001	0004	0698	
@DGET	001	0001	0133	1708 1721
@DHARD	001	0000	0725	
@DLNCT	001	000F	0810	
@DLNLG	001	0040	0809	
@DOP2	001	0004	0028	
@DPLNG	001	0006	0131	
@DPOS	001	0000	0132	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@DPUT	001	0002	0134	
@DREAD	001	0001	0701	
@DSAD	001	0002	0126	
@DSBCY	001	0004	0105	
@DSBSY	001	0092	0805	
@DSCS1	001	0000	0106	
@DSEEK	001	0000	0700	
@DSIVF	001	0003	0137	
@DSPIN	001	0002	0130	
@DTRSZ	001	0018	0085	
@DUNSF	001	0080	0736	
@DVBCY	001	0007	0107	
@DVERY	001	0003	0706	
@DVRFY	001	0031	0135	
@DVST1	001	0002	0712	
@DVST2	001	0003	0713	
@DWAIT	001	00FF	0136	1679 1680 1707
@DWBCY	001	0005	0102	
@DWRIT	001	0002	0702	
@DWSIZ	001	00C0	0104	
@DWTB1	001	0003	0103	
@DZERO	001	00F0	0064	
@D1	001	0002	0026	1751* 1763*
@EOF	001	001C	0077	
@EOFTC	001	0075	0160	
@EOS	001	001E	0076	
@ER37B	001	00F0	0826	
@FDDBC	001	0000	0193	
@FDE1	001	000C	0198	
@FDFNA	001	000B	0196	
@FDHLN	001	0002	0206	
@FDLNC	001	0002	0191	
@FDNSC	001	0003	0208	
@FDSD	001	0000	0204	
@FLACE	001	0009	0195	
@FLDBC	001	0001	0194	
@FLDIN	001	0012	0799	
@FLENT	001	0004	0199	
@FLFNA	001	0002	0197	
@FLHLN	001	0002	0207	
@FLLNC	001	0002	0192	
@FLNSC	001	0001	0209	
@FLSD	001	0001	0205	
@HDRLN	001	0007	0092	1323
@HSTAD	001	0009	0723	
@HSTEN	001	0007	0722	
@HSTPE	001	0006	0721	
@HSTQR	001	0001	0719	
@HSTSN	001	0005	0720	
@HSTVI	001	000F	0724	
@IAR	001	0010	0018	
@ID37B	001	0040	0862	
@INDEX	001	0001	0154	0155 1608 1611
@INST3	001	0003	0032	
@INST4	001	0004	0033	
@INST5	001	0005	0034	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@INST6	001	0006	0035	
@IP37B	001	00C0	0861	
@I1IAR	001	00C0	0020	1693*
@KCMDK	001	0020	0773	
@KELOK	001	001B	0772	
@KENAB	001	001E	0770	
@KEXIT	001	001F	0771	
@KEYBD	001	0010	0790	
@KFUNK	001	0010	0793	
@KHARD	001	0011	0798	
@KLEAR	001	000D	0794	
@LINSZ	001	00F4	0084	1297
@LO37B	001	00F0	0830	
@MAPEN	001	0005	0089	
@MINCR	001	2000	0083	
@MINUS	001	0060	0080	
@NOP	001	0080	0040	1604 1695
@NORFL	001	0000	0718	
@NTRDY	001	00A0	0854	
@NUMBR	001	007B	0070	
@OPD2	001	0004	0029	
@OP1	001	0003	0027	1602* 1603* 1745* 1747*
@OP2	001	0005	0031	
@OVRUN	001	0004	0748	
@PBUSY	001	00E2	0760	
@PCAR	001	00E6	0757	
@PCNT	001	0003	0692	
@PCTRL	001	0000	0147	
@PCYL	001	0001	0690	
@PC37B	001	00F2	0846	
@PDAR	001	00E4	0756	
@PDATA	001	0003	0149	
@PD37B	001	0080	0860	
@PERR	001	00E0	0763	
@PFLAG	001	0000	0689	
@PFORM	001	00E1	0761	
@PGCSZ	001	0020	0082	0083
@PLITE	001	00E2	0762	
@PLNGH	001	0004	0753	
@PMGCK	001	0020	0764	
@PN37B	001	00F0	0845	
@PPLNG	001	0004	0146	
@PRCNT	001	0001	0148	
@PRETR	001	00C0	0152	1715
@PRINT	001	0040	0150	0152 1574 1578 1582
@PRITY	001	0080	0797	
@PSAD	001	0002	0691	
@PSIOQ	001	00E0	0759	
@PSIOR	001	0000	0758	
@PSNSQ	001	00E2	0765	
@PSR	001	0004	0016	
@PWAIT	001	00FF	0156	
@P1IAR	001	0020	0019	
@Q	001	0001	0024	1752* 1760 1760*
@RD37B	001	00F1	0840	
@REGL	001	0002	0013	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@RETRN	001	0080	0151	0152 1727
@RLDWN	001	004F	0157	
@RTCNT	001	0003	0755	
@RTRNC	001	0080	0159	
@RT37B	001	0005	0853	
@SBLNL	001	0002	0182	
@SCTSZ	001	0100	0099	
@SDFLN	001	0007	0090	
@SDF0	001	0000	0164	
@SDF1	001	0001	0165	
@SDF2	001	0002	0166	
@SDF3	001	0003	0167	
@SDLN	001	0005	0168	
@SECCY	001	0030	0086	
@SIST	001	0001	0179	
@SKCTL	001	0000	0705	
@SLASH	001	0061	0067	
@SLAST	001	0002	0181	
@SMIDL	001	0003	0180	
@SNSB0	001	0000	0729	
@SNSB1	001	0001	0730	
@SNSB2	001	0002	0731	
@SNSB3	001	0003	0732	
@SNULL	001	0080	0171	
@SN37B	001	00F2	0834	
@SONLY	001	0000	0178	
@SPINA	001	00A0	0714	
@SPINB	001	00B0	0715	
@STEXT	001	0007	0170	
@STYPE	001	0006	0169	
@SYCNT	001	0002	0754	
@SYLVL	001	0004	0220	
@TBCNT	001	0000	0158	
@TBLEF	001	0010	0153	0155
@TBLIX	001	0011	0155	
@TJ37B	001	0040	0851	
@TYPAM	001	0002	0796	
@TYPO	001	001C	0795	
@UCB	001	0087	0039	
@UPARW	001	005A	0078	
@VADDR	001	0002	0140	
@VENTA	001	0056	0112	
@VMDDV	001	00FE	0113	
@VMFD1	001	0000	0108	
@VMFD2	001	0001	0109	
@VMRS3	001	0002	0111	
@VMTRL	001	0001	0110	
@VOLID	001	0006	0091	
@VQ	001	0001	0025	
@WA37B	001	00FF	0859	
@WSFIT	001	0500	0100	
@WSTBL	001	0503	0101	
@XR	001	0002	0015	1602 1659* 1689* 1754
@ZERO	001	0000	0062	
@4K	001	0010	0813	
C2DEC5	001	0D71	1744	1660 1743 1746

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C2DVAL	005	0DAF	1774	1717	1757	1757	1757*	1759	1759				
C2D020	003	0D83	1752	1763	1764								
C2D030	003	0D86	1754	1751*	1752*	1760	1760*	1761	1763*				
C2D040	004	0D90	1759	1755									
C2D050	004	0DA2	1766	1745*									
C2D052	004	0DA6	1767	1747*									
C2D901	001	0DAA	1772	1750	1750	1750							
C2D902	001	0DAB	1773	1750									
C2D903	005	0DB4	1775	1750	1750*	1757	1757	1757	1759	1759	1759	1759*	
EXMFIV	001	0005	1731	1716									
EXMI65	004	0D15	1682										
EXMLAB	002	0D6E	1725	1693									
EXMPRI	001	0D5D	1708	1616									
EXMPRN	001	0D63	1715	1665									
EXMRDL	001	0D67	1721	1625									
EXMRGN	001	0D6F	1726	1627									
EXMSGs	001	0C61	1601	1569									
EXMWIT	001	0D5C	1707	1667									
EXM100	004	0C8A	1615	1609									
EXM105	004	0C90	1617										
EXM110	006	0C94	1622										
EXM120	004	0CA3	1626	1623									
EXM130	004	0CC1	1640	1629									
EXM140	004	0CD1	1653	1617	1618	1641							
EXM145	004	0CD7	1659	1639	1649								
EXM150	004	0CDF	1664										
EXM155	004	0D09	1679										
EXM160	004	0D0D	1680	1681									
EXM166	004	0D25	1689	1602*									
EXM167	004	0D29	1690	1603*									
EXM170	004	0D44	1697	1683	1685								

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY = 0

OL105 I THE CODE LENGTH OF #EXMSG IS 3584 DECIMAL.
OL103 I TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS 3
 NAME-#EXMSG,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-R,CATEGORY-000

START ADDRESS	CATEGORY	NAME AND ENTRY	CODE LENGTH HEXADECIMAL	DECIMAL
0C00	0	#EXMSG	0E00	3584
OL100	I	THE TOTAL CORE USED BY #EXMSG IS 3584 DECIMAL.		
OL101	I	THE START CONTROL ADDRESS OF THIS MODULE IS 0C00.		
OL104	I	TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS 15		
		NAME-#EXMSG,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-O		