

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

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



0000	1	#KDOVR	START	0
	2	*	@SYS	EXP-N
	213	+	PRINT	ON
	214	*	@FXD	EXP-N
	619	+	PRINT	ON
	620	*	@HDW	EXP-N
	805	+	PRINT	ON
	806	*	@CAN	EXP-N
	909	+	PRINT	ON
	910	*	@SPF	EXP-N
	1373	+	PRINT	ON
	1374	*	@ERM	EXP-N
	1996	+	PRINT	ON
	1997	*	@B@E	EXP-N
	2897	+	PRINT	ON
	2898	*	\$I\$E	EXP-N
	3052	+	PRINT	ON
	3053	*	\$V\$E	EXP-N
	3476	+	PRINT	ON

## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 11/02/22 PAGE 3
		3478		*****	
		3479	*	5703-XM1 COPYRIGHT IBM CORP. 1970	*
		3480	*	REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083	*
		3481	*		*
		3482		*****	
		3483	*	*STATUS -	*
		3484	*	VERSION 1 MODIFICATION 0	*
		3485	*		*
		3486	*	*FUNCTION -	*
		3487	*	* EACH SPECIFIED VARIABLE OR ARRAY ELEMENT SYMBOL IS CONVERTED	*
		3488	*	TO A VIRTUAL ADDRESS	*
		3489	*	* THE ELEMENT VALUE AT THIS ADDRESS IS RETRIEVED FROM VIRTUAL	*
		3490	*	MEMORY AND CONVERTED TO A DISPLAY FORMAT	*
		3491	*	* THE DISPLAY FORMAT IS OUTPUT ON A SYSTEM OUTPUT DEVICE	*
		3492	*		*
		3493	*	*ENTRY POINTS -	*
		3494	*	* KDOVRL HAS ONLY ONE ENTRY POINT, KDOVRL, THE FIRST EXECUTABLE	*
		3495	*	INSTRUCTION	*
		3496	*	* THE CALLING SEQUENCE IS	*
		3497	*	B \$RLOAD	*
		3498	*	DC AL2'DPL'	*
		3499	*	WHERE DPL IS THE PARAMETER LIST THAT CONTAINS THE PARAMETERS	*
		3500	*	NECESSARY FOR \$RLOAD TO GET KDOVRL FROM DISK	*
		3501	*		*
		3502	*	*INPUT -	*
		3503	*	* PRIMARY INPUT BUFFER - 256 BYTES, CONTAINS THE DISPLAY	*
		3504	*	COMMAND LINE AS ENTERED	*
		3505	*	* SYMBOL AND ARRAY TABLES	*
		3506	*	* LETTER VARIABLE TABLE (LVT) - 58 BYTES, 29 2-BYTE ENTRIES	*
		3507	*	* LETTER DIGIT TABLE (LDT) - 580 BYTES, 290 2-BYTE ENTRIES	*
		3508	*	* CHARACTER VARIABLE TBL (CVT) - 58 BYTES, 29 2-BYTE ENTRIES	*
		3509	*	* ARITHMETIC ARRAY TABLE (NAT) - 58 BYTES. 29 2-BYTE ENTRIES	*
		3510	*	* CHARACTER ARRAY TABLE (CVT) - 58 BYTES, 29 2-BYTE ENTRIES	*
		3511	*	* FUNCTION AND ARRAY TABLE (FAT)	*
		3512	*	* ARITHMETIC ARRAY DOPE VECTORS - 29 8-BYTE ENTRIES	*
		3513	*	* CHARACTER ARRAY DOPE VECTORS - 29 4-BYTE ENTRIES	*
		3514	*	* VIRTUAL MEMORY - CONTAINS THE PROGRAM VARIABLES THAT ARE TO BE	*
		3515	*	DISPLAYED	*
		3516	*	* DISPLAY COMMON PARAMETER BLOCK - 256 BYTES	*
		3517	*		*
		3518	*	*OUTPUT -	*
		3519	*	* SPECIFIED DATA ELEMENTS ARE DISPLAYED ON A SYSTEM OUTPUT	*
		3520	*	DEVICE	*
		3521	*		*
		3522	*	*EXTERNAL REFERENCES	*
		3523	*	\$XIND1 - PRIMARY EXECUTION INDICATOR	*
		3524	*	DLPTYP - DEVICE SPECIFICATION PARAMETER FOR DLPRNT	*
		3525	*	\$CAERK - SYSTEM ERROR MESSAGE ENTRY	*
		3526	*	\$CAERR - SCAERK ERROR CODE PARAMETER	*
		3527	*	\$CARPL - NORMAL SYSTEM ENTRY POINT	*
		3528	*	\$DISKN - SYSTEM DISK IOCR	*
		3529	*	DL4ICS - 4-TRACK LIOCS	*
		3530	*	DLPRNT - PRINTER/CRT OUTPUT ROUTINE	*
		3531	*	SCANIT - COMMAND LINE DELIMITER SCAN ROUTINE	*
		3532	*	SCAMMA - SCANIT COMMA SCAN PARAMETER	*
		3533	*	SCACNT - SCANIT DELIMITER CHARACTER COUNT	*

## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 11/02/22 PAGE 4
		3534	*	SCKOUT - OUTPUT DEVICE SPECIFICATION SCAN ROUTINE	*
		3535	*	C4BIN2 - DECIMAL TO BINARY CONVERSION ROUTINE	*
		3536	*	C4BVAL - BINARY VALUE OUTPUT FROM C4BIN2	*
		3537	*	C2DEC5 - BINARY TO DECIMAL CONVERSION ROUTINE	*
		3538	*	C2DVAL - DECIMAL VALUE OUTPUT FROM C2DEC5	*
		3539	*		*
		3540	*	*EXITS, NORMAL -	*
		3541	*	* KDOVRL HAS ONLY 1 NORMAL EXIT	*
		3542	*	\$CARPL - AFTER DISPLAY COMMAND EXECUTION	*
		3543	*		*
		3544	*	*EXITS, ERROR -	*
		3545	*	NONE	*
		3546	*		*
		3547	*	*TABLES/WORK AREA	*
		3548	*	* PRIMARY INPUT BUFFER	*
		3549	*	* SYMBOL AND ARRAY TABLES (SEE INPUT FOR FORMAT)	*
		3550	*	* FUNCTION AND ARRAY TABLES (SEE INPUT FOR FORMAT)	*
		3551	*	* ALPHABETIC SYMBOL TABLE - 29 BYTES, CONTAINS EVERY LETTER IN	*
		3552	*	THE STANDARD ALPHABET, PLUS \$, #, @.	*
		3553	*	* VIRTUAL MEMORY BUFFER - 1 SECTOR	*
		3554	*	* OUTPUT FORMAT BUFFER - 45 BYTES, FOR OUTPUT FIELD	*
		3555	*		*
		3556	*	*ATTRIBUTES -	*
		3557	*	NONE	*
		3558	*		*
		3559	*	*CHARACTER CODE DEPENDENCY	*
		3560	*	THE OPERATION OF THIS MODULE DEPENDS UPON THE FOLLOWING	*
		3561	*	PROPERTIES OF THE INTERNAL REPRESENTATION OF THE EXTERNAL	*
		3562	*	CHARACTER SET	*
		3563	*	* MOST CODING HAS BEEN ARRANGED SO THAT REDEFINITION OF	*
		3564	*	CHARACTER CONSTANTS, BY REASSEMBLY, WILL RESULT IN A CORRECT	*
		3565	*	MODULE FOR THE NEW DEFINITION	*
		3566	*	* ALPHABETIC LETTERS A THROUGH I ARE PRESUMED TO BE CODED IN	*
		3567	*	INCREASING COLLATING SEQUENCE, AND THE RANGE OF CHARACTER	*
		3568	*	CONSTANTS FOR THIS SERIES IS EXPECTED TO EXCLUDE ALL NUMERIC	*
		3569	*	CHARACTER CONSTANTS	*
		3570	*	* NUMERIC CHARACTERS 0 - 9 ARE PRESUMED TO BE CODED IN	*
		3571	*	INCREASING COLLATING SEQUENCE	*
		3572	*	A EXTENDED ALPHABETIC LETTERS (\$, #, @) ARE PRESUMED TO BE	*
		3573	*	IN INCREASING COLLATING SEQUENCE, AND ARE ALL EXPECTED TO	*
		3574	*	COLLATE LOWER THAN LETTER (A)	*
		3575	*	* DECIMAL NUMBERS MUST BE CODED SO THAT THE LOW ORDER FOUR	*
		3576	*	BITS, WHEN CONSIDERED AS A BINARY INTEGER, IDENTIFY THE	*
		3577	*	VALUE OF THE DIGIT	*
		3578	*	THE SPECIFIC INSTRUCTIONS (INSTRUCTION SEQUENCES) WHICH REQUIRE	*
		3579	*	MODIFICATION IF THESE PROPERTIES OF THE CHARACTER SET ARE CHANGED	*
		3580	*	MAY BE IDENTIFIED BY -	*
		3581	*	* THE TABLE IDENTIFIED BY LABEL KDOATB	*
		3582	*		*
		3583	*	*NOTES -	*
		3584	*	ERROR PROCEDURES	*
		3585	*	* ERROR CONDITIONS TESTED IN KDOVRL ARE FUNCTIONAL ERRORS AND	*
		3586	*	CAUSE AN APPROPRIATE ERROR MESSAGE TO BE DISPLAYED ALONG	*
		3587	*	WITH THE VALID DISPLAY OUTPUT	*
		3588	*	* THE FOLLOWING TEXT MESSAGES ARE UTILIZED IN THE DISPLAY	*
		3589	*	OUTPUT LINES	*

#KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 11/02/22 PAGE 5
		3590	*	@@M552 - ERROR 254 NO NON-ARRAY (VARIABLES) IN PROGRAM	*
		3591	*	@@M553 - ERROR 253 ARRAY NOT IN PROGRAM	*
		3592	*	@@M554 - ERROR 250 (VARIABLE) NOT IN PROGRAM	*
		3593	*	@@M555 - ERROR 252 SUBSCRIPT EXCEEDS (ARRAY SIZE LIMIT)	*
		3594	*	@@M556 - ERROR 256 INCONSISTENT NUMBER OF SUBSCRIPTS	*
		3595	*		*
		3596	*	REGISTER USAGE	*
		3597	*	* BOTH REGISTERS ARE USED DURING PROGRAM EXECUTION	*
		3598	*	* THE REGISTERS ARE NOT SAVED OR RESTORED	*
		3599	*		*
		3600	*	SAVED/RESTORED AREAS	*
		3601	*	NONE	*
		3602	*		*
		3603	*	MODIFICATION CONSIDERATIONS	*
		3604	*	* AVAILABLE CORE IS LOCATED BETWEEN CORE ADDRESSES 0E00 AND	*
		3605	*	19FF	*
		3606	*	* DISPLAY COMMON PARAMETER BLOCK IS AT 0D00 TO 0E00	*
		3607	*	* SYMBOL TABLES ARE AT 1A00 TO 1F08	*
		3608	*		*
		3609	*	REQUIRED MODULES	*
		3610	*	@SYSEQ - COMMON SYSTEM EQUATES	*
		3611	*	@FXDEQ - SYSTEM NUCLEUS ADDRESSES AND INDICATORS	*
		3612	*	@HDWEQ - HARDWARE I/O EQUATES	*
		3613	*	@CANEQ - SYSTEM LOCATION EQUATES	*
		3614	*	\$B\$EQU - COMPILER FIXED EQUATES	*
		3615	*	\$B@EQU - COMPILER SYSTEM EQUATES	*
		3616	*	@ERMEQ - GENERAL ERROR MESSAGE EQUATES	*
		3617	*	SCANIT - COMMAND LINE DELIMITER SCAN ROUTINE	*
		3618	*	C4BIN2 - DECIMAL TO BINARY CONVE92965	*
		3619	*	DL4ICS - 4-TRACK LIOCS	*
		3620	*	C2DEC5 - BINARY TO DECIMAL CONVERSION	*
		3621	*	DLPRNT - LIST OUTPUT INTERFACE	*
		3622	*		*
		3623	*	OTHER	*
		3624	*	NONE	*
		3625	*	*****	*

## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT VER 15, MOD 00 11/02/22 PAGE 6

```
3627 *      HDR      #KDOVR
3628 *****
3629 *  PROGRAM HEADER FOR DISK LOAD
3630 *****
3631 *#$KDOV EQU    X'0780'          DISK ADDR OF FKDOVR
3632 *$$$KDO EQU    X'0E00'          CORE LOAD ADDRESS OF FKDOVR
3633 *#$@KDO EQU    012             SECTOR CNT OF FKDOVR
0E00      3634      ORG    $$$KDO    CORE LOAD ADDRESS
0E00 7BD2C4D6E5D9 0E05 3635 $$$$$$ EQU    * FIRST LOCATION IN PROGRAM
0E06 2E      0E06 3636      DC    CL6 '#KDOVR' PROGRAM NAME
0E07      0E06 3637      DC    IL1 '046' PROGRAM NUMBER OF FKDOVR
0E07      0E07 3638 $KDOVR EQU    * ENTRY POINT TO PROGRAM
3639 *** END OF EXPANSION ***

0E07 3641 KDIVRL EQU    * CADDR KDOVRL
0D20 3642      USING KDIEQU,@BR SET BASE ADDR
0E07 C2 01 0D20 3643      LA    KDIEQU,@BR LOAD BASE
0E0B C0 87 0F12 3644      B     KDI120 TO RTN
3645 *      MTEXT @@M552,@PRETR,
3646 *      @@M553,@PRETR,
3647 *      @@M554,@PRETR,
3648 *      @@M555,@PRETR,
3649 *      @@M556,@PRETR,
3650 *      PATCH 040

3652 *****
3653 * PPL'S AND TEXT FOR MESSAGE
3654 *****
0E0F C0      0E0F 3655 @@M552 DC    AL1 (@PRETR) PRINT CONTROL FUNCTION
0E10 2D      0E10 3656      DC    IL1 '45' LENGTH OF MESSAGE
0E11 0E23    0E12 3657      DC    AL (@CADDR) (@@T552) ADDR OF MESSAGE
3658 *
0E13 C0      0E13 3659 @@M553 DC    AL1 (@PRETR) PRINT CONTROL FUNCTION
0E14 1E      0E14 3660      DC    IL1 '30' LENGTH OF MESSAGE
0E15 0E50    0E16 3661      DC    AL (@CADDR) (@@T553) ADDR OF MESSAGE
3662 *
0E17 C0      0E17 3663 @@M554 DC    AL1 (@PRETR) PRINT CONTROL FUNCTION
0E18 23      0E18 3664      DC    IL1 '35' LENGTH OF MESSAGE
0E19 0E6E    0E1A 3665      DC    AL (@CADDR) (@@T554) ADDR OF MESSAGE
3666 *
0E1B C0      0E1B 3667 @@M555 DC    AL1 (@PRETR) PRINT CONTROL FUNCTION
0E1C 2E      0E1C 3668      DC    IL1 '46' LENGTH OF MESSAGE
0E1D 0E91    0E1E 3669      DC    AL (@CADDR) (@@T555) ADDR OF MESSAGE
3670 *
0E1F C0      0E1F 3671 @@M556 DC    AL1 (@PRETR) PRINT CONTROL FUNCTION
0E20 2B      0E20 3672      DC    IL1 '43' LENGTH OF MESSAGE
0E21 0EBF    0E22 3673      DC    AL (@CADDR) (@@T556) ADDR OF MESSAGE
3674 *
0E23 C5D9D9D6D940F2F5 0E23 3675 @@T552 EQU    * LEFT BYTE OF MESSAGE
0E2B F440D5D640D5D6D5 0E4F 3676      DC    CL045 'ERROR 254 NO NON-ARRAY <VARIABLES> IN PROGRAM'
0E33 60C1D9D9C1E8404C 3676
0E3B E5C1D9C9C1C2D3C5 3676
0E43 E26E40C9D540D7D9 3676
0E4B D6C7D9C1D4 3676
0E50 3677 @@T553 EQU    * LEFT BYTE OF MESSAGE
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#KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	11/02/22	PAGE	7
0E50		C5D9D9D6D940F2F5	0E6D	3678		DC	CL030 'ERROR 253 ARRAY NOT IN PROGRAM'				
0E58		F340C1D9D9C1E840		3678							
0E60		D5D6E340C9D540D7		3678							
0E68		D9D6C7D9C1D4		3678							
			0E6E	3679	@@T554	EQU	*				LEFT BYTE OF MESSAGE
0E6E		C5D9D9D6D940F2F5	0E90	3680		DC	CL035 'ERROR 250 <VARIABLE> NOT IN PROGRAM'				
0E76		F0404CE5C1D9C9C1		3680							
0E7E		C2D3C56E40D5D6E3		3680							
0E86		40C9D540D7D9D6C7		3680							
0E8E		D9C1D4		3680							
			0E91	3681	@@T555	EQU	*				LEFT BYTE OF MESSAGE
0E91		C5D9D9D6D940F2F5	0EBE	3682		DC	CL046 'ERROR 252 SUBSCRIPT EXCEEDS <ARRAY SIZE LIMIT>'				
0E99		F240E2E4C2E2C3D9		3682							
0EA1		C9D7E340C5E7C3C5		3682							
0EA9		C5C4E2404CC1D9D9		3682							
0EB1		C1E840E2C9E9C540		3682							
0EB9		D3C9D4C9E36E		3682							
			0EBF	3683	@@T556	EQU	*				LEFT BYTE OF MESSAGE
0EBF		C5D9D9D6D940F2F5	0EE9	3684		DC	CL043 'ERROR 256 INCONSISTENT NUMBER OF SUBSCRIPTS'				
0EC7		F640C9D5C3D6D5E2		3684							
0ECF		C9E2E3C5D5E340D5		3684							
0ED7		E4D4C2C5D940D6C6		3684							
0EDF		40E2E4C2E2C3D9C9		3684							
0EE7		D7E3E2		3684							
				3685	*						
				3686	* PATCH AREA FOR MESSAGES						
				3687	*						
0EEA			0F11	3688	\$\$\$001	DS	CL040				MSG EXPANSION PATCH AREA
				3689	***	END OF EXPANSION	***				



## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	11/02/22	PAGE	8
					3691	*****					
					3692	*					*
					3693	* SYMBOL TRANSLATION					*
					3694	*					*
					3695	*****					*
					3696	*					*
0F12	3C	01	157D		3697	KDI120 MVI	SCAMMA,SCACOM			SET SCANIT TO SKIP COMMAS	
0F16	38	40	03D0		3698	TBN	\$XIND1,\$XPREC			IS PREC LONG ?	
0F1A	F2	90	18		3699	JF	KDI121			NO, PROCESS AS SHORT	
					3700	*					
					3701	* PREPARE KDOVRL FOR LONG PRECISION					
					3702	*					
0F1D	3C	08	131D		3703	MVI	KDI740+@Q,B@LILP-1			SET LONG LENGTH	
0F21	3C	08	13C3		3704	MVI	KDI825+@D1,B@LEXP			SET LONG LENGTH	
0F25	3C	08	13CC		3705	MVI	KDI827+@DD2,B@LEXP			SET LONG LENGTH	
0F29	3C	08	13DD		3706	MVI	KDI832+@DD2,B@LEXP			SET LONG LENGTH	
0F2D	3C	08	11E8		3707	MVI	KDI505+@Q,B@LILP-1			SET LONG LENGTH	
0F31	3C	09	128F		3708	MVI	KDI582+@Q,B@LILP			SET LONG LENGTH	
0F35	75	02	2B		3709	KDI121 L	KDIVAD(,@BR),@XR			RESTORE LINE PT	
0F38	1C	00	173B 20		3710	MVC	DLPTYP,KDIDEV(1,@BR)			SET PRINT DEVICE TYPE	
					3711	*					
					3712	* TEST 'ALL' PARAMETER SWITCH					
					3713	*					
0F3D	7D	01	21		3714	KDI122 CLI	KDIASW(,@BR),KDIONN			IS SW ON ?	
0F40	F2	01	D4		3715	JNE	KDI255			NO, TO IDENTIFIER PROC	
0F43	34	02	1006		3716	ST	KDI245+@OP1,@XR			SAVE LINE PT	
					3718	*****					*
					3719	*					*
					3720	* 'ALL' LETTER VARIABLE PROCESSING					*
					3721	*					*
					3722	*****					*
					3723	*					*
					3724	* PREPARE THE PRINT ROUTINE TO PROCESS ALL					
					3725	*					
0F47	7C	00	24		3726	KDI125 MVI	KDITYP(,@BR),KDIOFF			SET SW FOR SCALAR VARS	
0F4A	7C	01	25		3727	MVI	KDIERR(,@BR),KDIONN			SET FLAG IN SW ON	
0F4D	7C	40	33		3728	MVI	KDISYM(,@BR),B@BLNK			SET 2ND SYM TO BLANK	
0F50	7C	00	27		3729	MVI	KDICSW(,@BR),KDIOFF			SET CHAR SW OFF	
					3730	*					
					3731	* INITIALIZE LETTER VARIABLE TABLE POINTER AND TEST FOR VADDRS					
					3732	*					
0F53	C2	02	0000		3733	KDI130 LA	*-*,@XR			SELECT A LETTER VAR TBL ENTRY,	
0F55					3734	ORG	KDI130+@D1			* INITIALLY SET TO THE	
0F55	1A0C			0F56	3735	DC	AL(@CADDR)(KDILVT)			* FIRST ENTRY	
0F57					3736	ORG					
0F57	9D	01	01 04		3737	CLC	KDIPD1(@VADDR,@XR),KDII00(,@BR)			IS ENTRY DEFINED ?	
0F5B	F2	81	17		3738	JE	KDI160			NO, CHECK NEXT ENTRY	
					3739	*					
					3740	* SET GET ROUTINE PARAMETER					
					3741	*					
0F5E	6C	01	2B 01		3742	KDI140 MVC	KDIVAD(@VADDR,@BR),KDIPD1(,@XR)			MOVE VADDR TO GET PARAM	
0F62	7C	00	25		3743	MVI	KDIERR(,@BR),KDIOFF			SET ERROR SW OFF	
					3744	*					
					3745	* MOVE THE VARIABLE FROM VM TO THE PRINT BUFFER					
					3746	*					

## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	11/02/22	PAGE	9
	0F65	C0	87	12E8	3747	KDI145 B	KDI700				
					3748	*					
					3749	* DISPLAY THE LETTER VARIABLE					
					3750	*					
	0F69	C2	02	0D95	3751	KDI150 LA	KDIATB,@XR				
	0F6D	6C	00	32 00	3752	KDI155 MVC	KDISYM-1(,@BR),*-(1,@XR)				
	0F70				3753	ORG	KDI155+@DD2				
	0F70	00			3754	DC	XL1'00'				
	0F71	C0	87	1391	3755	B	KDI800				
					3756	*					
					3757	* DECREMENT TABLE POINTERS					
					3758	*					
	0F75	1E	00	0F70 06	3759	KDI160 ALC	KDI155+@DD2,KDII01(1,@BR)				
	0F7A	1E	01	0F56 0C	3760	ALC	KDI130+@OP1,KDII02(@CADDR,@BR)				
	0F7F	3D	1D	0F70	3761	CLI	KDI155+@DD2,KDIEND				
	0F83	C0	82	0F53	3762	BL	KDI130				
					3764	*****					
					3765	*					
					3766	* 'ALL' LETTER-DIGIT VARIABLE PROCESSING					
					3767	*					
					3768	*****					
					3769	*					
	0F87	7C	F0	33	3770	KDI165 MVI	KDISYM(,@BR),B@DEC0				
					3771	*					
					3772	* SELECT LETTER-DIGIT TABLE ENTRY AND TEST FOR DEFINITION					
					3773	*					
	0F8A	C2	02	0000	3774	KDI170 LA	*-*,@XR				
	0F8C				3775	ORG	KDI170+@D1				
	0F8C	1A46			3776	DC	AL(@CADDR)(KDILDT)				
	0F8E	9D	01	01 04	3777	KDI175 CLC	KDIPD1(@VADDR,@XR),KDII00(,@BR)				
	0F92	F2	81	17	3778	JE	KDI195				
					3779	*					
					3780	* SET GET ROUTINE PARAMETER AND MOVE VARIABLE FROM VM TO PRINT BUFFER					
					3781	*					
	0F95	6C	01	2B 01	3782	KDI180 MVC	KDIVAD(@VADDR,@BR),KDIPD1(,@XR)				
	0F99	7C	00	25	3783	MVI	KDIERR(,@BR),KDIOFF				
	0F9C	C0	87	12E8	3784	B	KDI700				
					3785	*					
					3786	* DISPLAY THE LETTER-DIGIT VARIABLE					
					3787	*					
	0FA0	C2	02	0D95	3788	KDI185 LA	KDIATB,@XR				
	0FA4	6C	00	32 00	3789	KDI190 MVC	KDISYM-1(,@BR),*-(1,@XR)				
	0FA7				3790	ORG	KDI190+@DD2				
	0FA7	00			3791	DC	XL1'00'				
	0FA8	C0	87	1391	3792	B	KDI800				
					3793	*					
					3794	* INCREMENT POINTERS					
					3795	*					
	0FAC	1E	01	0F8D 0C	3796	KDI195 ALC	KDI170+@OP1,KDII02(@CADDR,@BR)				
	0FB1	5E	00	33 06	3797	ALC	KDISYM(1,@BR),KDII01(,@BR)				
	0FB5	7D	F9	33	3798	CLI	KDISYM(,@BR),B@DEC9				
	0FB8	C0	04	0F8A	3799	BNH	KDI170				
	0FBC	1E	00	0FA7 06	3800	KDI200 ALC	KDI190+@DD2,KDII01(1,@BR)				
	0FC1	3D	1D	0FA7	3801	CLI	KDI190+@DD2,KDIEND				
	0FC5	C0	82	0F87	3802	BL	KDI165				

## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 11/02/22 PAGE 10
					3803	*****	*****	
					3804	*	*	
					3805	* 'ALL' CHARACTER VARIABLE PROCESSING	*	
					3806	*	*	
					3807	*****	*****	
					3808	*		
0FC9	7C	5B	33		3809	KDI205 MVI	KDISYM(,@BR),B@CVAR	CHAR VAR IDENTIFIER TO PRINT
0FCC	7C	01	27		3810	MVI	KDICSW(,@BR),KDIONN	SET CHAR SW ON
					3811	*		
					3812	* SELECT CHARACTER TABLE ENTRY AND TEST FOR DEFINITION		
					3813	*		
0FCF	C2	02	0000		3814	KDI210 LA	*-*,@XR	SET CHAR VAR TBL PT,
0FD1					3815	ORG	KDI210+@D1	* INITIALLY SET TO THE
0FD1	1C8A			0FD2	3816	DC	AL(@CADDR)(KDICVT)	* 1ST TBL ENTRY
0FD3					3817	ORG		
0FD3	9D	01	01 04		3818	CLC	KDIPD1(@VADDR,@XR),KDII00(,@BR)	IS ENTRY DEFINED ?
0FD7	F2	81	17		3819	JE	KDI240	NO, DECR TO NEXT ENTRY
					3820	*		
					3821	* SET GET ROUTINE PARAMETER AND MOVE VARIABLE FROM VM TO PRINT BUFFER		
					3822	*		
0FDA	6C	01	2B 01		3823	KDI220 MVC	KDIVAD(@VADDR,@BR),KDIPD1(,@XR)	MOVE VADDR TO GET PARAM
0FDE	7C	00	25		3824	MVI	KDIERR(,@BR),KDIOFF	SET ERROR SW OFF
0FE1	C0	87	12E8		3825	B	KDI700	MOVE VAR
					3826	*		
					3827	* DISPLAY THE CHARACTER VARIABLE		
					3828	*		
0FE5	C2	02	0D95		3829	KDI225 LA	KDIATB,@XR	CADDR ALPHA TBL
0FE9	6C	00	32 00		3830	KDI230 MVC	KDISYM-1(,@BR),*-(1,@XR)	MOVE SYM TO PRINT RTN
0FEC					3831	ORG	KDI230+@DD2	* INITIALLY SET FOR 1ST
0FEC	00			0FEC	3832	DC	XL1'00'	* ALPHA CHAR
0FED	C0	87	1391		3833	B	KDI800	DISPLAY VAR
					3834	*		
					3835	* DECREMENT TABLE POINTERS		
					3836	*		
0FF1	1E	00	0FEC 06		3837	KDI240 ALC	KDI230+@DD2,KDII01(1,@BR)	INCR ALPHA PT
0FF6	1E	01	0FD2 0C		3838	ALC	KDI210+@OP1,KDII02(@CADDR,@BR)	INCR CHAR TBL PT
0FFB	3D	1D	0FEC		3839	CLI	KDI230+@DD2,KDIEND	LOOP UNTIL ALL ENTRIES
0FFF	C0	82	0FCF		3840	BL	KDI210	* IN CVT PROC
					3842	*****	*****	
					3843	*	*	
					3844	* 'ALL' ERROR ANALYSIS	*	
					3845	*	*	
					3846	*****	*****	
					3847	*		
1003	C2	02	0000		3848	KDI245 LA	*-*,@XR	RESTORE LINE PT
1007	7D	00	25		3849	CLI	KDIERR(,@BR),KDIOFF	IS ERROR STATUS NULL ?
100A	F2	81	04		3850	JE	KDI250	YES, SKIP ERROR MSG CALL
100D	C0	87	1391		3851	B	KDI800	PRINT ERROR MSG
1011	76	02	0C		3852	KDI250 A	KDII02(,@BR),@XR	INCR PT TO LAST LETTER IN ALL
1014	F2	87	CE		3853	J	KDI355	TO TERMINATION CHECK RTN
					3855	*****	*****	
					3856	*	*	
					3857	* BASIC INDENTIFIER PROCESSING	*	
					3858	*	*	

## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 11/02/22 PAGE 11
				3859		*****		
				3860		*		
				3861		* INITIALIZE SYMBOL TABLE POINTER		
				3862		*		
1017	5F	01	29 29	3863	KDI255	SLC	KDIXND(,@BR),KDIXND(KDIXLN,@BR) CLEAR INDEX ACCUM	
101B	C2	01	0D95	3864		LA	KDIATB,@BR CADDR ALPHA TBL	
				3865		*		
				3866		* TEST FOR LETTER MATCH		
				3867		*		
101F	6D	00	00 00	3868	KDI260	CLC	KDIPD0(1,@BR),KDIPD0(,@XR) LETTERS MATCH ?	
1023	F2	81	0D	3869		JE	KDI265 YES, PROC LETTER	
1026	D2	01	01	3870		LA	1(,@BR),@BR INCR PT	
1029	0E	01	0D49 0D2C	3871		ALC	KDIXND,KDII02(KDIXLN) INCR TBL INDEX	
102F	C0	87	101F	3872		B	KDI260 LOOP UNTIL LETTERS MATCH	
				3873		*		
				3874		* MOVE THE MATCHED LETTER TO PRINT ROUTINE		
				3875		*		
1033	1C	00	0D52 00	3876	KDI265	MVC	KDISYM-1,KDIPD0(,@BR) MOVE LETTER	
1038	C2	01	0D20	3877		LA	KDIEQU,@BR RESTORE BASE ADDR	
				3878		*		
				3879		* TEST FOR POSSIBLE DEVICE PARAMETERS		
				3880		*		
103C	9D	02	02 12	3881	KDI270	CLC	KDIPD2(,@XR),KDICRT(KDIILN,@BR) CRT PARAM ?	
1040	F2	81	B0	3882		JE	KDI365 YES, END RTN	
1043	9D	02	02 15	3883		CLC	KDIPD2(,@XR),KDIPRI(KDIILN,@BR) PRINTER PARAM ?	
1047	F2	81	A9	3884		JE	KDI365 YES, END RTN	
104A	7C	00	25	3885		MVI	KDIERR(,@BR),KDIOFF SET ERROR STATUS OFF	
				3886		*		
				3887		* TEST FOR A LETTER-DIGIT VARIABLE		
				3888		*		
104D	E2	02	01	3889	KDI275	LA	1(,@XR),@XR INCR LINE PT	
1050	BD	F0	00	3890		CLI	KDIPD0(,@XR),B@DEC0 IS CHAR A DIGIT ?	
1053	F2	82	33	3891		JL	KDI290 NO, TEST FOR CHAR REF	
				3893		*****		
				3894		*		*
				3895		* LETTER-DIGIT VARIABLE PROCESSING		*
				3896		*		*
				3897		*****		
				3898		*		
1056	7D	01	21	3899	KDI280	CLI	KDIASW(,@BR),KDIONN IS ALL SW ON ?	
1059	F2	81	89	3900		JE	KDI355 YES, TO TERM CHECK	
105C	6C	00	33 00	3901		MVC	KDISYM(,@BR),KDIPD0(,@XR) MOVE DIGIT TO PRINT RTN	
1060	7C	00	27	3902		MVI	KDICSW(,@BR),KDIOFF SET CHAR SW OFF	
				3903		*		
				3904		* CONVERT DIGIT TO BINARY		
				3905		*		
1063	C0	87	15A1	3906		B	C4BIN2 CONVERT DIGIT TO BINARY	
1067	34	02	10E1	3907		ST	KDI350+@OP1,@XR SAVE LINE PT	
106B	C2	02	1A46	3908		LA	KDILDT,@XR CADDR LETTER-DIGIT TBL	
				3909		*		
				3910		* DETERMINE THE TABLE INDEX		
				3911		*		
106F	5E	01	29 29	3912	KDI285	ALC	KDIXND(KDIXLN,@BR),KDIXND(,@BR) DETERMINE TBL ENTRY BY	
1073	76	02	29	3913		A	KDIXND(,@BR),@XR * MULTIPLING THE INDEX	
1076	5E	01	29 29	3914		ALC	KDIXND(KDIXLN,@BR),KDIXND(,@BR) * BY TEN AND ADDING	

## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	11/02/22	PAGE 12
107A	4E	01	29	160B	3915	ALC	KDIXND(KDIXLN,@BR),C4BVAL	*	DOUBLE THE BINARY	
107F	5E	01	29	29	3916	ALC	KDIXND(KDIXLN,@BR),KDIXND(,@BR)	*	VALUE OF THE VARIABLE	
1083	76	02	29		3917	A	KDIXND(,@BR),@XR	*	DIGIT	
1086	F2	87	39		3918	J	KDI335		CONTINUE PROC	
					3919	*				
					3920	*	TEST FOR A CHARACTER VARIABLE REFERENCE			
					3921	*				
1089	BD	5B	00		3922	KDI290 CLI	KDIPD0(,@XR),B@CVAR		A CHAR REF ?	
108C	F2	01	0C		3923	JNE	KDI300		NO, TEST FOR ARRAY REF	
					3924	*				
					3925	*	SET RTN FOR CHARACTER REFERENCE			
					3926	*				
108F	7C	5B	33		3927	KDI295 MVI	KDISYM(,@BR),B@CVAR		SET PRINT PARAM	
1092	76	02	06		3928	A	KDII01(,@BR),@XR		INCR TO NEXT BYTE	
1095	7C	01	27		3929	MVI	KDICSW(,@BR),KDIONN		SET CHAR REF SW ON	
1098	F2	87	06		3930	J	KDI305		SKIP TO ARRAY TEST	
					3931	*				
					3932	*	SET RTN FOR NON-CHARACTER REFERENCE			
					3933	*				
109B	7C	40	33		3934	KDI300 MVI	KDISYM(,@BR),B@BLNK		SET PRINT PARAM	
109E	7C	00	27		3935	MVI	KDICSW(,@BR),KDIOFF		SET CHAR REF SW OFF	
					3936	*				
					3937	*	TEST FOR AN ARRAY REFERENCE			
					3938	*				
10A1	BD	4D	00		3939	KDI305 CLI	KDIPD0(,@XR),B@LPAR		AN ARRAY REF ?	
10A4	F2	81	56		3940	JE	KDI370		YES, PROC ARRAY VAR	
					3942	*****				
					3943	*				*
					3944	*	LETTER AND CHARACTER VARIABLE PROCESSING			*
					3945	*				*
					3946	*****				
					3947	*				
10A7	7D	01	21		3948	KDI310 CLI	KDIASW(,@BR),KDIONN		IS ALL SW ON ?	
10AA	F2	81	3B		3949	JE	KDI360		YES, END RTN	
10AD	7D	01	27		3950	KDI315 CLI	KDICSW(,@BR),KDIONN		IS CHAR REF SW ON ?	
10B0	34	02	10E1		3951	ST	KDI350+@OP1,@XR		SAVE LINE PT	
10B4	C2	02	1A0C		3952	KDI320 LA	KDILVT,@XR		CADDR LETTER VAR TBL	
10B8	F2	01	04		3953	JNE	KDI330		SKIP NEXT INST	
10BB	C2	02	1C8A		3954	KDI325 LA	KDICVT,@XR		CADDR CHAR VAR TBL	
10BF	76	02	29		3955	KDI330 A	KDIXND(,@BR),@XR		INCR TO CORRECT ENTRY	

## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	11/02/22	PAGE 13
					3957	*****				
					3958	*				*
					3959	* DISPLAY SCALAR VARIABLE ROUTINE				*
					3960	*				*
					3961	*****				*
					3962	*				
					3963	* PREPARE PRINT ROUTINE				
					3964	*				
10C2	6C	01	2B 01		3965	KDI335 MVC	KDIVAD(@VADDR,@BR),KDIPD1(@XR) MOVE VADDR TO PRINT RTN			
10C6	7C	00	24		3966	MVI	KDITYP(@BR),KDIOFF SET SW FOR SCALAR VARS			
					3967	*				
					3968	* TEST IF VARIABLE IS DEFINED				
					3969	*				
10C9	9D	01	01 04		3970	KDI340 CLC	KDIPD1(@VADDR,@XR),KDII00(@BR) IS ENTRY DEFINED ?			
10CD	F2	01	06		3971	JNE	KDI345 YES, DISPLAY VAR			
10D0	7C	02	25		3972	MVI	KDIERR(@BR),KDIER2 SET ERROR MSG			
10D3	F2	87	04		3973	J	KDI347 PRINT ERROR MSG			
					3974	*				
					3975	* MOVE VARIABLE TO PRINT RTN AND DISPLAY VARIABLE				
					3976	*				
10D6	C0	87	12E8		3977	KDI345 B	KDI700 MOVE VAR TO PRINT RFR			
10DA	C0	87	1391		3978	KDI347 B	KDI800 DISPLAY VAR			
10DE	C2	02	0000		3979	KDI350 LA	*-*,@XR RESTORE LINE PT			
10E2	F2	87	03		3980	J	KDI360 SKIP NEXT INST			
					3982	*****				*
					3983	*				*
					3984	* DISPLAY TERMINATION CHECK				*
					3985	*				*
					3986	*****				*
					3987	*				
10E5	E2	02	01		3988	KDI355 LA	1(@XR),@XR INCR PT			
10E8	C0	87	1560		3989	KDI360 B	SCANIT TO NEXT PARAM			
10EC	BD	1E	00		3990	CLI	KDIPD0(@XR),B@EOST AT EOS ?			
10EF	C0	01	1017		3991	BNE	KDI255 NO, CONTINUE SCAN			
					3992	*				
					3993	* RETURN CARRIAGE AND TERMINATE PROGRAM				
					3994	*				
10F3	C0	87	1711		3995	KDI365 B	DLPRNT RETURN CARRIAGE			
10F7	057F			10F8	3996	DC	AL(@CADDR)(\$WAITF) PPL ADDR			
10F9	C0	87	04A1		3997	B	\$CARPL EXIT KDISPL			
					3998	*				
					3999	* TEST FOR A CHARACTER REFERENCE				
					4000	*				
10FD	7D	01	27		4001	KDI370 CLI	KDICSW(@BR),KDIONN IS CHAR REF SW ON ?			
1100	34	02	114D		4002	ST	KDI435+@OP1,@XR SAVE LINE PT			
1104	F2	81	0A		4003	JE	KDI380 YES, PROCESS CHAR ARRAY			
					4004	*				
					4005	* INITIALIZE FOR ARITHMETIC ARRAY VARIABLE				
					4006	*				
1107	C2	02	1CC4		4007	KDI375 LA	KDINAT,@XR CADDR NAT TABLE			
110B	7C	02	24		4008	MVI	KDITYP(@BR),KDIAAE SET PARAM TO DISPLAY MATRIX			
110E	F2	87	07		4009	J	KDI385 GO INCR TO CORRECT ENTRY			
					4010	*				
					4011	* INITIALIZE FOR CHARACTER ARRAY VARIABLE				
					4012	*				



## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	11/02/22	PAGE 14
1111	C2	02	1CFE	4013	KDI380	LA	KDICAT,@XR			CADDR CAT TBL
1115	7C	01	24	4014		MVI	KDITYP(,@BR),KDICAE			SET PARAM TO DISPLAY VECTOR
				4015	*					
				4016	*	INCREMENT	TABLE POINTER TO CORRECT ENTRY			
				4017	*					
1118	76	02	29	4018	KDI385	A	KDIXND(,@BR),@XR			INCR TO ENTRY
				4019	*					
				4020	*	TEST	FOR DEFINITION			
				4021	*					
111B	9D	01	01 04	4022	KDI390	CLC	KDIPD1(@VADDR,@XR),KDII00(,@BR)			ENTRY NULL ?
111F	F2	01	1F	4023		JNE	KDI430			NO, PROC ENTRY
				4024	*					
				4025	*	TEST	IF ARRAY IS SUBSCRIPTED			
				4026	*					
1122	0C	01	112B 114D	4027	KDI395	MVC	KDI400+@OP1(@CADDR),KDI435+@OP1			GET LINE PT CADDR
1128	C2	02	0000	4028	KDI400	LA	*-*,@XR			RESTORE LINE PT
112C	7C	03	25	4029		MVI	KDIERR(,@BR),KDIER3			SET ERROR CODE
112F	76	02	06	4030	KDI410	A	KDII01(,@BR),@XR			INCR TO NEXT BYTE
				4031	*					
				4032	*	TEST	FOR SUBSCRIPT END			
				4033	*					
1132	BD	5D	00	4034	KDI415	CLI	KDIPD0(,@XR),B@RPAR			A RIGHT PAREN ?
1135	C0	01	112F	4035		BNE	KDI410			NO, INCR TO NEXT BYTE
				4036	*					
				4037	*	DISPLAY	THE ERROR CONDITION			
				4038	*					
1139	C0	87	1391	4039	KDI420	B	KDI800			DISPLAY ERROR MSG
113D	C0	87	10E5	4040		B	KDI355			TEST FOR EOS
				4042	*****					
				4043	*					*
				4044	*	SUBSCRIPTED	ELEMENT PROCESSING			*
				4045	*					*
				4046	*****					
				4047	*					
1141	B5	02	01	4048	KDI430	L	KDIPD1(,@XR),@XR			GET VADDR
1144	76	02	08	4049		A	KDIAAC(,@BR),@XR			CONVERT TO CADDR
1147	74	02	2B	4050		ST	KDIVAD(,@BR),@XR			SAVE CADDR
				4051	*					
				4052	*	TEST	IF ARRAY IS SUBSCRIPTED			
				4053	*					
114A	C2	02	0000	4054	KDI435	LA	*-*,@XR			RESTORE LINE PT
114E	34	02	1270	4055		ST	KDI567+@OP1,@XR			SAVE LINE PT
1152	BD	F0	01	4056	KDI440	CLI	KDIPD1(,@XR),B@DEC0			A DIGIT ?
1155	C0	82	1275	4057		BL	KDI570			NO, DISPLAY ALL ARRAY EL
				4058	*					
				4059	*	TEST	IF A CHARACTER ARRAY			
				4060	*					
1159	5C	01	39 04	4061	KDI445	MVC	KDISS2(B@LBIN,@BR),KDII00(,@BR)			SET SUBSC 2 TO 0
115D	7D	01	27	4062		CLI	KDICSW(,@BR),KDIONN			IS CHAR REF SW ON ?
1160	7C	00	23	4063		MVI	KDISTS(,@BR),KDIOFF			SET SUBSC TERM SW ON
1163	F2	01	03	4064		JNE	KDI450			YES, PROCESS CHAR ARRAY
1166	7C	01	23	4065	KDI448	MVI	KDISTS(,@BR),KDIONN			SET SUBSC PERM SW OFF
				4066	*					
				4067	*	INCREMENT	LINE POINTER TO NEXT BYTE			
				4068	*					

## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	11/02/22	PAGE 15
	1169	76	02	06	4069	KDI450 A	KDII01(,@BR),@XR			INCR TO NEXT BYTE
					4070	*				
					4071	* TEST AND SKIP ALL ZEROS				
					4072	*				
	116C	BD	F0	00	4073	KDI455 CLI	KDIPD0(,@XR),B@DEC0			A ZERO ?
	116F	C0	81	1169	4074	BE	KDI450			YES, GO INCR PAST IT
					4075	*				
					4076	* TEST FOR NULL SUBSCRIPT				
					4077	*				
	1173	BD	F0	00	4078	KDI460 CLI	KDIPD0(,@XR),B@DEC0			A DIGIT ?
	1176	F2	02	07	4079	JNL	KDI470			YES, PROCESS AS SUBSC
	1179	7C	04	25	4080	KDI465 MVI	KDIERR(,@BR),KDIER4			SET ERROR CODE
	117C	C0	87	1132	4081	B	KDI415			TO RIGHT PAREN
					4082	*				
					4083	* CONVERT SUBSCRIPT TO BINARY				
					4084	*				
	1180	C0	87	15A1	4085	KDI470 B	C4BIN2			CONVERT TO BINARY
	1184	5C	01	37 39	4086	MVC	KDISS1(B@LBIN,@BR),KDISS2(,@BR)			SHIFT SUBSC 2 TO SUBSC 1
	1188	4C	01	39 160B	4087	MVC	KDISS2(B@LBIN,@BR),C4BVAL			SAVE SUBSC
					4088	*				
					4089	* TEST FOR A RIGHT PAREN				
					4090	*				
	118D	BD	5D	00	4091	KDI475 CLI	KDIPD0(,@XR),B@RPAR			AT RIGHT PAREN ?
	1190	F2	81	10	4092	JE	KDI490			YES, CONTINUE PROCESSING
					4093	*				
					4094	* TEST FOR SUBSCRIPT ERROR CONDITION				
					4095	*				
	1193	7D	01	23	4096	K01480 CLI	KDISTS(,@BR),KDIONN			IS SUBSC TERM SW ON ?
	1196	F2	81	D4	4097	JE	KDI567			YES, GO SET ERROR CODE
	1199	BD	6B	00	4098	CLI	KDIPD0(,@XR),B@CMMA			AT A COMMA ?
	119C	F2	01	CE	4099	JNE	KDI567			NO, GO SET ERROR CODE
	119F	C0	87	1166	4100	B	KDI448			PROCESS NEXT SUBSCRIPT
					4102	*****				
					4103	* TEST VALIDITY OF ARRAY SUBSCRIPTS				*
					4104	*****				
					4105	*				
	11A3	34	02	123E	4106	KDI490 ST	KDI545+@OP1,@XR			SAVE LINE PT
	11A7	75	02	2B	4107	L	KDIVAD(,@BR),@XR			CADDR OF DOPE VECTOR
					4108	*				
					4109	* TEST FOR CHAR ARRAY REF				
					4110	*				
	11AA	7D	01	27	4111	KDI491 CLI	KDICSW(,@BR),KDIONN			IS CHAR SW ON ?
	11AD	F2	81	97	4112	JE	KDI550			YES, PROCESS CHAR ARRAY SUBSC
					4113	*				
					4114	* TEST ARITHMETIC ARRAY SUBSCRIPTS				
					4115	*				
	11B0	6D	01	04 01	4116	KDI492 CLC	KDII00(,@BR),B@ACD1(B@LBIN,@XR)			IS D/V A VECTOR ?
	11B4	F2	01	0A	4117	JNE	KDI494			NO, CHECK IF MATRIX
	11B7	5D	01	37 04	4118	CLC	KDISS1(,@BR),KDII00(B@LBIN,@BR)			INPUT SUBSC A VECTOR ?
	11BB	F2	81	1B	4119	JE	KDI498			YES, CHECK FOR VALID SUBSC
	11BE	F2	87	07	4120	J	KDI496			NO, SET ERROR CODE
	11C1	5D	01	37 04	4121	KDI494 CLC	KDISS1(,@BR),KDII00(B@LBIN,@BR)			INPUT SUBSC A MATRIX ?
	11C5	F2	01	11	4122	JNE	KDI498			YES, CHECK FOR VALID SUBSC
	11C8	7C	05	25	4123	KDI496 MVI	KDIERR(,@BR),KDIER5			SET ERROR CODE
	11CB	0C	01	11D4 123E	4124	MVC	KDI497+@OP1,KDI545+@OP1(@CADDR)			RESTORE LINE PT



## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 11/02/22 PAGE 16
11D1	C2	02	0000		4125	KDI497	LA *-*,@XR	RESTORE LINE PT
11D5	C0	87	1132		4126		B KDI415	TO RIGHT PAREN
11D9	6D	01	37 01		4127	KDI498	CLC KDISS1(B@LDMN,@BR),B@ACD1(@XR)	IS SUBSC 1 VALID ?
11DD	F2	84	8D		4128		JH KDI567	NO, SET ERROR CODE
11E0	6D	01	39 03		4129	KDI500	CLC KDISS2(B@LDMN,@BR),B@ACD2(@XR)	IS SUBSC 2 VALID ?
11E4	F2	84	86		4130		JH KDI567	NO, SET ERROR CODE
					4131	*		
					4132	*	DETERMINE ELEMENT DISPLACEMENT FROM ARRAY BASE ADDR	
					4133	*		
11E7	7C	00	2F		4134	KDI505	MVI KDIECT(@BR),*-*	SET ELEMENT LENGTH 10 COUNTER,
11E8					4135		ORG KDI505+@Q	* INITIALLY CONTAINS THE SHORT
11E8	04			11E8	4136		DC AL1(B@LISP-1)	* PREC LNG -1
11EA					4137		ORG	
11EA	5C	01	31 37		4138	KDI510	MVC KDICTR(B@LDMN,@BR),KDISS1(@BR)	SET COUNT TO SUBSC 1
11EE	5C	01	2D 39		4139		MVC KDIACC(B@LDMN,@BR),KDISS2(@BR)	INIT ACCUM TO SUBSC 2
11F2	F2	87	04		4140		J KDI520	DECR COUNT BY 1
11F5	6E	01	2D 03		4141	KDI515	ALC KDIACC(B@LDMN,@BR),B@ACD2(@XR)	ADD 2ND DIM TO ACCUM
11F9	5F	01	31 06		4142	KDI520	SLC KDICTR(B@LDMN,@BR),KDII01(@BR)	DECR COUNT AND LOOP
11FD	C0	84	11F5		4143		BH KDI515	* UNTIL COUNT EQ 0
1201	5C	01	31 04		4144		MVC KDICTR(B@LDMN,@BR),KDII00(@BR)	INIT FOR LAST BYTE OF EL
1205	5E	01	31 2D		4145	KDI525	ALC KDICTR(B@LDMN,@BR),KDIACC(@BR)	MULTIPLY BY THE LNG
1209	5F	00	2F 06		4146		SLC KDIECT(1,@BR),KDII01(@BR)	* OF THE ARRAY
120D	C0	02	1205		4147		BNL KDI525	* ELEMENT
					4148	*		
					4149	*	INCREMENT ARRAY BASE ADDRESS, SET GET RTN POINTER	
					4150	*		
1211	6E	01	31 07		4151	KDI530	ALC KDICTR(B@LDMN,@BR),B@ABAS(@XR)	ADD BASE ADDR TO DISP
1215	5C	01	2B 31		4152		MVC KDIVAD(@BR),KDICTR(B@LDMN,@BR)	SET PARAM
1219	C0	87	12E8		4153		B KDI700	GET ELEMENT FIELD
					4154	*		
					4155	*	CONVERT SUBSCRIPTS TO DECIMAL	
					4156	*		
121D	D2	02	36		4157	KDI535	LA KDISS1-1(@BR),@XR	1ST BYTE SUBSC 1
1220	C0	87	16CD		4158		B C2DEC5	CONVERT TO DEC
1224	C2	02	170B		4159		LA C2DVAL,@XR	LAST BYTE DEC NO,
1228	6C	03	3D 00		4160		MVC KDIDS1(@BR),KDIPD0(B@LDDM,@XR)	SAVE DEC SUBSC 1
122C	D2	02	38		4161	KDI540	LA KDISS2-1(@BR),@XR	1ST BYTE SUBSC 2
122F	C0	87	16CD		4162		B C2DEC5	CONVERT TO DECIMAL
1233	C2	02	170B		4163		LA C2DVAL,@XR	LAST BYTE DEC NO.
1237	6C	03	41 00		4164		MVC KDIDS2(@BR),KDIPD0(B@LDDM,@XR)	SAVE DEC SUBSC 2
123B	C2	02	0000		4165	KDI545	LA *-*,@XR	RESTORE LINE PT
123F	C0	87	1391		4166		B KDI800	TO PRINT RTN
1243	C0	87	10E5		4167		B KDI355	CONTINUE SCAN
					4168	*		
					4169	*	TEST CHARACTER ARRAY SUBSCRIPT	
					4170	*		
1247	6D	01	39 01		4171	KDI550	CLC KDISS2(B@LDMN,@BR),B@CDMN(@XR)	IS SUBSC VALID ?
124B	F2	84	1F		4172	KDI555	JH KDI567	NO, GO SET ERROR CODE
124E	7C	13	2F		4173		MVI KDIECT(@BR),B@LCRV	SET ELEMENT LENGTH
1251	6C	01	2D 03		4174		MVC KDIACC(@VADDR,@BR),B@CBAS(@XR)	SHIFT BASE ADDR TO ACCUM
1255	5E	01	2D 39		4175	KDI560	ALC KDIACC(B@LDMN,@BR),KDISS2(@BR)	INCR BASE ADDR BY THE
1259	5F	00	2F 06		4176		SLC KDIECT(1,@BR),KDII01(@BR)	* DISPLACEMENT OF THE EL.
125D	C0	84	1255		4177		BH KDI560	* THE EL LENGTH TIMES
					4178	*		
					4179	*	SET GET PARAMETER AND GET ELEMENT FIELD	
					4180	*		

## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	11/02/22	PAGE	17
	1261	5C	01 2B 2D		4181	KDI565 MVC	KDIVAD(,@BR),KDIACC(B@LDMN,@BR) SET PARAM				
	1265	C0	87 12E8		4182	B	KDI700 GET ELEMENT FIELD				
	1269	C0	87 122C		4183	B	KDI540 CONVERT SUBSC TO DEC				
	126D	C2	02 0000		4184	KDI567 LA	*-*,@XR RESTORE LINE PT				
	1271	C0	87 1179		4185	B	KDI465 TO NEXT VAR				
					4187	*****	*****				
					4188	*	*				
					4189	* DISPLAY ARRAY PROCESSING	*				
					4190	*	*				
					4191	*****	*****				
					4192	*	*				
	1275	34	02 12E0		4193	KDI570 ST	KDI610+@OP1,@XR SAVE LINE PT				
	1279	75	02 2B		4194	L	KDIVAD(,@BR),@XR RESTORE DOPE VECTOR CADDR				
	127C	7D	01 27		4195	KDI575 CLI	KDICSW(,@BR),KDIONN IS CHAR SW ON ?				
	127F	F2	81 12		4196	JE	KDI585 YES, PROCESS CHAR ARRAY				
					4197	*	*				
					4198	* PROCESS ARITHMETIC ARRAY	*				
					4199	*	*				
	1282	6C	01 37 01		4200	KDI580 MVC	KDISS1(B@LDMN,@BR),B@ACD1(,@XR) SAVE DIM 1				
	1286	6C	01 31 03		4201	MVC	KDICTR(B@LDMN,@BR),B@ACD2(,@XR) SAVE DIM 2				
	128A	6C	01 2B 07		4202	MVC	KDIVAD(B@LDMN,@BR),B@ABAS(,@XR) SET PARAM				
	128E	7C	00 2F		4203	KDI582 MVI	KDIECT(,@BR),*-* SET ELEMENT LENGTH,				
	128E				4204	ORG	KDI582,@Q * INITIALLY SET FOR				
	128E	05		128E	4205	DC	AL1(B@LISP) * SHORT PREC LNG				
	1291				4206	ORG					
	1291	F2	87 0F		4207	J	KDI590				
					4208	*	*				
					4209	* PROCESS CHARACTER ARRAY	*				
					4210	*	*				
	1294	5C	01 37 06		4211	KDI585 MVC	KDISS1(B@LDMN,@BR),KDII01(,@BR) SET DIM 1				
	1298	6C	01 31 01		4212	MVC	KDICTR(B@LDMN,@BR),B@CDMN(,@XR) SAVE DIM 2				
	129C	6C	01 2B 03		4213	MVC	KDIVAD(B@LDMN,@BR),B@CBAS(,@XR) SET GET PARAM				
	12A0	7C	13 2F		4214	MVI	KDIECT(,@BR),B@LCRV SET ELEMENT LNG				
					4215	*	*				
					4216	* PRINT EACH ARRAY ELEMENT	*				
					4217	*	*				
	12A3	54	30 3D 00		4218	KDI590 ZAZ	KDIDS1(B@LDDM,@BR),KDID00(1,@BR) ZERO SUBSC 1 PARAM				
	12A7	54	30 41 00		4219	KDI595 ZAZ	KDIDS2(B@LDDM,@BR),KDID00(1,@BR) ZERO SUBSC 2 PARAM				
	12AB	5C	01 39 31		4220	MVC	KDISS2(,@BR),KDICTR(B@LDMN,@BR) SET LOOP COUNT				
	12AF	56	30 3D 01		4221	AZ	KDIDS1(B@LDDM,@BR),KDID01(1,@BR) ADD 1 TO SUBSC				
	12B3	5D	01 37 04		4222	CLC	KDISS1(2,@BR),KDII00(,@BR) IS ARRAY A VECTOR ? 1-3				
	12B7	F2	01 03		4223	JNE	KDI600 NO, CONTINUE RTN				
	12BA	7C	F0 3D		4224	MVI	KDIDS1(,@BR),B@DEC0 SET DEC SUBSC TO ZERO				
	12BD	56	30 41 01		4225	KDI600 AZ	KDIDS2(B@LDDM,@BR),KDID01(1,@BR) ADD 1 TO SUBSC				
	12C1	5E	01 2B 2F		4226	ALC	KDIVAD(B@LDMN,@BR),KDIECT(,@BR) INCR BASE ADDR ARRAY				
	12C5	C0	87 12E8		4227	B	KDI700 GET ARRAY ELEMENT				
	12C9	C0	87 1391		4228	B	KDI800 PRINT ELEMENT				
	12CD	5F	01 39 06		4229	SLC	KDISS2(B@LDMN,@BR),KDII01(,@BR) DECR SUBSC 2 COUNT UNTIL				
	12D1	C0	84 12BD		4230	BH	KDI600 * COUNT IS 0				
	12D5	5F	01 37 06		4231	SLC	KDISS1(B@LDMN,@BR),KDII01(,@BR) DECR SUBSC 1 COUNT UNTIL				
	12D9	C0	84 12A7		4232	BH	KDI595 * COUNT IS 0				
	12DD	C2	02 0000		4233	KDI610 LA	*-*,@XR RESTORE PT				
	12E1	76	02 0C		4234	A	KDII02(,@BR),@XR INCR LINE PT TO RIGHT PAREN				
	12E4	C0	87 10E5		4235	B	KDI355 CONTINUE SCAN				

## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	11/02/22	PAGE 18
					4237	*****				
					4238	*				*
					4239	* KDISPL GET ROUTINE				*
					4240	*				*
					4241	*****				
					4242	*				
12E8	34	08	1390		4243	KDI700 ST	KDI795+@OP1,@ARR		SAVE RETURN ADDR	
12EC	34	02	1388		4244	ST	KDI790+@OP1,@XR		SAVE LINE PT	
					4245	*				
					4246	* IS DATA ELEMENT PAGE IN CORE				
					4247	*				
12F0	5D	00	2A 6D		4248	KDI705 CLC	KDIVAD-1(1,@BR),KDIPGN(,@BR)		PG IN CORE ?	
12F4	F2	81	10		4249	JE	KDI720			
					4250	*				
					4251	* READ THE NECESSARY PAGE FROM VIRTUAL MEMORY				
					4252	*				
12F7	5C	00	6D 2A		4253	KDI710 MVC	KDIPGN(1,@BR),KDIVAD-1(,@BR)		SET DPL PG NO.	
12FB	C0	87	1611		4254	KDI715 B	DL4ICS		DISK IOCR RTN	
12FF	0D8B			1300	4255	DC	AL(@CADDR)(KDIGET)		ADDR DISK PARAM LIST	
1301	C0	87	0025		4256	B	\$DISKN		WAIT FOR COMPLETION	
1305	057F			1306	4257	DC	AL(@CADDR)(\$WAITF)		ADDR WAIT LIST	
					4258	*				
					4259	* SET POINTERS TO INPUT AREA AND CONSTANT BUCKET				
					4260	*				
1307	1C	00	1312 2B		4261	KDI720 MVC	KDI725+@D1,KDIVAD(1,@BR)		SET DISP TO VALUE IN BFR	
130C	C2	02	0C00		4262	LA	KDIBFR,@XR		BFR CADDR	
1310	E2	02	00		4263	KDI725 LA	*-*(,@XR),@XR		CADDR ELEMENT LEFT BYTE	
1313	D2	01	BF		4264	KDI730 LA	KDICDB(,@BR),@BR		CADDR CONSTANT BUCKET	
					4265	*				
					4266	* TEST FOR DATA LENGTH				
					4267	*				
1316	B8	40	00		4268	KDI735 TBN	KDIPD0(,@XR),B@DTYP		IS BYTE CHAR ?	
1319	F2	10	07		4269	JT	KDI745		YES, SET CHAR LNG	
131C	3C	00	1384		4270	KDI740 MVI	KDI780+@DD2,*-*		SET ARITHMETIC LENGTH.	
131D					4271	ORG	KDI740+@Q		* INITIALLY SET FOR	
131D	04			131D	4272	DC	AL1(B@LISP-1)		* SHORT PREC	
1320					4273	ORG				
1320	F2	87	04		4274	J	KDI750			
1323	3C	12	1384		4275	KDI745 MVI	KDI780+@DD2,B@LCRV-1		SET CHAR LENGTH	
					4276	*				
					4277	* TEST FOR POSSIBLE PAGE BOUNDARY OVERFLOW				
					4278	*				
1327	0C	00	0D4D 0D4B		4279	KDI750 MVC	KDIACC(1),KDIVAD		TEST IF ENTIRE VALUE IS IN	
132D	0E	00	0D4D 1384		4280	ALC	KDIACC(1),KDI780+@DD2		* THE BUFFER	
1333	F2	20	45		4281	JNOL	KDI775		NO OVERFLOW, MOVE VALUE	
					4282	*				
					4283	* CALCULATE INSTRUCTION TO MOVE 1ST SEGMENT AND MOVE IT				
					4284	*				
1336	3C	FF	1349		4285	KDI755 MVI	KDI760+@DD2,KDIPGE		CALCULATE BYTES TO MOVE	
133A	0F	00	1349 0D4B		4286	SLC	KDI760+@DD2,KDIVAD(1)		* IN FIRST DATA ELEMENT	
1340	0C	01	1348 1349		4287	MVC	KDI760+@D1,KDI760+@DD2(2)		* SEGMENT	
1346	6C	00	00 00		4288	KDI760 MVC	*-*(,@BR),*-(@Q,@XR)		MOVE VALUE TO BUCKET	
					4289	*				
					4290	* CALCULATE REMAINING SEGMENT MOVE INSTRUCTION				
					4291	*				
134A	0C	00	1383 1384		4292	KDI765 MVC	KDI780+@D1,KDI780+@DD2(1)		SHIFT TO SET EL DISP IN BUCKET	

## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	11/02/22	PAGE 19
1350	0F 00	1384	1347		4293	SLC	KDI780+@DD2,KDI760+@Q(1)	DECR BY LNG	ALREADY MOVED	
1356	0F 00	1384	0D26		4294	SLC	KDI780+@DD2,KDII01(1)	DECR BY ONE	FOR DISP	
135C	0C 00	1382	1384		4295	MVC	KDI780+@Q,KDI780+@DD2(1)	SET LENGTH	CODE	
					4296	*				
					4297	*	READ NEXT CONTIGOUS PAGE			
					4298	*				
1362	0E 00	0D8D	0D8E		4299	KDI770 ALC	KDIPGN(1),KDIPCT	INCR DPI	PG NO.	
1368	C0 87	1611			4300	B	DL4ICS	DISK IOCR	RTN	
136C	0D8B			136D	4301	DC	AL(@CADDR)(KDIGET)	ADDR DISK	PARAM LIST	
136E	C0 87	0025			4302	B	\$DISKN	WAIT FOR	COMPLETION	
1372	057F			1373	4303	DC	AL(@CADDR)(\$WAITF)	ADDR WAIT	CODE	
1374	C2 02	0C00			4304	LA	KDIBFR,@XR	RESET BFR	PT	
1378	F2 87	06			4305	J	KDI780	TO FINAL	MOVE INST	
					4306	*				
					4307	*	MOVE FINAL SEGMENT TO BUFFER			
					4308	*				
137B	0C 01	1383	1384		4309	KDI775 MVC	KDI780+@D1,KDI780+@DD2(2)	SET FINAL	MOVE INST	
1381	6C 00	00 00			4310	KDI780 MVC	*-*(,@BR),*-*(@Q,@XR)	MOVE FINAL	SEGMENT	
					4311	*				
					4312	*	RESTORE REGISTERS AND RETURN			
					4313	*				
1385	C2 02	0000			4314	KDI790 LA	*-*,@XR	RESTORE LINE	PT	
1389	C2 01	0D20			4315	LA	KDIEQU,@BR	RESTORE BASE		
138D	C0 87	0000			4316	KDI795 B	*-*	RETURN		
					4318	*****				
					4319	*				
					4320	*	KDISPL PRINT CONVERSION ROUTINE			
					4321	*				
					4322	*****				
					4323	*				
1391	34 08	155F			4324	KDI800 ST	KDI980+@OP1,@ARR	SAVE RETURN	ADOR	
1395	34 02	155B			4325	ST	KDI960+@OP1,@XR	SAVE LINE	PT	
1399	D2 02	BF			4326	LA	KDICDB(@BR),@XR	SET BUCKET	PT	
					4327	*				
					4328	*	CLEAR THE FORMAT BUFFER TO BLANKS			
					4329	*				
139C	3C 40	0DDE			4330	KDI805 MVI	KDIFBE,B@BLNK	CLEAR THE	FORMAT BUFFER	
13A0	0C 2B	0DDD 0DDE			4331	MVC	KDIFBE-1,KDIFBE(KDIBCT)	A TO RANKS		
					4332	*				
					4333	*	PLACE SYMBOL IN FORMAT DUFFER			
					4334	*				
13A6	5C 01	93 33			4335	KDI810 MVC	KDIFBS(KDISLN,@BR),KDISYM(@BR)	MOVE SYM	TO BFR	
					4336	*				
					4337	*	TEST FOR ERRORS			
					4338	*				
13AA	7D 00	25			4339	KDI815 CLI	KDIERR(@BR),KDIOFF	IS ERROR	CODE NULL ?	
13AD	C0 01	14F2			4340	BNE	KDI915	NO, PROCESS	ERROR CODE	
13B1	7D 01	27			4341	CLI	KDICSW(@BR),KDIONN	ELEMENT A	CHAR VALUE ?	
13B4	F2 01	0A			4342	JNE	KDI825	NO, PROCESS	ARITH VAL	
					4344	*****				
					4345	*				
					4346	*	PRINT CHARACTER CONVERSION			
					4347	*				
					4348	*****				

## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	11/02/22	PAGE	20
				4349	*						
	13B7	BC	7D 00	4350	KDI820	MVI	KDIPD0(, @XR), B@SQUO			ELEMENT 1ST BYTE	
	13BA	9C	02 15 1B	4351		MVC	KDID21(, @XR), KDIFIL(KDIL03, @BR)			MOVE ENDING BLANKS	
	13BE	F2	87 AC	4352		J	KDI875			PROCESS CHAR PRINT	
				4354	*****						
				4355	*					*	
				4356	*	PRINT	ARITHMETIC CONVERSION			*	
				4357	*					*	
				4358	*****						
				4359	*						
				4360	*	INITIALIZE	OUTPUT FORM OF EXPONENT - TEST FOR EXPONENT SIGN				
				4361	*						
	13C1	9F	00 00 06	4362	KDI825	SLC	*-(, @XR), KDII01(1, @BR)			ADJUST EXP TO COMPENSATE SHIFT	
	13C3			4363		ORG	KDI825+@D1			* INITIALLY SET FOR	
	13C3	04		13C3	4364	DC	AL1(B@SEXP)			* SHORT PREC EXP DISP	
	13C5			4365		ORG					
	13C5	5C	03 45 1F	4366		MVC	KDIXWK(KDIUXL, @BR), KDIEXI(, @BR)			MOVE EXPONENT IMAGE TO	
				4367	*					* EXPONENT WORK AREA	
	13C9	6C	00 26 00	4368	KDI827	MVC	KDIBEX(1, @BR), *-(, @XR)			MOVE ELEMENT EXPONENT TO WORK	
	13CC			4369		ORG	KDI827+@DD2			* AREA, INITIALLY SET FOR A	
	13CC	04		13CC	4370	DC	AL1(B@SEXP)			* SHORT PREC LENGTH ELEMENT	
	13CD	5F	00 26 02	4371		SLC	KDIBEX(1, @BR), KDINZX(, @BR)			TEST FOR SIGN	
	13D1	F2	02 0A	4372		JNL	KDI835			BR IF EXPONENT NOT NEGATIVE	
				4373	*						
				4374	*	NEGATIVE	EXPONENT - MODIFY SIGN AND RECOMPUTE BINARY EXPONENT				
				4375	*						
	13D4	7C	60 43	4376	KSI830	MVI	KDIXWK-B@LBIN(, @BR), B@MINS			MAKE EXPONENT SIGN NEG	
	13D7	7C	80 26	4377		MVI	KDIBEX(, @BR), B@NXZR			RESTORE EXPONENT TO NORM 0	
	13DA	6F	00 26 00	4378	KDI832	SLC	KDIBEX(1, @BR), *-(, @XR)			DETERMINE BINARY MAGNITUDE	
	13DD			4379		ORG	KDI832+@DD2			* FOR THE NEGATIVE	
	13DD	04		13DD	4380	DC	AL1(B@SEXP)			* EXPONENT	
				4381	*						
				4382	*	CONVERT	BINARY EXPONENT TO ZONED DECIMAL				
				4383	*						
	13DE	54	10 35 01	4384	KDI835	ZAZ	KDIDAC(B@LBIN, @BR), KDID01(1, @BR)			SET DEC ACCUM TO 1	
	13E2	3C	01 13E7	4385		MVI	KDI837+@Q, @B1			SET BIN MASK FOR 2**0 BIT	
	13E6	78	00 26	4386	KDI837	TBN	KDIBEX(, @BR), *-			TEST BINARY EXP MAGNITUDE BIT	
	13E9	F2	90 04	4387		JF	KDI839			* AND BRANCH IF BIT IS 0	
	13EC	56	01 45 35	4388		AZ	KDIXWK(B@LBIN, @BR), KDIDAC(B@LBIN, @BR)			INCR DEC EXP	
	13F0	0E	00 13E7 13E7	4389	KDI839	ALC	KDI837+@Q, KDI837+@Q(1)			SHIFT BINARY MASK LEFT	
	13F6	56	01 35 35	4390		AZ	KDIDAC(B@LBIN, @BR), KDIDAC(B@LBIN, @BR)			DOUBLE DEC ACCUM	
	13FA	C0	08 13E6	4391		BNOZ	KDI837			REPEAT LOOP UNTIL ACCUM > 64	
				4392	*						
				4393	*	PREPARE	DATA BUCKET FOR MANTISSA UNPACKING				
				4394	*						
	13FE	6C	08 4E 08	4395	KDI840	MVC	KDISAV(B@LILP, @BR), KDID08(, @XR)			SAVE VALUE	
	1402	BC	F0 10	4396		MVI	KDID16(, @XR), B@DEC0			SET ZONE HALF OF MANTISSA BYTE'	
	1405	AC	0E 0F 10	4397		MVC	KDID15(, @XR), KDID16(KDIL15, @XR)			* TO F'F'S	
	1409	B8	10 00	4398	KDI845	TBN	KDIPD0(, @XR), B@SIGN			TEST SIGN	
	140C	BC	40 00	4399		MVI	KDIPD0(, @XR), B@BLNK			SET SIGN BYTE BLANK FOR POS	
	140F	F2	90 03	4400		JF	KDI850			SKIP SETTING SIGN NEG	
	1412	BC	60 00	4401		MVI	KDIPD0(, @XR), B@MINS			SET SIGN NEG	
	1415	98	03 01 46	4402	KDI850	MNN	KDIPD1(, @XR), KDISB1(, @BR)			MOVE 1ST NUM OF MANTISSA	
	1419	BC	4B 02	4403		MVI	KDID02(, @XR), B@DPNT			SET DECIMAL PT IN NUM	
				4404	*						



## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 11/02/22 PAGE 21
				4405	*	UNPACK	REMAINDER OF THE MATISSA (SHORT PRECSION)	
				4406	*			
141C	98	02	03 47	4407	KDI855	MNZ	KDID03(,@XR),KDISB2(,@BR) SHIFT MANTISSA NUM TO BUCKET	
1420	98	03	04 47	4408		MNN	KDID04(,@XR),KDISB2(,@BR) SHIFT MANTISSA NUM TO BUCKET	
1424	98	02	05 48	4409		MNZ	KDID05(,@XR),KDISB3(,@BR) SHIFT MANTISSA NUM TO BUCKET	
1428	98	03	06 48	4410		MNN	KDID06(,@XR),KDISB3(,@BR) SHIFT MANTISSA NUM TO BUCKET	
142C	98	02	07 49	4411		MNZ	KDID07(,@XR),KDISB4(,@BR) SHIFT MANTISSA NUM TO BUCKET	
1430	98	03	08 49	4412		MNN	KDID08(,@XR),KDISB4(,@BR) SHIFT MANTISSA NUM TO BUCKET	
1434	38	40	03D0	4413	K01860	TBN	\$XIND1,\$XPREC IS PREC LONG	
1438	F2	90	27	4414		JF	KDI870 NO, FILL BUCKET WITH BLANKS	
				4415	*			
				4416	*	COMPLETE	MANTISSA (LONG PRECISION EXTENSION)	
				4417	*			
143B	98	02	09 4A	4418	KDI865	MNZ	KDID09(,@XR),KDISB5(,@BR) SHIFT MANTISSA NUM TO BUCKET	
143F	98	03	0A 4A	4419		MNN	KDID10(,@XR),KDISB5(,@BR) SHIFT MANTISSA NUM TO BUCKET	
1443	98	02	0B 4B	4420		MNZ	KDID11(,@XR),KDISB6(,@BR) SHIFT MANTISSA NUM TO BUCKET	
1447	98	03	0C 4B	4421		MNN	KDID12(,@XR),KDISB6(,@BR) SHIFT MANTISSA NUM TO BUCKET	
144B	98	02	0D 4C	4422		MNZ	KDID13(,@XR),KDISB7(,@BR) SHIFT MANTISSA NUM TO BUCKET	
144F	98	03	0E 4C	4423		MNN	KDID14(,@XR),KDISB7(,@BR) SHIFT MANTISSA NUM TO BUCKET	
1453	98	02	0F 4D	4424		MNZ	KDID15(,@XR),KDISB8(,@BR) SHIFT MANTISSA NUM TO BUCKET	
1457	98	03	10 4D	4425		MNN	KDID16(,@XR),KDISB8(,@BR) SHIFT MANTISSA NUM TO BUCKET	
145B	9C	03	14 45	4426	KDI867	MVC	KDID20(,@XR),KDIXWK(KDIUXL,@BR) SHIFT EXP FORMAT	
145F	F2	87	0B	4427		J	KDI875	
				4428	*			
				4429	*	COMPLETE	SHORT PRECSION DATA BUCKET	
				4430	*			
1462	9C	03	0C 45	4431	KDI870	MVC	KDID12(,@XR),KDIXWK(KDIUXL,@BR) SHIFT EWP FORMAT	
1466	BC	40	14	4432		MVI	KDID20(,@XR),B@BLNK PLACE BLANKS IN UNUSED PORTION	
1469	AC	06	13 14	4433		MVC	KDID19(,@XR),KDID20(KDIL07,@XR) * OF DATA BUCKET	
				4435	*****			
				4436	*			*
				4437	*	PRINT	LINE FORMATTING	*
				4438	*			*
				4439	*****			
				4440	*			
146D	7D	00	24	4441	KDI875	CLI	KDITYP(,@BR),KDIOFF SCALAR VAL TO PRINT ?	
1470	F2	01	0A	4442		JNE	KDI880 NO, PROCESS ARRAY VAL	
1473	7C	7E	96	4443		MVI	KDIF04(,@BR),B@EQL SET EQUAL SIGN	
1476	6C	14	AC 14	4444		MVC	KDIF26(,@BR),KDID20(KDIL21,@XR) SHIFT DATA BUCKET	
147A	F2	87	BA	4445		J	KDI945 SET FINAL PRINT BFR	
				4446	*			
				4447	*	TEST	FOR VECTOR SUBSCRIPTING	
				4448	*			
147D	7D	01	27	4449	KDI880	CLI	KDICSW(,@BR),KDIONN CHAR REF ?	
1480	F2	01	1E	4450		JNE	KDI895 NO, PROCESS MATRIX SUBSC	
				4451	*			
				4452	*	PROCESS	VECTOR SUBSCRIPTING	
				4453	*			
1483	7C	4D	94	4454	KDI885	MVI	KDIF02(,@BR),B@LPAR INSERT LEFT PAREN	
1486	5C	03	98 41	4455		MVC	KDIF06(,@BR),KDIDS2(KDIL04,@BR) INSERT VECTOR SUBSC	
148A	7C	5D	99	4456		MVI	KDIF07(,@BR),B@RPAR INSERT RIGHT PAREN	
148D	7D	F0	95	4457	KDI890	CLI	KDIF03(,@BR),B@DEC0 IS BYTE ZERO ?	
1490	F2	01	55	4458		JNE	KDI910 NO, COMPLETE PRINT BFR	
1493	1C	04	0D78 9A	4459		MVC	KDIHLD,KDIF08(KDIL05,@BR) SHIFT THE SUBSC DOWN	
1498	4C	04	99 0D78	4460		MVC	KDIF07(KDIL05,@BR),KDIHLD * TO PACK	

## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 11/02/22 PAGE 22
	149D	C0	87	148D	4461	B	KDI890	LOOP UNTIL NON-ZERO NUM FOUND
					4462	*		
					4463	*	PROCESS MATRIX SUBSCRIPTING	
					4464	*		
	14A1	7C	4D	93	4465	KDI895 MVI	KDIF01(,@BR),B@LPAR	INSERT LEFT PAREN
	14A4	5C	03	97 3D	4466	MVC	KDIF05(,@BR),KDIDS1(KDIL04,@BR)	INSERT SUBSC 1
	14A8	7C	6B	98	4467	MVI	KDIF06(,@BR),B@CMA	INSERT COMMA
	14AB	5C	03	9C 41	4468	MVC	KDIF10(,@BR),KDIDS2(KDIL04,@BR)	INSERT SUBSC 2
	14AF	7C	5D	9D	4469	MVI	KDIF11(,@BR),B@RPAR	INSERT RIGHT PAREN
	14B2	7D	F0	99	4470	KDI900 CLI	KDIF07(,@BR),B@DEC0	IS BYTE A ZERO ?
	14B5	F2	01	0E	4471	JNE	KDI905	NO, PROCESS SUBSC 2
	14B8	1C	04	0D78 9E	4472	MVC	KDIHLD,KDIF12(KDIL05,@BR)	SHIFT THE SUBSC DOWN
	14BD	4C	04	9D 0D78	4473	MVC	KDIF11(KDIL05,@BR),KDIHLD	* TO PACK
	14C2	C0	87	14B2	4474	B	KDI900	LOOP UNTIL NON-ZERO NUM FOUND
	14C6	7D	F0	94	4475	KDI905 CLI	KDIF02(,@BR),B@DEC0	IS BYTE A ZERO ?
	14C9	F2	01	0E	4476	JNE	KDI907	NO, COMPLETE FORMATTING
	14CC	1C	09	0D78 9E	4477	MVC	KDIHLD,KDIF12(KDIL10,@BR)	SHIFT THE SUBSC DOWN
	14D1	4C	09	9D 0D78	4478	MVC	KDIF11(KDIL10,@BR),KDIHLD	* TO PACK
	14D6	C0	87	14C6	4479	B	KDI905	LOOP UNTIL NON-ZERO NUM FOUND
					4480	*		
					4481	*	TEST FOR A VECTOR SUBSCRIPT	
					4482	*		
	14DA	7D	6B	94	4483	KDI907 CLI	KDIF02(,@BR),B@CMA	IS BYTE A COMMA ?
	14DD	F2	01	08	4484	JNE	KDI910	NO, CONTINUE PROCESSING
	14E0	5C	09	58 9E	4485	MVC	KDIHLD(,@BR),KDIF12(KDIL10,@BR)	SHIFT SUBSC DOWN
	14E4	5C	09	9D 58	4486	MVC	KDIF11(,@BR),KDIHLD(KDIL10,@BR)	* 1 BYTE
					4487	*		
					4488	*	COMPLETE PRINT BUFFER FORMATTING	
					4489	*		
	14E8	7C	7E	9B	4490	KDI910 MVI	KDIF09(,@BR),B@EQL	INSERT ? SIGN
	14EB	6C	14	B2 14	4491	MVC	KDIF32(,@BR),KDID20(KDIL21,@XR)	SHIFT DATA BUCKET
	14EF	F2	87	45	4492	J	KDI945	PRINT THE BFR
					4494	*****		
					4495	*		*
					4496	*	PRINT ERROR LINE ROUTINE	*
					4497	*		*
					4498	*****		
					4499	*		
	14F2	7D	01	25	4500	KDI915 CLI	KDIERR(,@BR),KDIER1	HAVE ERROR 1 COND ?
	14F5	F2	01	09	4501	JNE	KDI920	NO, TEST FOR ERROR COND 2
	14F8	C0	87	1711	4502	B	DLPRNT	PRINT ERROR MSG
	14FC	0E0F			14FD 4503	DC	AL(@CADDR)(@M552)	PPL CADDR
	14FE	F2	87	57	4504	J	KDI960	RETURN
	1501	7D	02	25	4505	KDI920 CLI	KDIERR(,@BR),KDIER2	HAVE ERROR 2 COND ?
	1504	F2	01	09	4506	JNE	KDI925	NO, TEST FOR ERROR 3
	1507	C0	87	1711	4507	B	DLPRNT	PRINT ERROR MSG
	150B	0E17			150C 4508	DC	AL(@CADDR)(@M554)	PPL CADDR
	150D	F2	87	48	4509	J	KDI960	RETURN
	1510	7D	03	25	4510	KDI925 CLI	KDIERR(,@BR),KDIER3	HAVE ERROR 3 COND ?
	1513	F2	01	09	4511	JNE	KDI930	NO, INSERT ERROR 4 MSG
	1516	C0	87	1711	4512	B	DLPRNT	PRINT ERROR MSG
	151A	0E13			151B 4513	DC	AL(@CADDR)(@M553)	PPL CADDR
	151C	F2	87	39	4514	J	KDI960	RETURN
	151F	7D	04	25	4515	KDI930 CLI	KDIERR(,@BR),KDIER4	ERROR ?
	1522	F2	01	09	4516	JNE	KDI935	NO, ASSUME ERROR 5

## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	11/02/22	PAGE	23
1525	C0	87	1711		4517	B	DLPRNT				PRINT ERROR MSG
1529	0E1B			152A	4518	DC	AL(@CADDR) (@@M555)				PPL CADDR
152B	F2	87	2A		4519	J	KDI960				RETURN
152E	C0	87	1711		4520	KDI935 B	DLPRNT				PRINT ERROR MSG
1532	0E1F			1533	4521	DC	AL(@CADDR) (@@M556)				PPL CADDR
1534	F2	87	21		4522	J	KDI960				RETURN
					4523	*					
					4524	* DETERMINE	PRINT BUFFER LENGTH				
					4525	*					
1537	3C	2C	1540		4526	KDI945 MVI	KDI949+@D1,KDIBCT				SET INITIAL BFR LNG DISP
153B	D2	02	91		4527	KDI947 LA	KDIPFB-1(,@BR),@XR				CADDR PRINT FORMAT BFR
153E	BD	40	00		4528	KDI949 CLI	*-*(,@XR),B@BLNK				IS BYTE BLANK ?
1541	F2	01	09		4529	JNE	KDI950				NO, PRINT THE BFR
1544	1F	00	1540 06		4530	SLC	KDI949+@D1,KDII01(1,@BR)				DECR BFR DISP 1 BYTE
1549	C0	87	153E		4531	B	KDI949				LOOP UNTIL NON-BLANK IS FOUND
					4532	*					
					4533	* PRINT THE	OUTPUT BUFFER				
					4534	*					
154D	4C	00	72 1540		4535	KDI950 MVC	KDIPUT+@PRCNT(1,@BR),KDI949+@D1				SET PRINT PARAM CNT
1552	C0	87	1711		4536	B	DLPRNT				PRINT BUFFER
1556	0D91			1557	4537	DC	AL2(KDIPUT)				PPL CADDR
					4538	*					
					4539	* EXIT PRINT	ROUTINE				
					4540	*					
1558	C2	02	0000		4541	KDI960 LA	*-*,@XR				RESTORE LINE PT
155C	C0	87	0000		4542	KDI980 B	*-*				RETURN
					4543	*					
					4544	*****					
					4545	*					*
					4546	* KDISPL	CONSTANTS, WORK AREAS, AND EQUATES				*
					4547	*					*
					4548	*****					
					4549	*					
					4550	* KDISPL	EQUATES REFERENCING CONSTANTS				
					4551	*					
				0D20	4552	KDIEQU EQU	X'0D20'+\$\$ZERO				CADDR WORK AREA
				0000	4553	KDIPD0 EQU	0				LINE PT DISP OF 0
				0000	4554	KDIOFF EQU	0				TO TURN SWS OFF
				0001	4555	KDICA E EQU	1				DISPLAY CHAR ARRAY EL
				0001	4556	KDIONN EQU	1				TO TURN SWS ON
				0001	4557	KDIPD1 EQU	1				PT DISP OF 1
				0001	4558	KDIER1 EQU	1				ALL SCALARS UNUSED
				0002	4559	KDIXLN EQU	2				TABLE INDEX LNG
				0002	4560	KDIAAE EQU	2				DISPLAY ARITH ARRAY EL
				0002	4561	KDIPD2 EQU	2				LINE PT DISP OF 2
				0002	4562	KDIER2 EQU	2				SCALAR VAR NOT IN FROG
				0002	4563	KDISLN EQU	2				LNG
				0003	4564	KDIILN EQU	3				LNG OF KEYWORD IDENTIFIER
				0003	4565	KDIER3 EQU	3				ARRAY NOT IN FROG
				0003	4566	KDIL03 EQU	3				LNG OF ARRAY REF SYM
				0004	4567	KDIER4 EQU	4				SUBSC OUT OF RANGE
				0004	4568	KDIUXL EQU	4				LNG EXP PRINT FORMAT
				0004	4569	KDIL04 EQU	4				LNG OF DEC SUBSC
				0005	4570	KDIL05 EQU	5				LNG OF VECTOR SUBSC SHIFT
				0005	4571	KDIER5 EQU	5				INCONSISTANT SUBSC REF CODE
				0007	4572	KDIL07 EQU	7				BYTES TO BLANK IN SHORT PREC



## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	11/02/22	PAGE	24
		000A	4573	KDIL10	EQU 10				LNG OF MATRIX SUBSC SHIFT
		000F	4574	KDIL15	EQU 15				LNG OF MANTISSA
		0015	4575	KDIL21	EQU 21				DATA BUCKET LNG
		001D	4576	KDIEND	EQU 29				TEST END OF TBL
		002C	4577	KDIBCT	EQU 44				BYTES TO BLANK IN FORMAT BFR
		00FF	4578	KDIPGE	EQU 255				LAST BYTE IN PG
		0C00	4579	KDIBFR	EQU X'0C00'				KOISPL I/O BFR
			4580	*					
			4581	*	KDOVRL CONSTANT EQUATES				
			4582	*					
		0D20	4583	KDID00	EQU X'0D20' + \$\$\$ZERO				DECIMAL 0
		0D21	4584	KDID01	EQU X'0D21' + \$\$\$ZERO				DECIMAL 1
		0D22	4585	KDINZX	EQU X'0D22' + \$\$\$ZERO				ZERO NORMALIZED EXP
		0D24	4586	KDII00	EQU X'0D24' + \$\$\$ZERO				INTEGER OF 0
		0D26	4587	KDII01	EQU X'0D26' + \$\$\$ZERO				INTEGER OF 1
		0D28	4588	KDIAAC	EQU X'0D28' + \$\$\$ZERO				DOPE VECTOR CONVERSION CONSTANT
		0D2A	4589	KDIRTN	EQU X'0D2A' + \$\$\$ZERO				CADDR OF PAGING MODULE
		0D2C	4590	KDII02	EQU X'0D2C' + \$\$\$ZERO				INTEGER OF 2
		0D32	4591	KDICRT	EQU X'0D32' + \$\$\$ZERO				CRT IDENTIFIER
		0D35	4592	KDIPRI	EQU X'0D35' + \$\$\$ZERO				PRINTER IDENTIFIER
		0D38	4593	KDIARS	EQU X'0D38' + \$\$\$ZERO				ARRAY REF SYM
		0D3B	4594	KDIFIL	EQU X'0D3B' + \$\$\$ZERO				BLANKS FOR CHAR VAR PRINT
		0D3F	4595	KDIEXI	EQU X'0D3F' + \$\$\$ZERO				EXP IMAGE
			4596	*					
			4597	*	KDOVRL WORK AREA EQUATES				
			4598	*					
		0D40	4599	KDIDEV	EQU X'0D40' + \$\$\$ZERO				DEVICE INDICATOR
		0D41	4600	KDIASW	EQU X'0D41' + \$\$\$ZERO				ALL PARAM SN
		0D42	4601	KDIPSW	EQU X'0D42' + \$\$\$ZERO				FIRST PARAM SN
		0D43	4602	KDISTS	EQU X'0D43' + \$\$\$ZERO				SUBSC TERM SW
		0D44	4603	KDITYP	EQU X'0D44' + \$\$\$ZERO				VAR TYPE SW
		0D45	4604	KDIERR	EQU X'0D45' + \$\$\$ZERO				ERROR SW
		0D46	4605	KDIBEX	EQU X'0D46' + \$\$\$ZERO				EXP MAGNITUDE
		0D47	4606	KDICSW	EQU X'0D47' + \$\$\$ZERO				CHAR REF SN
		0D49	4607	KDIXND	EQU X'0D49' + \$\$\$ZERO				TEMP HOLD AREA
		0D4B	4608	KDIVAD	EQU X'0D4B' + \$\$\$ZERO				VADDR PARAPI
		0D4D	4609	KDIACC	EQU X'0D4D' + \$\$\$ZERO				ARRAY EL WORK AREA
		0D4F	4610	KDIECT	EQU X'0D4F' + \$\$\$ZERO				EL LNG COUNT WORK AREA
		0D51	4611	KDICTR	EQU X'0D51' + \$\$\$ZERO				LENGTH COUNT
		0D53	4612	KDISYM	EQU X'0D53' + \$\$\$ZERO				SYMBOL SAVE AREA
		0D55	4613	KDIDAC	EQU X'0D55' + \$\$\$ZERO				BIN TO DEC ACCUM
		0D57	4614	KDISS1	EQU X'0D57' + \$\$\$ZERO				SUBSC 1 WORK AREA
		0D59	4615	KDISS2	EQU X'0D59' + \$\$\$ZERO				SUBSC 2 WORK AREA
		0D5D	4616	KDIDS1	EQU X'0D5D' + \$\$\$ZERO				SUBSC DEC HOLD
		0D61	4617	KDIDS2	EQU X'0D61' + \$\$\$ZERO				SUBSC 2 DEC HOLD
		0D65	4618	KDIXWK	EQU X'0D65' + \$\$\$ZERO				EXP CONSTRUCTION AREA
		0D6E	4619	KDISAV	EQU X'0D6E' + \$\$\$ZERO				SAVE FOR ARITH CONS
		0D78	4620	KDIHLD	EQU X'0D78' + \$\$\$ZERO				SAVE FOR SUBSC PACKING
		0D8B	4621	KDIGET	EQU X'0D8B' + \$\$\$ZERO				GET DPL
		0D91	4622	KDIPUT	EQU X'0D91' + \$\$\$ZERO				CADDR PUT DPL
		0D95	4623	KDIATB	EQU X'0D95' + \$\$\$ZERO				CADDR ALPHA 1BL
		0DB2	4624	KDIPFB	EQU X'0DB2' + \$\$\$ZERO				CADDR FORMAT BFR
		0DDF	4625	KDICDB	EQU X'0DDF' + \$\$\$ZERO				CADDR DATA BUCKET
			4626	*					
			4627	*	KDISPL EQUATES REFERENCING PROGRAM				
			4628	*					

## #KDOVR - DISPLAY VALUES PGM VARIABLES OVERLAY

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 11/02/22 PAGE 25
		1900	4629	DLIBUF EQU	X'1900'	OVERLAP BUFFER
		0D8D	4630	KDIPGN EQU	KDIGET+2	SECTOR DISP FROM BASE CYL
		0D8E	4631	KDIPCT EQU	KDIGET+3	SECTOR COUNT
		0DDE	4632	KDIFBE EQU	KDIPFB+44	LAST BYTE IN FORMAT BFR
		0DB3	4633	KDIFBS EQU	KDIPFB+1	FORMAT BFR DISP FOR SYMBOL
		1A0C	4634	KDILVT EQU	B\$LDRP+B@DL06+1	ADDR 1ST ENTRY LVT
		1A46	4635	KDILDT EQU	B\$LDRP+B@DL07+1	ADDR 1ST ENTRY LDT
		1C8A	4636	KDICVT EQU	B\$LDRP+B@DL10+1	ADDR 1ST ENTRY CVT
		1CC4	4637	KDINAT EQU	B\$LDRP+B@DL11+1	ADDR 1ST ENTRY NAT
		1CFE	4638	KDICAT EQU	B\$LDRP+B@DL12+1	ADDR 1ST ENTRY CAT
			4639	*		
			4640	* PACKED DATA CONSTANT SAVE AREA		EQUATES
			4641	*		
		0D66	4642	KDISB1 EQU	KDISAV-8	1ST BYTE OF SAVED ELEMENT VAL
		0D67	4643	KDISB2 EQU	KDISAV-7	2ND BYTE OF SAVED ELEMENT VAL
		0D68	4644	KDISB3 EQU	KDISAV-6	3RD BYTE OF SAVED ELEMENT VAL
		0D69	4645	KDISB4 EQU	KDISAV-5	4TH BYTE OF SAVED ELEMENT VAL
		0D6A	4646	KDISB5 EQU	KDISAV-4	5TH BYTE OF SAVED ELEMENT VAL
		0D6B	4647	KDISB6 EQU	KDISAV-3	6TH BYTE OF SAVED ELEMENT VAL
		0D6C	4648	KDISB7 EQU	KDISAV-2	7TH BYTE OF SAVED ELEMENT VAL
		0D6D	4649	KDISB8 EQU	KDISAV-1	8TH BYTE OF SAVED ELEMENT VAL
			4650	*		
			4651	* DATA CONSTANT BUFFER EQUATES		
			4652	*		
		0002	4653	KDID02 EQU	2	BUCKET DISP OF 2
		0003	4654	KDID03 EQU	3	BUCKET DISP OF 3
		0004	4655	KDID04 EQU	4	BUCKET DISP OF 4
		0005	4656	KDID05 EQU	5	BUCKET DISP OF 5
		0006	4657	KDID06 EQU	6	BUCKET DISP OF 6
		0007	4658	KDID07 EQU	7	BUCKET DISP OF 7
		0008	4659	KDID08 EQU	8	BUCKET DISP OF 8
		0009	4660	KDID09 EQU	9	BUCKET DISP OF 9
		000A	4661	KDID10 EQU	10	BUCKET DISP OF 10
		000B	4662	KDID11 EQU	11	BUCKET DISP OF 11
		000C	4663	KDID12 EQU	12	BUCKET DISP OF 12
		000D	4664	KDID13 EQU	13	BUCKET DISP OF 13
		000E	4665	KDID14 EQU	14	BUCKET DISP OF 14
		000F	4666	KDID15 EQU	15	BUCKET DISP OF 15
		0010	4667	KDID16 EQU	16	BUCKET DISP OF 16
		0013	4668	KDID19 EQU	19	BUCKET DISP OF 19
		0014	4669	KDID20 EQU	20	BUCKET DISP OF 20
		0015	4670	KDID21 EQU	21	BUCKET DISP OF 21
			4671	*		
			4672	* PRINT FORMAT BUFFER EQUATES		
			4673	*		
		0DB3	4674	KDIF01 EQU	KDIPFB+1	FORMAT BFR DISP OF 1
		0DB4	4675	KDIF02 EQU	KDIPFB+2	FORMAT BFR DISP OF 2
		0DB5	4676	KDIF03 EQU	KDIPFB+3	FORMAT BFR DISP OF 3
		0DB6	4677	KDIF04 EQU	KDIPFB+4	FORMAT BFR DISP OF 4
		0DB7	4678	KDIF05 EQU	KDIPFB+5	FORMAT BFR DISP OF 5
		0DB8	4679	KDIF06 EQU	KDIPFB+6	FORMAT BFR DISP OF 6
		0DB9	4680	KDIF07 EQU	KDIPFB+7	FORMAT BFR DISP OF 7
		0DBA	4681	KDIF08 EQU	KDIPFB+8	FORMAT BFR DISP OF 8
		0DBB	4682	KDIF09 EQU	KDIPFB+9	FORMAT BFR DISP OF 9
		0DBC	4683	KDIF10 EQU	KDIPFB+10	FORMAT BFR DISP OF 10
		0DBD	4684	KDIF11 EQU	KDIPFB+11	FORMAT BFR DISP OF 11

[illegible]

## SCANIT - DELIMETER SCAN MODULE

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 11/02/22 PAGE 27
		4699+		*****	*
		4700+	*	5703-XM1 COPYRIGHT IBM CORP. 1970	*
		4701+	*	REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083	*
		4702+	*		*
		4703+		*****	*
		4704+	*	STATUS	*
		4705+	*	VERSION 1 MODIFICATION 0	*
		4706+	*		*
		4707+	*	FUNCTION	*
		4708+	*	THE FUNCTION OF SCANIT IS TO SCAN PAST VALID DELIMITERS AND	*
		4709+	*	RETURN A POINTER TO THE FIRST CHARACTER THAT'S NOT A DELIMITER.	*
		4710+	*		*
		4711+	*	ENTRY POINTS	*
		4712+	*	* THE ENTRY POINT IS SCANIT.	*
		4713+	*	* THE CALLING SEQUENCE IS AS FOLLOWS:	*
		4714+	*	B SCANIT	*
		4715+	*	WITH REGISTER 2 (@XR) POINTING TO THE FIRST CHARACTER TO BE	*
		4716+	*	EXAMINED.	*
		4717+	*		*
		4718+	*	INPUT	*
		4719+	*	NONE	*
		4720+	*		*
		4721+	*	OUTPUT	*
		4722+	*	NONE	*
		4723+	*		*
		4724+	*	EXTERNAL REFERENCES	*
		4725+	*	\$CAERR - ERROR CODE SAVE AREA	*
		4726+	*		*
		4727+	*	EXITS, NORMAL	*
		4728+	*	NORMAL EXIT FROM SCANIT IS TO THE BYTE FOLLOWING THE BRANCH TO	*
		4729+	*	SCANIT IN THE CALLING ROUTINE. THE PSR (REGISTER 4) WILL CONTAIN	*
		4730+	*	A ZERO IF NO DELIMITERS WERE FOUND OR A HIGH CONDITION IF ONE OR	*
		4731+	*	MORE DELIMITERS WERE SCANNED.	*
		4732+	*		*
		4733+	*	EXITS, ERROR	*
		4734+	*	ERROR EXIT FROM SCANIT IS TO THE BYTE FOLLOWING THE BRANCH TO	*
		4735+	*	SCANIT IN THE CALLING ROUTINE. THE PSR WILL CONTAIN A LOW	*
		4736+	*	CONDITION.	*
		4737+	*		*
		4738+	*	TABLES/WORKAREAS	*
		4739+	*	* SCACNT - AREA CONTAINING NUMBERS OF DELIMITERS SCANNED	*
		4740+	*	* SCAMMA - LOC WHERE SCACOM MAY BE MOVED IF ONE COMMA IS ALSO	*
		4741+	*	TO BE CONSIDERED A DELIMITER. MOVING SCACOF BACK INTO SCAMMA	*
		4742+	*	INDICATES THAT ONLY BLANKS SHOULD BE CONSIDERED DELIMITERS.	*
		4743+	*		*
		4744+	*	ATTRIBUTES	*
		4745+	*	RELOCATABLE AND RE-USABLE	*
		4746+	*		*
		4747+	*	CHARACTER CODE DEPENDENCY	*
		4748+	*	THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR	*
		4749+	*	INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.	*
		4750+	*		*
		4751+	*	NOTES	*
		4752+	*	ERROR PROCEDURES	*
		4753+	*	THE ONLY ERROR CONDITION DETECTED BY SCANIT IS THE CASE WHERE	*
		4754+	*	A CARRIAGE-RETURN CODE FOLLOWS A COMMA. UPON RETURN TO THE	*

## SCANIT - DELIMETER SCAN MODULE

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT VER 15, MOD 00 11/02/22 PAGE 28

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4755+*      CALLING ROUTINE, @PSR WILL BE SET TO A LOW CONDITION, THE      *
4756+*      ERROR CODE IS SET IN $CAERR, AND MG WILU BE POINTING TO THE      *
4757+*      CARRIAGE-RETURN CHARACTER.                                       *
4758+*                                                                    *
4759+*      REGISTER USAGE                                                    *
4760+*      REGISTER 2 (@XR) IS USED AS A POINTER ACROSS THE AREA BEING      *
4761+*      SCANNED FOR DELIMITERS.                                           *
4762+*                                                                    *
4763+*      SAVED/RESTORED AREAS                                              *
4764+*      UPON ENTRY TO SCANIT, REGISTER 8 (@ARR) IS SAVED AND USED AS      *
4765+*      THE RETURN ADDRESS.                                                *
4766+*                                                                    *
4767+*      MODIFICATION CONSIDERATIONS                                       *
4768+*      NONE                                                                *
4769+*                                                                    *
4770+*      REQUIRED MODULES                                                    *
4771+*      * @SYSEQ - COMMON SYSTEM EQUATES                                  *
4772+*      * @FXDEQ - FIXED NUCLEUS ADDRESSES EQUATES                       *
4773+*                                                                    *
4774+*      OTHER                                                                *
4775+*      SCANIT IS INITIALIZED TO BYPASS BLANKS ONLY. IF SCACOM IS          *
4776+*      MOVED TO SCAMMA, ONE COMMA WILL BE SCANNED ALONG WITH BLANKS.      *
4777+*      THE INSTRUCTION TO DO THIS IS AS FOLLOWS:                         *
4778+*      MVI    SCAMMA,SCACOM                                                *
4779+*                                                                    *
4780+*      TO DROP THE COMMA FROM ITS DELIMITER STATUS, SCACOF SHOULD BE      *
4781+*      MOVED TO SCAMMA, USING THE FOLLOWING INSTRUCTION:                  *
4782+*      MVI    SCAMMA,SCACOF                                                *
4783+*                                                                    *
4784+*      *****
4786+*
4787+*      EQUATES USED IN THIS SUBROUTINE
4788+*
0001 4789+SCAINC EQU    1          TO INCREMENT POINTER
0001 4790+SCACOM EQU    @BNE       SWITCH TO ALLOW SCANNING COMMA
0087 4791+SCACOF EQU    @UCB       SWITCH TO SET OFF THE INDICATON
4792+*      * FOR SCANNING A COMMA
1560 4793+SCANIT EQU    *          ENTRY POINT TO THIS SUBROUTINE
1560 34 08 159C 4794+      ST      SCA500+@OP1,@ARR      SAVE RETURN ADDRESS
1564 34 02 159E 4795+      ST      SCASVE,@XR           SAVE POINTER VALUE
1568 3C 04 03CD 4796+      MVI     $CAERR,@@E110        SET ERROR CODE
156C F2 87 03   4797+      J       SCA200              GO TO PROCESS
156F E2 02 01   4798+SCA100 LA     SCAINC(,@XR),@XR      INCREMENT POINTER TO NEXT CHAR
1572 BD 40 00   4799+SCA200 CLI    0(,@XR),@BLANK       IS THIS CHAR BLANK ?
1575 C0 81 156F 4800+      BE      SCA100              YES, FETCH NEXT ONE
1579 BD 6B 00   4801+      CLI     0(,@XR),@COMMA        IS IT A COMMA ?
157C F2 87 10   4802+SCA250 JC     SCA400,@UCB          UCS TO RETURN -- OR NOP IF
4803+*      * SCAMMA IS ACTIVE AND CHAR
157F E2 02 01   4804+SCA300 LA     SCAINC(,@XR),@XR      INCREMENT POINTER TO NEXT CHAR
1582 BD 40 00   4805+      CLI     0(,@XR),@BLANK       IS THIS CHAR A BLANK ?
1585 C0 81 157F 4806+      BE      SCA300              YES, FETCH NEXT ONE
1589 BD 1F 00   4807+      CLI     0(,@XR),@EOS+1        IS THIS EOS ?
158C F2 82 0A   4808+      JL      SCA500              IF NOT, SKIP ERROR ROUTINE
158F 34 02 15A0 4809+SCA400 ST     SCACNT,@XR           SAVE NEW POINTER VALUE

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SCANIT - DELIMETER SCAN MODULE

ERR LOC		OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00		11/02/22	PAGE	29
1593	0F 01 15A0	159E		4810+	SLC	SCACNT(2),SCASVE			SET PSR TO EQUAL IF POINTER		
				4811+*					* NOT ADVANCED		
1599	C0 87 0000			4812+SCA500	B	*-*			YES, RETURN		
			157D	4813+SCAMMA	EQU	SCA250+@Q			TO SET SCAN COMMA INDICATOR		
				4814+*							
				4815+*		SAVE AREA					
				4816+*							
			159D	4817+SCASV1	EQU	*			FIRST BYTE OF SCASVE		
159D			159E	4818+SCASVE	DS	CL2			ORIGINAL POINTER VALUE SAVE		
159F			15A0	4819+SCACNT	DS	CL2			SAVE AREA FOR TOTAL CHAR SCAN		
				4820+***							
				4821 *		\$C4BD			END OF SCANIT	***	

## C4BIN2 - CONVERT DECIMAL TO BINARY ROUTINE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 11/02/22 PAGE 30
					4823+*			*
					4824+*		INITIALIZATION	*
					4825+*			*
				15A1	4826+C4BIN2	EQU	* ENTRY POINT	
				15A1	4827+	USING	C4BIN2,@BR BASE VALUE	
					4828+*			
15A1	34	01	1603		4829+	ST	C4B800+@OP1,@BR SAVE CALLERS BASE REGISTER	
15A5	C2	01	15A1		4830+	LA	C4BIN2,@BR LOAD BASE VALUE	
					4831+*			
15A9	74	08	66		4832+	ST	C4B850+@OP1(,@BR),@ARR SAVE RETURN ADDRESS	
					4833+*			
15AC	74	02	6E		4834+	ST	C4BSAV(,@BR),@XR SAVE VALUE OF POINTER	
15AF	3C	0C	03CD		4835+	MVI	\$CAERR,@E122 SET ERROR CODE IN CASE	
15B3	5C	01	6A 6B		4836+	MVC	C4BVAL(C4BLVL,@BR),C4BINI(,@BR) INIT VALUE TO ZERO	
15B7	3C	04	1610		4837+C4B100	MVI	C4B900,4 INITLZ CHAR. COUNT	
					4838+*			
					4839+***		DETERMINE IF CHAR NUMERIC AND DECR CHAR COUNT	
					4840+*			
15BB	F2	80	32		4841+C4B200	JC	C4B600,@NOP SET TO UCB IF IMBEDDED BLANKS	
					4842+*		* ALLOWED	
15BE	BD	F0	00		4843+C4B300	CLI	0(,@XR),C4BLOW THIS CHAR NUMERIC ?	
15C1	F2	82	35		4844+	JL	C4B700 NO, GOTO RETURN	
					4845+*			
15C4	5F	00	6F 4E		4846+	SLC	C4B900(1,@BR),C4B590+@D1(,@BR) DECR CHAR COUNT	
15C8	F2	82	35		4847+	JL	C4B800 BR TO ERROR EXIT IF TOO MANY	
					4848+*			
					4849+***		MULTIPLY PREVIOUS VALUE BY TEN	
					4850+*			
15CB	5E	01	6A 6A		4851+	ALC	C4BVAL(C4BLVL,@BR),C4BVAL(,@BR) DOUBLE PREVIOUS VALUE	
15CF	5C	01	68 6A		4852+	MVC	C4BWRK(C4BLVL,@BR),C4BVAL(,@BR) SAVE DOUBLE VALUE	
15D3	5E	01	6A 6A		4853+	ALC	C4BVAL(C4BLVL,@BR),C4BVAL(,@BR) QUADRUPLE PREVIOUS VALUE	
15D7	5E	01	6A 6A		4854+	ALC	C4BVAL(C4BLVL,@BR),C4BVAL(,@BR) OCTUPLE PREVIOUS VALUE	
15DB	5E	01	6A 68		4855+	ALC	C4BVAL(C4BLVL,@BR),C4BWRK(,@BR) ADD IN SAVED DOUBLE	
					4856+*			
					4857+***		ADD IN VALUE OF THIS CHAR AND INCR POINTER	
					4858+*			
15DF	68	03	6C 00		4859+	MNN	C4BCHR(,@BR),0(,@XR) FETCH NEMERIC VALUE OF NEW CHAR	
15E3	5E	01	6A 6C		4860+	ALC	C4BVAL(C4BLVL,@BR),C4BCHR(,@BR) INCR VALU BY THIS CHAR	
					4861+*			
15E7	E2	02	01		4862+	LA	@B1(,@XR),@XR INCR POINTER TO NEXT CHAR	
15EA	D0	87	1A		4863+	B	C4B200(,@BR) GOTO DO IT AGAIN	
					4864+*			*
					4865+*		ROUTINE TO SCAN BLANKS	*
					4866+*			*
15ED	E2	02	01		4867+C4B590	LA	@B1(,@XR),@XR INCR POINTER TO NEXT CHAR	
15F0	BD	40	00		4868+C4B600	CLI	0(,@XR),@BLANK IS THIS CHAR A BLANK ?	
15F3	D0	01	1D		4869+	BNE	C4B300(,@BR) RETURN IF NOT	
15F6	D0	87	4C		4870+	B	C4B590(,@BR) GET NEXT CHAR IF YES	



## C4BIN2 - CONVERT DECIMAL TO BINARY ROUTINE

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 11/02/22 PAGE 31
			4872+*				
			4873+***		ENDING ROUTINE		
			4874+*				
15F9	74 02 68		4875+C4B700	ST	C4BLEN(,@BR),@XR	PLACE VALUE OF POINTER	
15FC	5F 01 68 6E		4876+	SLC	C4BLEN(2,@BR),C4BSAV(,@BR)	SUBTRACT ENTERING VALUE	
			4877+*				
1600	C2 01 0000		4878+C4B800	LA	*-*,@BR	RESTORE CALLERS BR	
			4879+*				
1604	C0 87 0000		4880+C4B850	B	*-*	RETURN TO CALLING ROUTINE	
			4881+*				*
			4882+*		WORK AREA AND CONSTANT		*
			4883+*				*
1608		1609	4884+C4BWRK	DS	CL2	SAVE AREA FOR DOUBLED VALUE	
			4885+*				
		160A	4886+C4BYT1	EQU	*	FIRST BYTE OF BINARY VALUE	
160A		160B	4887+C4BVAL	DS	CL2	SAVE AREA FOR BINARY VALUE	
			4888+*				
160C	00	160C	4889+C4BINI	DC	XL1'00'	INITIALIZE WA TO ZERO	
			4890+*				
160D		160D	4891+C4BCHR	DS	CL1	SAVE AREA FOR EACH NEW CHAR	
160D			4892+	ORG	*-1	INITIALIZE	
160D	00	160D	4893+	DC	XL1'00'	* TO ZERO	
			4894+*				
160E		160F	4895+C4BSAV	DS	CL2	SAVE AREA FOR XR	
			4896+*				
1610		1610	4897+C4B900	DS	CL1	SAVE AREA FOR CHAR COUNTER	
			4898+*				*
			4899+*		EQUATES FOR C4BIN2		*
			4900+*				*
		1609	4901+C4BLEN	EQU	C4BWRK	ON RETURN WILL CONTAIN COUNT	
			4902+*			* @XR INCREMENTED BY	
		0004	4903+C4BCHC	EQU	4	NUMBER OF CHAR TO CONVERT	
			4904+*				
		00F0	4905+C4BLOW	EQU	C'0'	LOWEST NUMERIC CHARACTER	
			4906+*				
		0002	4907+C4BLVL	EQU	C4BVAL-C4BWRK	LENGTH OF BINARY VALUE	
			4908+*				
		15BC	4909+C4BLNK	EQU	C4B200+@Q	LOCATION OF IMBEDDED BLANK IND	
			4910+*				
		0087	4911+C4BSPC	EQU	@UCB	MOVED TO C4BLNK TO ALLOW BLANKS	
			4912+*				
		15B8	4913+C4BNMC	EQU	C4B100+@Q	LOCATION OF CONVERSION COUNT	
			4914+*				
		0080	4915+C4BNOP	EQU	@NOP	CHANGED IF IMBEDDED BLANK OK	
		1611	4916+C4END	EQU	*	DEFINE END OF CODE	
			4917+***		END OF C4BIN2		***
			4918 *		\$DL4P		



## DL4ICS - FOUR TRACK LOGICAL IOCR

ERR LOC	OBJECT CODE	ADDR STMT	SOURCE STATEMENT	VER 15, MOD 00	11/02/22	PAGE 32
4920+			*****			*
4921+	*	5703-XM1	COPYRIGHT IBM CORP. 1970			*
4922+	*		REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083			*
4923+	*					*
4924+			*****			*
4925+	*	STATUS				*
4926+	*	VERSION 1	MODIFICATION 0			*
4927+	*					*
4928+	*	FUNCTION				*
4929+	*	DL4ICS	WILL CONVERT A RELATIVE DISK ADDRESS TO A PHYSICAL			*
4930+	*	DISK ADDRESS	AND CALL \$DISKN TO PERFORM THE SPECIFIED FUNCTION			*
4931+	*	THE DISK ADDRESS	IS A ONE BYTE CYLINDER ADDRESS AND A ONE BYTE			*
4932+	*	SECTOR DISPLACEMENT	RELATIVE TO SECTOR 0 ON A CYLINDER			*
4933+	*	BOUNDARY				*
4934+	*	WHEN MORE THAN 1 SECTOR	IS PROCESSED, DL4ICS WILL MAKE MULTIPLE			*
4935+	*	CALLS TO \$DISKN	TO CROSS CYLINDER BOUNDARIES IF REQUIRED.			*
4936+	*	IF 1 SECTOR ONLY	IS TO BE PROCESSED, THE USER MAY OVERLAY THE			*
4937+	*	UNUSED CODE	BY ORGING HIS NEXT MODULE AT DL4SPT			*
4938+	*					*
4939+	*	ENTRY POINTS				*
4940+	*	DL4ICS - ENTRY	TO PROCESS A 4 SURFACE FILE. THE CALLING			*
4941+	*	SEQUENCE	IS AS FOLLOWS			*
4942+	*	DSKL4 DPL				*
4943+	*	WHERE DPL	IS THE LABEL OF A SIX BYTE DISK PARAMETER			*
4944+	*	LIST AS DESCRIBED	FOR \$DISKN EXCEPT FOR THE SECTOR			*
4945+	*	ADDRESS BYTE.				*
4946+	*					*
4947+	*	INPUT				*
4948+	*	INPUT TO DL4ICS	IS THE ADDRESS OF THE DPL TO BE PROCESSED.			*
4949+	*					*
4950+	*	OUTPUT				*
4951+	*	N/A				*
4952+	*					*
4953+	*	EXTERNAL REFENECES				*
4954+	*	\$DISKN - ENTRY	TO SYSTEM DISK ROUTINE			*
4955+	*					*
4956+	*	EXITS, NORMAL				*
4957+	*	NORMAL RETURN	IS TO THE 1ST INSTRUCTION FOLLOWING THE TWO BYTE			*
4958+	*	ADDRESS POINTING	TO THE DPL.			*
4959+	*					*
4960+	*	EXITS, ERROR				*
4961+	*	N/A				*
4962+	*					*
4963+	*	TABLES/WORK AREAS				*
4964+	*	N/A				*
4965+	*					*
4966+	*	ATTRIBUTES				*
4967+	*	RELOCATABLE				*
4968+	*	REUSABLE				*
4969+	*					*
4970+	*	CHARACTER CODE	DEPENDENCY			*
4971+	*	THE OPERATION	OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR			*
4972+	*	INTERNAL REPRESENTATION	OF THE EXTERNAL CHARACTER SET.			*
4973+	*					*
4974+	*	NOTES				*
4975+	*	ERROR PROCEDURES				*

DL4ICS - FOUR TRACK LOGICAL IOCR

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	11/02/22	PAGE 33	
		4976+	*	N/A				*
		4977+	*					*
		4978+	*	REGISTER USAGE				*
		4979+	*	@BR IS SAVED AND RESTORED ON EXIT, @XR IS NOT USED. @ARR IS				*
		4980+	*	USED TO PROVIDE THE ADDRESS OF THE PARAMETER. THE @ARR IS				*
		4981+	*	INCREMENTED BT TWO AND SAVED AS THE RETURN ADDRESS.				*
		4982+	*					*
		4983+	*	SAVED/RESTORED AREAS				*
		4984+	*	N/A				*
		4985+	*					*
		4986+	*	MODIFICATION CONSIDERATIONS				*
		4987+	*	N/A				*
		4988+	*					*
		4989+	*	REQUIRED MODULES				*
		4990+	*	@SYSEQ - SYSTEM SOFTWARE EQUATES				*
		4991+	*	@FXDEQ - SYSTEM NUCLEUS EQUATES				*
		4992+	*					*
		4993+	*	OTHER				*
		4994+	*	NONE				*
		4995+	*	*****				*

## DL4ICS - FOUR TRACK LOGICAL IOCR

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 11/02/22 PAGE 34
				1611	4997+	DL4ICS	EQU *	ENTRY TO DL4ICS
				1615	4998+		USING DL4010,@BR	ESTABLISH BASE REGISTER USAGE
1611	34	01	1681		4999+		ST DL4900+@OP1,@BR	SAVE BASE REGISTER FOR EXIT
				1615	5000+	DL4010	EQU *	BASE ADDRESSABILITY
1615	C2	01	1615		5001+		LA DL4010,@BR	ESTABLISH BASE
1619	76	08	78		5002+		A DL4C01(,@BR),@ARR	BUMP TO HIGH END OF ADDR
161C	74	08	14		5003+		ST DL4020+@DOP2(,@BR),@ARR	SET UP MOVE INSTRUCTION
161F	76	08	78		5004+		A DL4C01(,@BR),@ARR	BUMP TO RETURN ADDR
1622	74	08	70		5005+		ST DL4920+@OP1(,@BR),@ARR	SAVE RETURN ADDR
					5006+*			
1625	4C	01	1D 0000		5007+	DL4020	MVC DL4030+@DOP2(@DADDR,@BR),*-*	MOVE DPL ADDR INTO MOVE
162A	5E	01	1D 7A		5008+		ALC DL4030+@DOP2(@CADDR,@BR),DL4C05(,@BR)	BUMP TO RIGHT END
162E	4C	05	76 0000		5009+	DL4030	MVC DL4DPL(@DPLNG,@BR),*-*	MOVE USER DPL TO WORK AREA
					5010+*			
1633	7C	00	5E		5011+	DL4035	MVI DL4100+@Q(,@BR),@ZERO	CLEAR TRACK, DISK SET INST
1636	7C	80	67		5012+		MVI DL4200+@Q(,@BR),@NOP	TURN OFF TWICE INDICATOR
					5013+*			
1639	7D	60	73		5014+	DL4040	CLI DL4SCD(,@BR),DL4E96	TEST IF DISPLACEMENT OVER 95 ?
163C	F2	82	0B		5015+		JL DL4050	JUMP IF NOT OVER 95
163F	5E	00	72 78		5016+		ALC DL4CYL(1,@BR),DL4C01(,@BR)	INCREMENT CYLINDER COUNT
1643	5F	00	73 25		5017+		SLC DL4SCD(1,@BR),DL4C96(,@BR)	DECREMENT DISP BY 96
1647	D0	87	24		5018+		B DL4040(,@BR)	GO BACK CHECK FOR NEXT CYLINDER
					5019+*			
164A	7D	30	73		5020+	DL4050	CLI DL4SCD(,@BR),DL4E48	TEST IF DISP ON NEXT DISK ?
164D	F2	82	07		5021+		JL DL4060	JUMP IF NOT OVER 48
1650	7A	01	5E		5022+		SBN DL4100+@Q(,@BR),DL4EFD	TURN ON BIT FOR FIXED DISK
1653	5F	00	73 36		5023+		SLC DL4SCD(1,@BR),DL4C48(,@BR)	DECREMENT DISP 1 DISK
1657	7D	01	74		5024+	DL4060	CLI DL4SCT(,@BR),DL4E01	IS SECTOR COUNT GREATER THEN 1 ?
165A	F2	84	33		5025+		JH DL4SPT	GO TO SPLIT CALL
165D	7D	18	73		5026+	DL4070	CLI DL4SCD(,@BR),DL4E24	DISPLACEMENT OVER 23 ?
1660	F2	82	07		5027+		JL DL4080	JUMP NOT OVER 24
1663	7A	80	5E		5028+		SBN DL4100+@Q(,@BR),DL4ETB	SET TRACK BIT ON
1666	5F	00	73 49		5029+		SLC DL4SCD(1,@BR),DL4C24(,@BR)	DECR DISP TO NEXT TRACK
166A	5E	00	73 73		5030+	DL4080	ALC DL4SCD(1,@BR),DL4SCD(,@BR)	SHIFT LEFT 1 PLACE
166E	5E	00	73 73		5031+		ALC DL4SCD(1,@BR),DL4SCD(,@BR)	SHIFT LEFT 1 PLACE
1672	7A	00	73		5032+	DL4100	SBN DL4SCD(,@BR),*-*	SET TRACK, DISK BIT
					5033+*			
1675	C0	87	0025		5034+		B \$DISKN	GO PERFORM DISK I/O
1679	1686			167A	5035+		DC AL2(DL4LST)	ADDR OF DISK PARAM LIST
					5036+*			
167B	F2	00	3C		5037+	DL4200	JC DL4600,*-*	BRANCH OR NOP IF TWICE SET
					5038+*			
167E	C2	01	0000		5039+	DL4900	LA *-*,@BR	RESTORE OLD BASE TO RETURN
1682	C0	87	0000		5040+	DL4920	B *-*	RETURN TO CALLER
					5042+	DL4LST	EQU *	LEFT END OF DPL
1686					5043+	DL4DPL	DS CL(@DPLNG)	DPL SAVE AREA
					5044+	DL4CYL	EQU DL4LST+@DCYL	CYLINDER COUNT BYTE
					5045+	DL4SCD	EQU DL4LST+@DSAD	DISPLACEMENT SECTOR COUNT
					5046+	DL4E96	EQU 96	TWO DISK SECTOR COUNT PER CYL
					5047+	DL4E48	EQU 48	ONE DISK SECTOR COUNT PER CYL
					5048+	DL4E24	EQU 24	TRACK SECTOR COUNT
					5049+	DL4E01	EQU 01	VALUE TO TEST SECTOR COUNT
					5050+	DL4EFD	EQU 01	VALUE TO SET FIXED DISK BIT
					5051+	DL4ETB	EQU X'80'	VALUE TO SET TRACK BIT
168C	0001				5052+	DL4C01	DC IL2'1'	VALUE TO INCR TO CYLINDER

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	11/02/22	PAGE	35
	168E	0005		168F	5053+DL4C05	DC	IL2'5'				
				163A	5054+DL4C96	EQU	DL4040+@Q				
				165E	5055+DL4C24	EQU	DL4070+@Q				
				1689	5056+DL4SCT	EQU	DL4LST+@DCNT				
				164B	5057+DL4C48	EQU	DL4050+@Q				
	1690	5C	00	14	74		5059+DL4500	MVC	DL4WRK(1,@BR),DL4SCT(,@BR)	PICKUP	SECTOR COUNT
						1690	5060+DL4SPT	EQU	DL4500	POSSIBLE	OVERLAY REFERENCE
	1694	5E	00	14	73		5061+	ALC	DL4WRK(1,@BR),DL4SCD(,@BR)	BUMP	BY DISPLACEMENT
	1698	7D	30	14			5062+	CLI	DL4WRK(,@BR),DL4E48	TEST	FOR CYLINDER OVERLAP
	169B	D0	04	48			5063+	BNH	DL4070(,@BR)	BRANCH	BACK IF NO OVERLAY
	169E	5F	00	14	36		5064+	SLC	DL4WRK(1,@BR),DL4C48(,@BR)	DECREMENT	WORK BY 48
	16A2	5F	00	74	14		5065+	SLC	DL4SCT(1,@BR),DL4WRK(,@BR)	SUBTRACT	WORK FROM COUNT
	16A6	7C	87	67			5066+	MVI	DL4200+@Q(,@BR),@UCB	SET	TWICE SWITCH
	16A9	5C	00	13	73		5067+	MVC	DL4SAV(1,@BR),DL4SCD(,@BR)	SAVE	SECTOR DISP IN WORK AREA
	16AD	78	01	5E			5068+	TBN	DL4100+@Q(,@BR),DL4EFD	DISK	BIT ON IN Q CODE ?
	16B0	D0	90	48			5069+	BF	DL4070(,@BR)	BRANCH	NOT ON
	16B3	5E	00	13	36		5070+	ALC	DL4SAV(1,@BR),DL4C48(,@BR)	BUMP	TO NEXT DISK
	16B7	D0	87	48			5071+	B	DL4070(,@BR)	RETURN	TO CALL I/O
							5072+*				
	16BA	5C	00	73	13		5073+DL4600	MVC	DL4SCD(1,@BR),DL4SAV(,@BR)	PICKUP	NEXT HALF OF I/O
	16BE	5E	00	75	74		5074+	ALC	DL4LST+@DBFR1(1,@BR),DL4SCT(,@BR)	BUMP	CORE ADDRESS
	16C2	5E	00	73	74		5075+	ALC	DL4SCD(1,@BR),DL4SCT(,@BR)		
	16C6	5C	00	74	14		5076+	MVC	DL4SCT(1,@BR),DL4WRK(,@BR)	MOVE	IN NEW SECTOR COUNT
	16CA	D0	87	1E			5077+	B	DL4035(,@BR)	RETURN	FOR SECOND PASS
							5078+*				
						1629	5079+DL4WRK	EQU	DL4020+@DOP2	1	BYTE WORK AREA FOR SPLIT CALL
						1628	5080+DL4SAV	EQU	DL4020+@DOP2-1	1	BYTE WORK AREA FOR SPLIT CALL
						16CD	5081+DL4END	EQU	*	DEFINE	END OF CODE
							5082+***				
									END OF DL4ICS		***
						5083	*	\$C2D5			

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15,	MOD 00	11/02/22	PAGE	36
					5085+	*****						
					5086+	*	SERIALLY REUSABLE SUBROUTINE TO CONVERT A 2 BYTE BINARY VALUE TO				*	
					5087+	*	A 5 BYTE POSITIVE DECIMAL NUMBER.				*	
					5088+	*	ON ENTRY @XR POINTS TO THE LEFT BYTE OF THE BINARY VALUE.				*	
					5089+	*	ON RETURN C2DVAL IS THE RIGHT BYTE OF THE 5 BYTES DECIMAL VALUE				*	
					5090+	*	WITH LEADING ZEROS WHICH MAY BE MODIFIED BY THE USER IN ANY WAY				*	
					5091+	*	IN IT'S LOCATION.				*	
					5092+	*	THE 2 BYTES BINARY VALUE IS NOT ALTERED.				*	
					5093+	*	@XR IS NOT ALTERED.				*	
					5094+	*	@BR IS SAVED AND RESTORED AT EXIT.				*	
					5095+	*****						
				16CD	5097+	C2DEC5	EQU *				MODULE ENTRY POINT	
				16CD	5098+		USING C2DEC5,@BR				BASE ADDRESS SPECIFICATION	
16CD	34	01	1701		5099+		ST C2D050+@OP1,@BR				SAVE @BR	
16D1	C2	01	16CD		5100+		LA C2DEC5,@BR				LOAD BASE REGISTER	
16D5	74	08	38		5101+		ST C2D052+@OP1(,@BR),@ARR				SAVE RETURN ADDRESS	
					5102+	*	INITIALIZE DECIMAL INCREMENTER AND DECIMAL SUM TO 1 AND 0 RESP.					
16D8	54	90	43 39		5103+		ZAZ C2D903(C2D903-C2D901,@BR),C2D901(C2D902-C2D901,@BR)					
16DC	7C	01	17		5104+		MVI C2D030+@D1(,@BR),@B1				INITIALIZE DISP TO BYTE 1	
16DF	7C	01	16		5105+	C2D020	MVI C2D030+@Q(,@BR),@B1				INIT TEST TO BIT 7	
					5106+	*						
16E2	B8	00	00		5107+	C2D030	TBN *-*(,@XR),*-*				TEST IF THIS BIT IS OFF	
16E5	F2	90	04		5108+		JF C2D040				* BR AROUND SUM INCREMENT	
					5109+	*	INCREMENT DECIMAL SUM BY DECIMAL VALUE OF THIS TESTED BIT					
16E8	56	04	3E 43		5110+		AZ C2DVAL(C2D903-C2DVAL,@BR),C2D903(C2D903-C2DVAL,@BR)					
					5111+	*	DOUBLE DECIMAL VALUE OF INCREMENT TO VALUE OF NEXT BIT					
16EC	56	04	43 43		5112+	C2D040	AZ C2D903(C2D903-C2DVAL,@BR),C2D903(C2D903-C2DVAL,@BR)					
16F0	5E	00	16 16		5113+		ALC C2D030+@Q(1,@BR),C2D030+@Q(,@BR)				SHIFT BIT MASK LEFT ONE	
16F4	D0	20	15		5114+		BNOL C2D030(,@BR)				CONTINUE LOOP UNLESS ALL BITS	
					5115+	*	* TESTED					
16F7	5F	00	17 13		5116+		SLC C2D030+@D1(1,@BR),C2D020+@Q(,@BR)				DECR DISP TO BYTE 0	
16FB	D0	81	12		5117+		BZ C2D020(,@BR)				FALL THROUGH IF UNDERFLOW	
16FE	C2	01	0000		5118+	C2D050	LA *-*,@BR				RESTORE @BR	
1702	C0	87	0000		5119+	C2D052	B *-*				RETURN TO CALLING PROGRAM	
					5120+	*						
					5121+	***	WORK AREA					
					5122+	*						
1706	F1			1706	5123+	C2D901	DC DL1'1'				INIT WORK AREA	
				1707	5124+	C2D902	EQU *				FIST BYTE OF DECIMAL VALUE	
1707				170B	5125+	C2DVAL	DS CL5				5 BYTES DECIMAL VALUE	
170C				1710	5126+	C2D903	DS CL5				DECIMAL INCREMENTER	
					5127+	***						
					5128	*	\$DLPR			END OF C4DEC5		***

## DLPRNT -- LIST OUTPUT INTERFACE

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 11/02/22 PAGE 37
5130+				*****	*
5131+	*	5703-XM1		COPYRIGHT IBM CORP. 1970	*
5132+	*			REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083	*
5133+	*				*
5134+				*****	*
5135+	*			STATUS	*
5136+	*			VERSION 1 MODIFICATION 0	*
5137+	*				*
5138+	*			FUNCTION	*
5139+	*			* DLPRNT PROVIDES FOR DEVICE INDEPENDENCE FOR OUTPUT FROM	*
5140+	*			LIST ORIENTED PROGRAMS.	*
5141+	*			* FOR CRT OUTPUT, ROLL SPEED AND POP FEATURES ARE SUPPORTED.	*
5142+	*			IN ADDITION DLPRNT WILL FLASH COMMAND LIGHT 13 WHEN IN	*
5143+	*			STOP MODE.	*
5144+	*			* IF A 50LMP MATRIX PRINTER IS TO BE USED, ALL PRINTED LINES	*
5145+	*			ARE ANALYZED FOR LENGTH TO PROVIDE MAXIMUM LINE THROUGHPUT.	*
5146+	*			THIS IS DONE BY PRINTING RIGHT ONLY AS FAR AS REQUIRED TO	*
5147+	*			PRINT THE NEXT LINE FROM RIGHT TO LEFT. THE 50LMP I/O	*
5148+	*			INTERFACE IS SUPPLIED BY DLPRNT.	*
5149+	*			* OUTPUT MAY BE DIRECTED TO THE CRT, THE MATRIX PRINTER, OR	*
5150+	*			THE CURRENT SYSTEM OUTPUT DEVICE(S).	*
5151+	*				*
5152+	*			ENTRY POINTS	*
5153+	*			DLPRNT HAS ONE ENTRY POINT. THIS ENTRY POINT IS USED WHEN A	*
5154+	*			LINE IS TO BE PRINTED FOLLOWED BY A NORMAL CARRIER RETURN.	*
5155+	*			THE CALLING SEQUENCE IS:	*
5156+	*				*
5157+	*			B DLPRNT	*
5158+	*			DC AL2(PPLA)	*
5159+	*			WHERE PPLA IS A TWO BYTE ADDRESS OF THE LEFT BYTE OF A PRINT	*
5160+	*			PARAMETER LIST.	*
5161+	*				*
5162+	*			INPUT	*
5163+	*			* BEFORE USING DLPRNT THE ONE BYTE INDICATOR, DLPTYP, MUST	*
5164+	*			BE SET TO INDICATE WHICH DEVICE IS TO BE USED FOR OUTPUT.	*
5165+	*			THE CORRESPONDING VALUES AND THEIR FUNCTION FOLLOWS:	*
5166+	*			DLPMPR - MATRIX PRINTER IS TO BE USED FOR OUTPUT.	*
5167+	*			DLPCRT - THE DISPLAY STATION IS TO BE USED FOR OUTPUT.	*
5168+	*			ROLL SPEED AND POP FUNCTIONS WILL BE CONTROLLED.	*
5169+	*			DLPSPT - THE SYSTEM PRINTER(S) IS TO BE USED FOR OUTPUT.	*
5170+	*			THIS IS THE DEFAULT VALUE.	*
5171+	*			* A 244 BYTE BUFFER MUST BE ALLOCATED FOR DLPRNTS USE STARTING	*
5172+	*			AT LOCATION DLIBUF.	*
5173+	*			* A FOUR BYTE PRINT PARAMETER LIST (PPL) MUST BE PASSED VIA	*
5174+	*			A TWO BYTE COME ADDRESS FOLLOWING THE CALL. THIS PPL IS OF	*
5175+	*			THE SAME FORMAT AS THE PPL SENT TO DPRINT WITH THE FOLLOWING	*
5176+	*			RESTRICTIONS:	*
5177+	*			* ONLY 'PRINT AND RETURN' CONTROL CODES ARE ALLOWED FOR	*
5178+	*			PRINTING.	*
5179+	*			* WAIT FUNCTIONS SHOULD NOT BE USED EXCEPT AFTER THE LAST	*
5180+	*			LINE HAS BEEN PRINTED. IT IS THEN REQUIRED TO TERMINATE	*
5181+	*			DLPRNT'S FUNCTION.	*
5182+	*			OUTPUT	*
5183+	*			UPON COMPLETION THE GENERAL REGISTERS AND PPL WILL BE THE SAME	*
5184+	*			AS AT ENTRY, THE LINE TO BE PRINTED WILL BE PRINTED (OR BUFFERED	*
5185+	*			IN THE CASE OF THE LINE PRINTER). THE CALLING PROGRAM MAY	*



## DLPRNT -- LIST OUTPUT INTERFACE

ERR LOC	OBJECT CODE	ADDR STMT	SOURCE STATEMENT	VER 15, MOD 00	11/02/22	PAGE 38
		5186+*	MODIFY THE LINE UPON RETURN.			*
		5187+*				*
		5188+*	EXTERNAL REFERENCES			*
		5189+*	\$PRDEV - SYSTEM PRINTER INDICATOR.			*
		5190+*	DLIBUF - LOCATION OF BUFFER.			*
		5191+*	\$\$PLYN - ENTRY TO DSPLYN.			*
		5192+*	\$\$PRNT - ENTRY TO DPRINT.			*
		5193+*	\$CRTIN - ROLL INDICATORS.			*
		5194+*	\$IOIND - LINE PRINTER INDICATOR.			*
		5195+*	\$UNMSK - ENTRY TO UNMASK INQUIRY REQUEST.			*
		5196+*	\$\$PSIO - LOCATION OF CONTROL BYTE IN DPRINT SIG.			*
		5197+*	\$\$PCNT - LOCATION OF COUNT BYTE IN DPRINT I/O LIST.			*
		5198+*				*
		5199+*	EXITS, NORMAL			*
		5200+*	EXIT IS TO THE CALLING PROGRAM FOLLOWING THE PPL ADDRESS.			*
		5201+*				*
		5202+*	EXITS, ERROR			*
		5203+*	N/A			*
		5204+*				*
		5205+*	TABLES/WORK AREAS			*
		5206+*	N/A			*
		5207+*				*
		5208+*	ATTRIBUTES			*
		5209+*	RELOCATABLE			*
		5210+*	REUSABLE			*
		5211+*				*
		5212+*	CHARACTER CODE DEPENDENCY			*
		5213+*	N/A			*
		5214+*				*
		5215+*	NOTES			*
		5216+*	ERROR PROCEDURES			*
		5217+*	N/A			*
		5218+*				*
		5219+*	REGISTER USAGE			*
		5220+*	REGISTERS 1 AND 2 ARE USED FOR BASE ADDRESSING.			*
		5221+*				*
		5222+*	SAVED/RESTORED AREAS			*
		5223+*	N/A			*
		5224+*				*
		5225+*	MODIFICATION CONSIDERATIONS			*
		5226+*	DLPRNT DIRECTLY MODIFIES DPRINT WHEN USING THE LINE PRINTER			*
		5227+*	FUNCTION. CARE MUST BE TAKEN WHEN MODIFING EITHER DLPRNT OR			*
		5228+*	DPRINT.			*
		5229+*				*
		5230+*	REQUIRED MODULES			*
		5231+*	@SYSEQ - GENERAL SYSTEM EQUATES			*
		5232+*	@FXDEQ - NUCLEUS LOCATION EQUATES			*
		5233+*	@HDWEQ - HARDWARE VALUE EQUATES			*
		5234+*	@CANEQ - TRANSCIENT LOCATION EQUATES			*
		5235+*				*
		5236+*	OTHER			*
		5237+*	N/A			*
		5238+*	*****			*

## DLPRNT -- LIST OUTPUT INTERFACE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	11/02/22	PAGE	39
				174A	5240+		USING DLPBSE,@BR				BASE SPECIFICATION
				1711	5241+DLPRNT	EQU	*				ENTRY
1711	34	01	181B		5242+	ST	DLP480+@OP1,@BR				SAVE BR
1715	C2	01	174A		5243+	LA	DLPBSE,@BR				LOAD BASE REG
1719	74	02	D5		5244+	ST	DLP500+@OP1(,@BR),@XR				SAVE XR
171C	76	08	ED		5245+	A	DLPONE(,@BR),@ARR				CALCULATE PPL ADDR POINTER
171F	34	08	172C		5246+	ST	DLP100+@OP1,@ARR				GET PARM ADDR
1723	76	08	ED		5247+	A	DLPONE(,@BR),@ARR				CALCULATE RETURN ADDR
1726	74	08	DD		5248+	ST	DLP520+@OP1(,@BR),@ARR				SAVE RETURN ADDR
1729	35	02	0000		5249+DLP100	L	*-*,@XR				XR POINTS TO PPL
172D	6C	03	EA 03		5250+	MVC	DLPWK2+@PDATA(@PPLNG,@BR),@PDATA(,@XR)				MOVE IN PPL
1731	7C	20	0F		5251+	MVI	DLPEXT-1(,@BR),X'20'				INITIALIZE DSPLYN ADDR *****
1734	4E	00	0F 043B		5252+	ALC	DLPEXT-1(1,@BR),\$EXFTR				GET DSPLYN ADDR
1739	F2	87	00		5253+	J	*-*				GO TO CORRECT INTERFACE
				173B	5254+DLPTYP	EQU	*-1				I/O DEVICE INDR LOCATION
173B					5255+	ORG	DLPTYP				SET INSTR CNTR
173B	00			173B	5256+	DC	AL1(DLPSPST)				SET DEFAULT TO SYSTEM PRINTER
				173C	5257+DLPBSD	EQU	*				DISPLACEMENT BASE
					5258+**						
				173C	5259+DLPSPI	EQU	*				SYSTEM PRINTER INTERFACE
173C	3D	07	044A		5260+	CLI	\$PRDEV-1,X'07'				SYSPRINT = MATRIX PRINT *****
1740	F2	81	7E		5261+	JE	DLPNPT				DO LIME PRINTER INTERFACE
1743	5C	01	00 10		5262+	MVC	DLP120+@OP1(@CADDR,@BR),DLPEXT(,@BR)				GET DSPLYN ADDR
1747	C0	87	0000		5263+DLP120	B	*-*				GO TO DSPLYN
174B	1831			174C	5264+	DC	AL2(DLPWK2)				PPL ADDRESS
174D	3D	00	044B		5265+	CLI	\$PRDEV,X'00'				IS PRINTER REQUIRED TOO *****
1751	F2	81	6D		5266+	JE	DLPNPT				DO LINE PRINTER INTERFACE
1754	F2	87	C1		5267+	J	DLP480				EXIT INTERFACE
				174A	5268+DLPBSE	EQU	DLP120+@OP1				BASE ADDRESS



## DLPRNT -- LIST OUTPUT INTERFACE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	11/02/22	PAGE 40
				1757	5270+	DLPTIF	EQU *			ENTRY
1757	C0	87	0000		5271+		B *-*			GO TO DSPLYN
1759					5272+		ORG *-2			INITIALIZE ADDR
1759	2004			175A	5273+	DLPEXT	DC AL2(\$\$PLYN)			DSPLYN ENTRY ADDR
175B	1831			175C	5274+		DC AL2(DLPWK2)			PPL ADDRESS
175D	7D	FF	E7		5275+		CLI DLPWK2+@PCTRL(,@BR),@PWAIT			WAIT FUNCTION ?
1760	F2	81	57		5276+		JE DLP360			GO TURN OFF CMD LIGHTS
1763	71	11	E2		5277+	DLP140	LIO DLPK13(,@BR),@KEYBD+@CMLON			TURN ON CMD LITE 13
1766	38	08	03D3		5278+		TBN \$CRTIN,\$CRTSP			IN STOP MODE?
176A	F2	90	1D		5279+		JF DLP240			NO ? CONTINUE ROLL
176D	F2	80	09		5280+	DLP160	JC DLP180,@NOP			JUMP IF LIGHT ON
1770	71	10	E2		5281+		LIO DLPK13(,@BR),@KEYBD+@CMOFF			TURN POP LITE OFF
1773	7C	87	24		5282+		MVI DLP160+@Q(,@BR),@UCB			SET FOR TURN ON
1776	F2	87	03		5283+		J DLP200			GO DO TIME OUT
1779	7C	80	24		5284+	DLP180	MVI DLP160+@Q(,@BR),@NOP			SET TO TURN OFF
177C	5C	01	E0 E1		5285+	DLP200	MVC DLPLPC(2,@BR),DLPLIN(,@BR)			SET UP TIME COUNT
1780	5F	01	E0 ED		5286+	DLP220	SLC DLPLPC(2,@BR),DLPONE(,@BR)			DECREMENT TIME COUNT
1784	D0	84	36		5287+		BH DLP220(,@BR)			LOOP UNTIL TIME OUT
1787	D0	87	19		5288+		B DLP140(,@BR)			GO TEST STOP MODE
178A	38	04	03D3		5289+	DLP240	TBN \$CRTIN,\$CRTPU			POP UP INDR ON ?
178E	F2	90	07		5290+		JF DLP260			SKIP LINE CNT INITIALIZATION
1791	3B	04	03D3		5291+		SBF \$CRTIN,\$CRTPU			SET POP INDR OFF
1795	7C	00	DE		5292+		MVI DLPCNT(,@BR),@ZERO			ZERO LINES DISPLAYED CNT
1798	7D	0D	DE		5293+	DLP260	CLI DLPCNT(,@BR),DLPMAX			HAVE MAX NO. OF LINES BEEN ?
					5294+*					* DISPLAYED ?
179B	F2	01	04		5295+		JNE DLP280			JUMP IF NOT
179E	3A	08	03D3		5296+		SBN \$CRTIN,\$CRTSP			SET ROLL STOP INDR
17A2	F2	04	0E		5297+	DLP280	JNH DLP320			JUMP IF MAX LINES NOT DISPLAYED
17A5	5C	01	E0 E1		5298+		MVC DLPLPC(2,@BR),DLPLIN(,@BR)			SET UP TIMING LOOP
17A9	5F	01	E0 ED		5299+	DLP300	SLC DLPLPC(2,@BR),DLPONE(,@BR)			DECREMENT COUNT
17AD	D0	84	5F		5300+		BH DLP300(,@BR)			BRANCH IF TIME NOT UP
17B0	F2	87	04		5301+		J DLP340			GO EXIT
17B3	5E	00	DE ED		5302+	DLP320	ALC DLPCNT(1,@BR),DLPONE(,@BR)			BUMP LINE COUNT
17B7	F2	87	5E		5303+	DLP340	J DLP480			GO EXIT
17BA	C0	87	0B44		5304+	DLP360	B \$\$COFF			TURN OFF CMD LIGHTS
17BE	F2	87	57		5305+		J DLP480			GO EXIT

## DLPRNT -- LIST OUTPUT INTERFACE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	11/02/22	PAGE	41
				17C1	5307+DLPNPT	EQU	*				ENTRY
17C1	38	80	03D2		5308+	TBN	\$IOIND,\$LNPTR				LINE PRINTER AVAILABLE
17C5	F2	10	0F		5309+	JT	DLP400				JUMP IF YES
17C8	C0	87	0707		5310+DLP380	B	\$\$PRNT				DO NORMAL PRINT IF NOT
17CC	1831			17CD	5311+	DC	AL2(DLPWK2)				PPL ADDR
17CE	C0	87	0707		5312+	B	\$\$PRNT				WAIT FOR OP COMPLETION
17D2	057F			17D3	5313+	DC	AL2(\$WAITF)				WAIT PPL ADDRESS
17D4	F2	87	41		5314+	J	DLP480				GO EXIT
17D7	7D	FF	E7		5315+DLP400	CLI	DLPWK2+@PCTRL(,@BR),@PWAIT				IS THIS A WAIT FUNCTION ?
17DA	F2	01	03		5316+	JNE	DLP420				JUMP IF NO
17DD	7C	00	E8		5317+	MVI	DLPWK2+@PRCNT(,@BR),@ZERO				ZERO NEXT LINE CNT
17E0	7D	FF	E3		5318+DLP420	CLI	DLPWK1(,@BR),@PWAIT				IS THERE A LINE TO PRINT ?
17E3	F2	01	59		5319+	JNE	DLP480				JUMP IF YES
17E6	C0	87	0707		5320+	B	\$\$PRNT				INSURE PRINT HEAD IS AT LEFT
17EA	183D			17EB	5321+	DC	AL2(DLPRTN)				* MARGIN
17EC	5C	01	E4 E8		5322+DLP440	MVC	DLPWK1+@PRCNT(2,@BR),DLPWK2+@PRCNT(,@BR)				SET NEXT PPL
17F0	5C	01	E8 F4		5323+	MVC	DLPWK2+@PRCNT(2,@BR),DLPRTN+@PRCNT(,@BR)				SET CARRIER RTN
17F4	7D	FF	E3		5324+	CLI	DLPWK1(,@BR),@PWAIT				WAS THIS A WAIT FUNCTION ?
17F7	D0	81	7E		5325+	BE	DLP380(,@BR)				DO CARRIER RETURN IF YES
17FA	C2	02	1900		5326+	LA	DLIBUF,@XR				POINT XR TO BUFFER
17FE	BC	40	F3		5327+	MVI	DLPBLN-1(,@XR),@BLANK				SET BLANK FOR CLEAR BUF
1801	AC	F2	F2 F3		5328+	MVC	DLPBLN-2(DLPBLN-1,@XR),DLPBLN-1(,@XR)				CLEAR BUF TO BLNKS
1805	5C	00	CD E4		5329+	MVC	DLP460+@DD2(1,@BR),DLPWK1+@PRCNT(,@BR)				SET DATA CNT
1809	5F	00	CD ED		5330+	SLC	DLP460+@DD2(1,@BR),DLPONE(,@BR)				GET TRUE DISPLACMENT
180D	5C	01	CC CD		5331+	MVC	DLP460+@D1(2,@BR),DLP460+@DD2(,@BR)				SET 0 AND DI VALUES
1811	75	01	EA		5332+	L	DLPWK2+@PDATA(,@BR),@BR				BR POINTS TO DATA
1814	9C	00	00 00		5333+DLP460	MVC	*-*(@VQ,@XR),*-*(,@BR)				MOVE DATA TO BUFFER
					5334+*						
1818	C2	01	0000		5335+DLP480	LA	*-*,@BR				RESTORE BR
181C	C2	02	0000		5336+DLP500	LA	*-*,@XR				RESTORE XR
1820	C0	87	048D		5337+	B	\$UNMSK				GO CHECK FOR INQUIRY REQUEST
1824	C0	87	0000		5338+DLP520	B	*-*				RETURN

## DLPRNT -- LIST OUTPUT INTERFACE

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 11/02/22 PAGE 42
			5340+	*****		
			5341+	* CONSTANTS, WORK AREAS AND EQUATES		
			5342+	*****		
			5343+	*		
		0085	5344+	DLPMPR EQU	DLPNPT-DLPBSD	MATRIX PRINTER INDR VALUE
		0000	5345+	DLPSPT EQU	DLPSPi-DLPBSD	SYSTEM PRINTER INDR VALUE
		001B	5346+	DLPCRT EQU	DLPTIF-DLPBSD	CRT INOR VALUE
1828		1828	5347+	DCRCNT DS	CL1	DISPLAYED LINE CNTR
		1828	5348+	DLPCNT EQU	DCRCNT	COMMUNICATIONS LABEL
1828			5349+	ORG	DLPCNT	SET INST CNTR
1828 01		1828	5350+	DC	XL1'01'	INITIAL VALUE
1829		182A	5351+	DLPLPC DS	CL2	TIMING LOOP CNTR
182B 3B		182B	5352+	DLPLIN DC	XL1'3B'	INITIAL LOOP CNT
182C 0D		182C	5353+	DLPK13 DC	AL1(@CKY13)	CMD LIGHT 13 CONTROL
		000D	5354+	DLPMAX EQU	13	MAX LINES TO BE DISPLAYED
		182D	5355+	DLPWK1 EQU	*	CURRENT PPL
182D FFFF		182E	5356+	DC	2XL1'FF'	CTRL AND DATA CNT
182F 1900		1830	5357+	DC	AL2(DLIBUF)	BUFFER ADDR
		1831	5358+	DLPWK2 EQU	*	NEXT PPL
1831		1834	5359+	DS	CL(@PPLNG)	
1835 01		1835	5360+	DLPNDX DC	AL1(@INDEX)	INDEX PPL
1836 0001		1837	5361+	DLPONE DC	XL2'0001'	CONSTANT OF ONE
1838		1838	5362+	DLPRES DS	CL1	RESIDUAL CNT
1839 0000		183A	5363+	DLPWTH DC	XL2'00'	WIDTH OF PRINT LINE
183B		183B	5364+	DLPNXT DS	CL1	NEXT LINE CNT
183C		183C	5365+	DLPREM DS	CL1	ADDITIONAL CNT FOR NEXT LINE
		183D	5366+	DLPRTN EQU	*	ADDR OF RETURN PPL
183D 8080		183E	5367+	DC	2AL1(@RETRN)	RETURN CARRIER PPL
		0001	5368+	DLPPNT EQU	X'01'	LINE PRINTER CONTROL BYTE

## DLPRNT -- LIST OUTPUT INTERFACE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 11/02/22 PAGE 43
					5370+	*****		
					5371+	*	THIS ROUTINE PRINTS THE CURRENT LINE IN THE CORRECT DIRECTION AND	
					5372+	*	SETS UP THE NEXT LINE CNT.	
					5373+	*****		
				182D	5374+		USING DLPBS2,@BR	NEW BASE VALUE
				183F	5375+	DLPPRT	EQU *	ENTRY TO PRINT
183F	C2	01		182D	5376+		LA DLPBS2,@BR	LOAD BASE REGISTER
1843	C0	87	0707		5377+		B \$\$PRNT	WAIT FOR PRINTER READY
1847	057F			1848	5378+		DC AL2(\$WAITF)	WAIT PPL
1849	3C	80	0476		5379+		MVI \$CIMSK,@NOP	MASK IR FOR THIS FUNCTION
184D	4C	00	0D 03C0		5380+		MVC DLPWTH(1,@BR),\$RMGRN	SET RIGHT MARGIN VALUE
1852	4F	00	0D 03C1		5381+		SLC DLPWTH(1,@BR),\$LMRGN	CALCULATE WIDTH
1857	5C	00	0E 05		5382+		MVC DLPNXT(1,@BR),DLPWK2+@PRCNT(,@BR)	SET NEXT LINE CNT
185B	7C	00	0B		5383+		MVI DLPRES(,@BR),@ZERO	ZERO RESIDUAL CNT
185E	5D	00	01 0D		5384+		CLC DLPWK1+@PRCNT(1,@BR),DLPWTH(,@BR)	CNT > WIDTH ?
1862	F2	04	10		5385+		JNH DLP540	JUMP IF NO
1865	5C	00	0B 01		5386+		MVC DLPRES(1,@BR),DLPWK1+@PRCNT(,@BR)	SAVE CNT
1869	5F	00	0B 0D		5387+		SLC DLPRES(1,@BR),DLPWTH(,@BR)	CALCULATE RESIDUAL CNT
186D	5C	00	01 0B		5388+		MVC DLPWK1+@PRCNT(1,@BR),DLPRES(,@BR)	SET CNT TO WIDTH
1871	5C	00	0E 0B		5389+		MVC DLPNXT(1,@BR),DLPRES(,@BR)	SET NEXT LINE CNT = RESIDUAL
1875	0D	00	03C1 03C2		5390+	DLP540	CLC \$LMRGN(1),\$PRPOS	ARE WE AT LEFT MARGIN ?
187B	F2	01	19		5391+		JNE DLPPRL	JUMP TO PRINT LEFT IF NOT
					5392+	*		
					5393+	*	SET UP FOR PRINT RIGHT OPERATION	
					5394+	*		
187E	5D	00	01 0E		5395+		CLC DLPWK1+@PRCNT(1,@BR),DLPNXT(,@BR)	CNT > NEXT CNT ?
1882	F2	02	24		5396+		JNL DLP560	JUMP IF CURRENT CNT > NEXT CNT
					5397+	*		* NEXT LINE
1885	5C	00	01 0D		5398+		MVC DLPWK1+@PRCNT(1,@BR),DLPWTH(,@BR)	SET CURRENT CNT TO MAX
1889	5D	00	0E 0D		5399+		CLC DLPNXT(1,@BR),DLPWTH(,@BR)	NEXT LINE LESS THAN WIDTH ?
188D	F2	02	19		5400+		JNL DLP560	JUMP IF NOT
1890	5C	00	01 0E		5401+		MVC DLPWK1+@PRCNT(1,@BR),DLPNXT(,@BR)	SET CURRENT CNT TO
					5402+	*		* NEXT LINE CNT
1894	F2	87	12		5403+		J DLP560	GO DO PRINTING
					5404+	*		
					5405+	*	SET UP FOR PRINT LEFT OPERATION	
					5406+	*		
				1897	5407+	DLPPRL	EQU *	ENTRY TO PRINT LEFT
1897	3C	01	07CE		5408+		MVI \$\$PSIO,DLPPNT	SET DPRINT FOR LINE MODE
189B	4C	00	01 03C2		5409+		MVC DLPWK1+@PRCNT(1,@BR),\$PRPOS	SET CURRENT PRINT POSITION
18A0	4F	00	01 03C1		5410+		SLC DLPWK1+@PRCNT(1,@BR),\$LMRGN	GET RETURN PRINT CNT
18A5	5F	00	01 0A		5411+		SLC DLPWK1+@PRCNT(1,@BR),DLPONE(,@BR)	SET UP FOR HARDWARE
					5412+	*		
					5413+	*	DO THE PRINT OPERATION	
					5414+	*		
18A9	7C	40	00		5415+	DLP560	MVI DLPWK1+@PCTRL(,@BR),@PRINT	SET NO CARRIER RETURN
					5416+	*		* PRINT LENGTH = WIDTH
18AC	C0	87	0707		5417+		B \$\$PRNT	GO PRINT THE LINE
18B0	182D			18B1	5418+		DC AL2(DLPWK1)	PPL ADDR
18B2	3C	00	07CE		5419+		MVI \$\$PSIO,@ZERO	RESET SIO CTRL FOR NORMAL OPS
18B6	3C	00	07E9		5420+		MVI \$\$PCNT,@ZERO	SET DPRINT PPL CNT ZERO
18BA	C0	87	0707		5421+		B \$\$PRNT	INDEX A LINE
18BE	1835			18BF	5422+		DC AL2(DLPNDX)	INDEX PPL ADDRESS
				174A	5423+		USING DLPBSE,@BR	USE MAINLINE BASE VALUE
18C0	C2	01	174A		5424+		LA DLPBSE,@BR	RESTORE MAINLINE BR
18C4	7D	00	EE		5425+		CLI DLPRES(,@BR),@ZERO	ANY RESIDUAL DATA ?

## DLPRNT -- LIST OUTPUT INTERFACE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	11/02/22	PAGE 44
	18C7	D0	81	A2		5426+	BE DLP440(,@BR)			EXIT TO MAINLINE IF NOT
						5427+*				
				182D	5428+		USING DLPBS2,@BR			USE PRINT BASE ADDR
	18CA	C2	01	182D	5429+		LA DLPBS2,@BR			SET BR
	18CE	7C	F4	0F	5430+		MVI DLPREM(,@BR),DLPBLN			SET REMAINDER TO BUF LENGTH
	18D1	5F	00	0F 0B	5431+		SLC DLPREM(1,@BR),DLPRES(,@BR)			GET REMAINDER FOR BLANK CNT
	18D5	C2	02	1900	5432+		LA DLIBUF,@XR			XR POINTS TO BUFFER
	18D9	74	02	B7	5433+		ST DLP580+@DOP2(,@BR),@XR			SET MOVE INSTR TO BUF ADDR
	18DC	5E	01	B7 0D	5434+		ALC DLP580+@DOP2(@CADDR,@BR),DLPWTH(,@BR)			POINT TO RESIDUAL
	18E0	8C	00	00 0000	5435+DLP580	MVC	0(1,@XR),*-*			MOVE A BYTE OF RESIDUAL DATA
	18E5	E2	02	01	5436+		LA 1(,@XR),@XR			INCREMENT DATA POINTER
	18E8	5E	01	B7 0A	5437+		ALC DLP580+@DOP2(@CADDR,@BR),DLPONE(,@BR)			INCREMENT DATA ADDR
	18EC	5F	00	0B 0A	5438+		SLC DLPRES(1,@BR),DLPONE(,@BR)			DECREMENT RESIDUAL CNT
	18F0	D0	84	B3	5439+		BH DLP580(,@BR)			DO IT AGAIN TILL DONE
	18F3	BC	40	00	5440+DLP600	MVI	0(,@XR),@BLANK			SET REMAINING BLANKS
	18F6	E2	02	01	5441+		LA 1(,@XR),@XR			INCREMENT
	18F9	5F	00	0F 0A	5442+		SLC DLPREM(1,@BR),DLPONE(,@BR)			REMAINDER ?
	18FD	D0	84	C6	5443+		BH DLP600(,@BR)			SET ANOTHER BLANK
	1900	5C	00	01 0E	5444+		MVC DLPWK1+@PRCNT(1,@BR),DLPNXT(,@BR)			SET NEXT CNT
	1904	D0	87	12	5445+		B DLPPrT(,@BR)			GO FINISH LINE
				182D	5447+DLPBS2	EQU	DLPWK1			BASE VALUE FOR PRINT OP
				00F4	5448+DLPBLN	EQU	244			LENGTH OF PRINT BUFFER
					5449+***			END OF DLPRNT		***
				FFFF	5450	END				

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY = 0

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 45

SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$\$\$\$\$	001	0E00	3635	
\$\$\$CMD	001	0020	0844	
\$\$\$DAT	001	0040	0843	
\$\$\$EPL	001	0091	0840	
\$\$\$ERN	001	0080	0894	
\$\$\$FUN	001	0010	0845	
\$\$\$NLN	001	00A0	0890	
\$\$\$STD	001	0081	0839	
\$\$\$001	040	0F11	3688	
\$\$BNLN	001	0605	0820	0822
\$\$CDBS	001	08C0	0870	
\$\$CDND	001	0666	0829	
\$\$CDRD	001	0890	0868	0870
\$\$CKEY	001	0603	0818	
\$\$CKFF	001	0B3D	0850	
\$\$COFF	001	0B44	0849	5304
\$\$CSNS	001	209C	0879	
\$\$DATB	001	0BBF	0851	
\$\$EOSA	001	0AFE	0848	
\$\$ERSK	001	1C00	0889	
\$\$FITS	001	1D00	0897	
\$\$FLIB	001	06FF	0896	
\$\$ILEN	001	0601	0814	0816 0820
\$\$ILHD	001	0600	0812	0814
\$\$INLN	001	0607	0827	0829 0831
\$\$INND	001	06FA	0831	
\$\$KBDT	001	09E1	0838	0842
\$\$KBSN	001	09E2	0842	0847
\$\$KLD1	001	0600	0902	
\$\$KLD2	001	0700	0904	
\$\$KLD3	001	0C00	0906	
\$\$LPOS	001	09EB	0847	
\$\$PCNT	001	07E9	0863	5420*
\$\$PLYN	001	2004	0877	5273
\$\$PRES	001	0890	0836	0838 0848 0849 0850 0851 0868
\$\$PRFL	001	2143	0881	
\$\$PRNT	001	0707	0857	0858 0862 0863 5310 5312 5320 5377 5417 5421
\$\$PRTN	001	0782	0858	
\$\$PSIO	001	07CE	0862	5408* 5419*
\$\$PYCD	001	2200	0883	
\$\$PYMP	001	2000	0875	0877 0879 0881 0883
\$\$SLIB	001	1C00	0892	
\$\$TPCD	001	0606	0822	0827
\$\$UPAR	001	0602	0816	0818
\$\$WSPB	001	1E00	0895	
\$\$XIND	001	06FF	0893	0896
\$\$ZERO	001	0000	0222	0223 0225 0226 0227 0231 0875 4552 4583 4584 4585 4586 4587 4588 4589 4590 4591 4592 4593 4594 4595 4599 4600 4601 4602 4603 4604 4605 4606 4607 4608 4609 4610 4611 4612 4613 4614 4615 4616 4617 4618 4619 4620 4621 4622 4623 4624 4625
\$ABORT	001	0010	0335	
\$BASIC	001	0080	0393	
\$BIGCD	001	0080	0469	
\$BLDPL	001	0579	0602	0604
\$BLNOE	001	0569	0592	
\$BLOAD	001	0522	0583	0585 0588 0601 0602



## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 46

SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$BLRTN	001	0550	0591	0592
\$BRSAV	001	03C5	0280	0281
\$BSADR	001	0587	0607	0609
\$BUFPT	001	03E3	0488	0489
\$CABLD	001	04B4	0561	0562
\$CAERK	001	0469	0538	0541
\$CAERR	001	03CD	0286	0288 4796* 4835*
\$CAIPL	001	049D	0557	0559
\$CALLI	001	0008	0478	
\$CARDI	001	0001	0249	
\$CARPL	001	04A1	0559	0561 3997
\$CIENT	001	0483	0548	0549
\$CIEXT	001	0480	0547	0548
\$CIMSK	001	0476	0544	0547 5379*
\$CISUS	001	0496	0552	0557
\$CLBFR	001	0010	0436	
\$CMDKY	001	0008	0348	
\$CMODE	001	0002	0398	
\$CONFIG	001	03DD	0461	0471
\$CRPOS	001	03E2	0487	0488
\$CRTAD	001	044D	0526	0527
\$CRTAV	001	0002	0342	
\$CRTDN	001	0002	0366	
\$CRTIN	001	03D3	0363	0370 5278 5289 5291* 5296*
\$CRTNO	001	0004	0345	
\$CRTPU	001	0004	0367	5289 5291
\$CRTSP	001	0008	0368	5278 5296
\$CRTUP	001	0001	0365	
\$CRUSH	001	0080	0474	
\$CSDPL	001	050E	0573	0574
\$C0001	001	0464	0530	0536
\$DATE	001	043A	0511	0512
\$DBGUF	001	03E0	0473	0482
\$DBLOK	001	0001	0423	
\$DFDET	001	03E8	0494	0495
\$DISKN	001	0025	0225	4256 4302 5034
\$DKERR	001	0008	0404	
\$DKSIZ	001	03D7	0448	0456 0497
\$DK100	001	0001	0450	
\$DK200	001	0002	0451	
\$DK400	001	0004	0452	
\$DK600	001	0008	0453	
\$DK800	001	0010	0454	
\$DPLSV	001	0449	0522	0524
\$DTNMB	001	0040	0269	
\$DTRDR	001	0040	0357	
\$ENDNU	001	0600	0616	0812 0836 0857 0893 0902 0904 0906 2004
\$ERDPL	001	046F	0541	0543
\$ERFIL	001	0040	0296	
\$ERHRD	001	0004	0428	
\$ERKEY	001	0080	0300	
\$ERLOG	001	0345	0230	
\$ERMAD	001	0472	0543	0544
\$ERPND	001	0004	0401	
\$ERRCT	001	03CF	0302	
\$ERRPG	001	03CE	0290	

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 47

SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$ERSFL	001	0035	0295	
\$ERSTK	001	0030	0293	
\$ER050	001	0363	0231	
\$ER1N2	001	0050	0298	
\$EXADR	001	0517	0576	0578
\$EXCMD	001	0001	0330	
\$EXFTR	001	043B	0512	0517 5252
\$FCIND	001	0010	0408	
\$FDIND	001	0040	0415	
\$FEARR	001	0004	0223	
\$FEMAP	001	0588	0609	0610
\$FILIB	001	03DA	0459	0460
\$FITIN	001	0010	0384	
\$FUIND	001	0020	0413	
\$GUFIO	001	0583	0606	0607
\$GUFIR	001	0008	0258	
\$HISTE	001	042E	0509	0510
\$HIST1	001	0435	0510	0511
\$HRDER	001	0020	0354	
\$INDR1	001	03D4	0370	0396
\$INDR2	001	03D5	0396	0421
\$INDR3	001	03D6	0421	0448
\$INLNO	001	03CF	0288	0290 0302 0309
\$INRPT	001	0020	0266	
\$IOIND	001	03D2	0337	0363 5308
\$IOPGS	001	0010	0477	
\$IOYES	001	0002	0252	
\$IPLDV	001	05FF	0613	0616
\$IRKEY	001	0020	0476	
\$KDOVR	001	0E07	3638	
\$KEYBD	001	03E1	0482	0487
\$KEYCD	001	03C3	0246	0280
\$KEYDT	001	0040	0390	
\$KE090	001	00DE	0226	
\$KE130	001	01D5	0227	
\$KYBSY	001	0010	0263	
\$LDRTN	001	0571	0601	
\$LEVEL	001	03DF	0471	0473
\$LIST	001	0002	0425	
\$LMRGN	001	03C1	0241	0243 5381 5390 5410
\$LNPTR	001	0080	0360	5308
\$LOADB	001	054A	0585	
\$LOADR	001	051A	0578	0581
\$LPRIO	001	03EA	0495	
\$LPROS	001	03E5	0490	0492
\$LPRP3	001	03E4	0489	0490
\$MOUNT	001	0020	0439	
\$MPDWN	001	0001	0339	
\$NEXTB	001	03E6	0492	0493
\$NEXTL	001	03E7	0493	0494
\$NOENB	001	0008	0431	
\$NOLST	001	0004	0255	
\$NUCBS	001	03C0	0238	0239
\$NWRKF	001	0080	0444	
\$NWRKR	001	0040	0441	
\$PASWD	001	042D	0508	0509

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 48

SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$PAUSD	001	04BA	0562	0564
\$PAUSE	001	0002	0332	
\$PGMDT	001	0020	0387	
\$PGMST	001	0010	0351	
\$PKERT	001	0419	0506	0508
\$PLST1	001	0454	0527	0528
\$PLST2	001	045B	0528	0529
\$PLST3	001	0462	0529	0530
\$PRDEV	001	044B	0524	0526 5260 5265
\$PRESN	001	0002	0375	
\$PROCI	001	0001	0372	
\$PRPOS	001	03C2	0243	0246 5390 5409
\$PSDBR	001	04FA	0567	
\$PSDXR	001	04F2	0566	0567
\$PSTEP	001	0004	0333	
\$PSTMT	001	0008	0334	
\$PTCH1	001	03F5	0497	0501
\$READY	001	0080	0417	
\$REORD	001	0040	0475	
\$RLOAD	001	051E	0581	0583
\$RMRGN	001	03C0	0239	0241 5380
\$RSTR	001	04D6	0564	0566 0568 0573
\$RUNIT	001	0001	0311	
\$SFAID	001	050D	0569	
\$SPRNT	001	0465	0536	0538
\$SRTRN	001	04FE	0568	0569
\$STEPT	001	0002	0312	
\$SWPCR	001	0511	0574	0576
\$TABLN	001	03CB	0283	0286
\$TFLOW	001	0008	0318	
\$TRACE	001	0004	0313	
\$TRALL	001	0010	0319	
\$TROVR	001	054E	0588	0591
\$TRUNK	001	0080	0271	
\$TRVAR	001	0020	0320	
\$UNMSK	001	048D	0549	0552 5337
\$USRDR	001	03DC	0460	0461
\$VMDEF	001	0080	0324	
\$VOLF1	001	03FE	0503	0504
\$VOLF2	001	040E	0505	
\$VOLID	001	03F6	0501	0502 0506
\$VOLR1	001	03F6	0502	0503
\$VOLR2	001	0406	0504	0505
\$WAITF	001	057F	0604	0606 3996 4257 4303 5313 5378
\$WFDEF	001	0040	0518	
\$WFLOK	001	0008	0381	
\$WFNME	001	0443	0517	0522
\$WSIND	001	0004	0378	
\$XIND1	001	03D0	0309	0328 3698 4413
\$XIND2	001	03D1	0328	0337
\$XIND3	001	03D8	0456	0459
\$XPREC	001	0040	0321	3698 4413
\$XRSAB	001	03C7	0281	0283
\$ZTRAD	001	05A2	0610	
\$12K	001	0004	0465	
\$16CKY	001	0008	0467	

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 49

SYMBOL	LEN	VALUE	DEFN
\$16K	001	0002	0464
\$22IMP	001	0001	0462
###BL	001	0000	1234
###CK	001	0000	1362
###CN	001	0000	1330
###CO	001	0000	1122
###CS	001	0000	1182
###DR	001	0000	0926
###ER	001	0000	1126
###FS	001	0000	1222
###IN	001	0000	1366
###PW	001	0000	1370
###RS	001	0000	1202
###SA	001	0000	1190
###SS	001	0000	1186
###VU	001	0600	1146
###0T	001	0700	0918
###1T	001	0000	0922
###BCO	001	0600	0934
###BOV	001	0800	1206
###DPR	001	0700	0942
###DRE	001	0889	0958
###DSP	001	2800	0978
###ECM	001	0C00	1238
###EFK	001	0C00	1258
###ERR	001	0C00	1230
###EXM	001	0C00	1118
###FIL	001	0E00	1198
###FIS	001	0E00	1194
###FML	001	0200	1326
###FMS	001	0200	1166
###GRA	001	0889	1090
###GUF	001	0C00	1226
###INL	001	0600	1306
###INS	001	0600	0930
###KAL	001	0C00	1094
###KCA	001	0C00	1310
###KCH	001	0C00	1062
###KCN	001	0C00	1178
###KCT	001	0C00	1030
###KDE	001	0C00	1026
###KDI	001	0D00	1106
###KDN	001	0C00	1014
###KDO	001	0E00	1110
###KED	001	0C00	0950
###KEN	001	0C00	0954
###KEX	001	0C00	0974
###KGO	001	0C00	0946
###KHE	001	0C00	1130
###KKE	001	0C00	1358
###KLI	001	0C00	1034
###KLL	001	0920	1334
###KLO	001	0C00	1038
###KME	001	0D00	1018
###KMO	001	0C00	0962
###KNA	001	0C00	1074

3634

## CROSS REFERENCE

SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 11/02/22 PAGE 50

###KOV	001	0E00	0994
###KPA	001	0C00	0970
###KPO	001	0C00	1058
###KPR	001	0C00	1082
###KRE	001	0C00	1002
###KRL	001	0700	1098
###KRM	001	0C00	0966
###KRN	001	0700	0986
###KRO	001	0D00	0990
###KRS	001	0C00	1314
###KRU	001	0C00	1010
###KRV	001	0800	1102
###KSA	001	0C00	1046
###KSE	001	0E00	1086
###KSO	001	0C20	1138
###KSS	001	0C00	1070
###KSV	001	0980	1066
###KSY	001	0C00	1078
###KWI	001	0C00	1006
###KWR	001	0C00	0998
###LOA	001	0600	0938
###MIP	001	0C00	1134
###SDS	001	0C00	1246
###SFF	001	0E00	1250
###SFL	001	0F00	1242
###SFO	001	1500	1214
###SFS	001	0C00	1210
###SPA	001	0C00	1050
###SPO	001	0806	1054
###SPS	001	0C00	1042
###STR	001	1600	1218
###TDC	001	1000	1022
###TSY	001	1000	0982
###TVK	001	0FC0	1158
###UAL	001	0C00	1174
###UAT	001	0900	1270
###UCD	001	0900	1278
###UCN	001	0C00	1262
###UCP	001	0700	1266
###UDE	001	0C00	1282
###UDI	001	0C00	1286
###UEX	001	0C00	1170
###UIN	001	0C00	1274
###UPA	001	0C00	1254
###UPO	001	0C00	1322
###UPT	001	0C00	1318
###VCR	001	2000	1114
###VLO	001	0600	1150
###VOD	001	0600	1154
###VVM	001	0000	1162
###VXI	001	0600	1142
###ZDU	001	1100	1294
###ZLB	001	1100	1338
###ZLO	001	1100	1298
###ZLV	001	0F00	1354
###ZL1	001	0F00	1342

## CROSS REFERENCE

SYMBOL   LEN   VALUE   DEFN   REFERENCES   VER 15, MOD 00   11/02/22   PAGE   51

###ZL2	001	0F00	1346	
###ZL3	001	0C00	1350	
###ZTR	001	1000	1290	
###ZUT	001	0C00	1302	
##BLN	001	18D4	1233	
##CKT	001	2118	1361	
##CNF	001	2000	1329	
##COR	001	0800	1121	
##CSA	001	1000	1181	
##DRT	001	0000	0925	
##ERM	001	0928	1125	
##FSP	001	1880	1221	
##INV	001	212C	1365	
##PWR	001	2300	1369	
##RSP	001	1780	1201	
##SAV	001	1180	1189	
##SSA	001	1128	1185	
##VUF	001	0B08	1145	
##0TR	001	0000	0917	
##1TR	001	0080	0921	
##@BL	001	0001	1235	
##@CK	001	0004	1363	
##@CN	001	0001	1331	
##@CO	001	003A	1123	
##@CS	001	003A	1183	
##@DR	001	0008	0927	
##@ER	001	0032	1127	
##@FS	001	0030	1223	
##@IN	001	003A	1367	
##@PW	001	00C0	1371	
##@RS	001	0030	1203	
##@SA	001	0108	1191	
##@SS	001	0001	1187	
##@VU	001	0002	1147	
##@0T	001	0018	0919	
##@1T	001	0018	0923	
##@BCO	001	0018	0935	
##@BOV	001	0018	1207	
##@DPR	001	0005	0943	
##@DRE	001	0001	0959	
##@DSP	001	0004	0979	
##@ECM	001	0006	1239	
##@EFK	001	0002	1259	
##@ERR	001	0003	1231	
##@EXM	001	0003	1119	
##@FIL	001	0009	1199	
##@FIS	001	0009	1195	
##@FML	001	0052	1327	
##@FMS	001	0052	1167	
##@GRA	001	0003	1091	
##@GUF	001	0010	1227	
##@INL	001	0010	1307	
##@INS	001	0010	0931	
##@KAL	001	000F	1095	
##@KCA	001	000C	1311	
##@KCH	001	000C	1063	



## CROSS REFERENCE

SYMBOL   LEN   VALUE   DEFN   REFERENCES   VER 15, MOD 00   11/02/22   PAGE   52

##\$@KCN	001	0010	1179	
##\$@KCT	001	0009	1031	
##\$@KDE	001	0010	1027	
##\$@KDI	001	0005	1107	
##\$@KDN	001	0010	1015	
##\$@KDO	001	000C	1111	
##\$@KED	001	000E	0951	
##\$@KEN	001	0006	0955	
##\$@KEX	001	0003	0975	
##\$@KGO	001	0002	0947	
##\$@KHE	001	000C	1131	
##\$@KKE	001	0006	1359	
##\$@KLI	001	0011	1035	
##\$@KLL	001	0001	1335	
##\$@KLO	001	0008	1039	
##\$@KME	001	0003	1019	
##\$@KMO	001	0004	0963	
##\$@KNA	001	0008	1075	
##\$@KOV	001	0009	0995	
##\$@KPA	001	0005	0971	
##\$@KPO	001	000D	1059	
##\$@KPR	001	0009	1083	
##\$@KRE	001	0002	1003	
##\$@KRL	001	0004	1099	
##\$@KRM	001	0003	0967	
##\$@KRN	001	0003	0987	
##\$@KRO	001	000A	0991	
##\$@KRS	001	000A	1315	
##\$@KRU	001	0003	1011	
##\$@KRV	001	000D	1103	
##\$@KSA	001	0011	1047	
##\$@KSE	001	0004	1087	
##\$@KSO	001	0005	1139	
##\$@KSS	001	000B	1071	
##\$@KSV	001	0002	1067	
##\$@KSY	001	000F	1079	
##\$@KWI	001	0002	1007	
##\$@KWR	001	0002	0999	
##\$@LOA	001	0013	0939	
##\$@MIP	001	000D	1135	
##\$@SDS	001	0004	1247	
##\$@SFF	001	0008	1251	
##\$@SFL	001	0005	1243	
##\$@SFO	001	0003	1215	
##\$@SFS	001	0011	1211	
##\$@SPA	001	0004	1051	
##\$@SPO	001	0003	1055	
##\$@SPS	001	0001	1043	
##\$@STR	001	0002	1219	
##\$@TDC	001	0003	1023	
##\$@TSY	001	0003	0983	
##\$@TVK	001	0001	1159	
##\$@UAL	001	0011	1175	
##\$@UAT	001	000C	1271	
##\$@UCD	001	000B	1279	
##\$@UCN	001	0009	1263	

## CROSS REFERENCE

SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 11/02/22 PAGE 53

#\$@UCP	001	000F	1267
#\$@UDE	001	000E	1283
#\$@UDI	001	0008	1287
#\$@UEX	001	000E	1171
#\$@UIN	001	000F	1275
#\$@UPA	001	0004	1255
#\$@UPO	001	0005	1323
#\$@UPT	001	0012	1319
#\$@VCR	001	0008	1115
#\$@VLO	001	0002	1151
#\$@VOD	001	0016	1155
#\$@VVM	001	0030	1163
#\$@VXI	001	0002	1143
#\$@ZDU	001	0008	1295
#\$@ZLB	001	0002	1339
#\$@ZLO	001	000C	1299
#\$@ZLV	001	0006	1355
#\$@ZL1	001	0007	1343
#\$@ZL2	001	000D	1347
#\$@ZL3	001	000A	1351
#\$@ZTR	001	0001	1291
#\$@ZUT	001	0014	1303
#\$BCOM	001	0080	0933
#\$BOLV	001	1780	1205
#\$DPRI	001	014C	0941
#\$DREA	001	0200	0957
#\$DSPL	001	0240	0977
#\$ECMA	001	1900	1237
#\$EFKE	001	1990	1257
#\$ERRP	001	18C0	1229
#\$EXMS	001	07D4	1117
#\$FILN	001	1724	1197
#\$FIST	001	1700	1193
#\$FMLN	001	1E00	1325
#\$FMST	001	0D00	1165
#\$GRAP	001	0690	1089
#\$GUFU	001	1880	1225
#\$INLN	001	1C84	1305
#\$INST	001	0020	0929
#\$KALL	001	06A4	1093
#\$KCAL	001	1CC4	1309
#\$KCHA	001	053C	1061
#\$KCND	001	0F80	1177
#\$KCTL	001	03BC	1029
#\$KDEL	001	035C	1025
#\$KDIS	001	0744	1105
#\$KDNT	001	0300	1013
#\$KDOV	001	0780	1109
#\$KEDI	001	0188	0949
#\$KENA	001	01C4	0953
#\$KEXT	001	0234	0973
#\$KGOS	001	0180	0945
#\$KHEL	001	0A30	1129
#\$KKEY	001	2100	1357
#\$KLIS	001	0400	1033
#\$KLLA	001	2004	1333

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 54

SYMBOL	LEN	VALUE	DEFN	REFERENCES
#\$KLOG	001	0444	1037	
#\$KMER	001	030C	1017	
#\$KMOU	001	0204	0961	
#\$KNAM	001	05C0	1073	
#\$KOVN	001	0290	0993	
#\$KPAS	001	0220	0969	
#\$KPOO	001	0508	1057	
#\$KPRT	001	063C	1081	
#\$KREA	001	02BC	1001	
#\$KRLA	001	0700	1097	
#\$KRMO	001	0214	0965	
#\$KRNU	001	0280	0985	
#\$KROV	001	028C	0989	
#\$KRSU	001	1D24	1313	
#\$KRUN	001	02CC	1009	
#\$KRVL	001	0710	1101	
#\$KSAV	001	0488	1045	
#\$KSET	001	0680	1085	
#\$KSOV	001	0AC8	1137	
#\$KSSP	001	0594	1069	
#\$KSVL	001	058C	1065	
#\$KSYM	001	0600	1077	
#\$KWID	001	02C4	1005	
#\$KWRI	001	02B4	0997	
#\$LOAD	001	0100	0937	
#\$MIPP	001	0A80	1133	
#\$SDSY	001	192C	1245	
#\$SFFI	001	193C	1249	
#\$SFLO	001	1918	1241	
#\$SFOV	001	1844	1213	
#\$SFSY	001	1800	1209	
#\$SPAC	001	04CC	1049	
#\$SPOV	001	04DC	1053	
#\$SPSY	001	0484	1041	
#\$STRO	001	1850	1217	
#\$TDCK	001	0350	1021	
#\$TSYK	001	0250	0981	
#\$TVKB	001	0BAC	1157	
#\$UALL	001	0F00	1173	
#\$UATR	001	1A38	1269	
#\$UCDI	001	1AD8	1277	
#\$UCNF	001	19B8	1261	
#\$UCPL	001	19DC	1265	
#\$UDEL	001	1B24	1281	
#\$UDIS	001	1B5C	1285	
#\$UEXL	001	0EA8	1169	
#\$UINI	001	1A88	1273	
#\$UPAC	001	1980	1253	
#\$UPOV	001	1D24	1321	
#\$UPTF	001	1D5C	1317	
#\$VCRT	001	07B4	1113	
#\$VLOA	001	0B80	1149	
#\$VODK	001	0B88	1153	
#\$VVMR	001	0C00	1161	
#\$VXIT	001	0B00	1141	
#\$ZDUM	001	1BA4	1293	

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 55

SYMBOL	LEN	VALUE	DEFN	REFERENCES
#\$ZLBM	001	2008	1337	
#\$ZLOA	001	1BC4	1297	
#\$ZLVR	001	20B0	1353	
#\$ZL1M	001	2010	1341	
#\$ZL2M	001	2030	1345	
#\$ZL3M	001	2088	1349	
#\$ZTRA	001	1B9C	1289	
#\$ZUTM	001	1C14	1301	
#KDOVR	001	0000	0001	
@@E001	001	0000	1908	1910
@@E003	001	0001	1910	1912
@@E004	001	0002	1912	1914
@@E005	001	0003	1914	1916
@@E006	001	0004	1916	1918
@@E007	001	0005	1918	1920
@@E008	001	0006	1920	1922
@@E009	001	0007	1922	1924
@@E010	001	0008	1924	1926
@@E011	001	0009	1926	1928
@@E012	001	000A	1928	1930
@@E013	001	000B	1930	1932
@@E014	001	000C	1932	1934
@@E015	001	000D	1934	1936
@@E016	001	000E	1936	1938
@@E017	001	000F	1938	1940
@@E018	001	0010	1940	1942
@@E019	001	0011	1942	1944
@@E020	001	0012	1944	1946
@@E021	001	0013	1946	1948
@@E023	001	0014	1948	1950
@@E024	001	0015	1950	1952
@@E025	001	0016	1952	1954
@@E026	001	0017	1954	1956
@@E027	001	0018	1956	1958
@@E028	001	0019	1958	1960
@@E029	001	001A	1960	1962
@@E030	001	001B	1962	1964
@@E031	001	001C	1964	1966
@@E032	001	001D	1966	1968
@@E035	001	001E	1968	1970
@@E036	001	001F	1970	1972
@@E037	001	0020	1972	1974
@@E038	001	0021	1974	1976
@@E039	001	0022	1976	1978
@@E040	001	0023	1978	1980
@@E041	001	0024	1980	1982
@@E042	001	0025	1982	1984
@@E043	001	0026	1984	1986
@@E044	001	0027	1986	1988
@@E045	001	0028	1988	1990
@@E046	001	0029	1990	1992
@@E060	001	002A	1992	1994
@@E080	001	002B	1994	
@@E100	001	0000	1380	1382
@@E101	001	0001	1382	1384
@@E102	001	0002	1384	1386

## CROSS REFERENCE

SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 11/02/22 PAGE 56

@@E103	001	0003	1386	1388	
@@E110	001	0004	1388	1390	4796
@@E112	001	0005	1390	1392	
@@E113	001	0006	1392	1394	
@@E114	001	0007	1394	1396	
@@E115	001	0008	1396	1398	
@@E116	001	0009	1398	1400	
@@E117	001	000A	1400	1402	
@@E120	001	000B	1402	1404	
@@E122	001	000C	1404	1406	4835
@@E123	001	000D	1406	1408	
@@E124	001	000E	1408	1410	
@@E129	001	000F	1410	1412	
@@E130	001	0010	1412	1414	
@@E131	001	0011	1414	1416	
@@E133	001	0012	1416	1418	
@@E134	001	0013	1418	1420	
@@E135	001	0014	1420	1422	
@@E136	001	0015	1422	1424	
@@E137	001	0016	1424	1426	
@@E138	001	0017	1426	1428	
@@E139	001	0018	1428	1430	
@@E142	001	0019	1430	1432	
@@E143	001	001A	1432	1434	
@@E150	001	001B	1434	1436	
@@E151	001	001C	1436	1438	
@@E160	001	001D	1438	1440	
@@E162	001	001E	1440	1442	
@@E163	001	001F	1442	1444	
@@E164	001	0020	1444	1446	
@@E200	001	0021	1446	1448	
@@E205	001	0022	1448	1450	
@@E210	001	0023	1450	1452	
@@E211	001	0024	1452	1454	
@@E212	001	0025	1454	1456	
@@E213	001	0026	1456	1458	
@@E215	001	0027	1458	1460	
@@E216	001	0028	1460	1462	
@@E217	001	0029	1462	1464	
@@E220	001	002A	1464	1466	
@@E221	001	002B	1466	1468	
@@E222	001	002C	1468	1470	
@@E223	001	002D	1470	1472	
@@E225	001	002E	1472	1474	
@@E226	001	002F	1474	1476	
@@E227	001	0030	1476	1478	
@@E228	001	0031	1478	1480	
@@E229	001	0032	1480	1482	
@@E230	001	0033	1482	1484	
@@E232	001	0034	1484	1486	
@@E234	001	0035	1486	1488	
@@E237	001	0036	1488	1490	
@@E240	001	0037	1490	1492	
@@E241	001	0038	1492	1494	3440
@@E242	001	0039	1494	1496	
@@E248	001	003A	1496	1498	

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 57

SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E249	001	003B	1498	1500
@@E250	001	003C	1500	1502
@@E251	001	003D	1502	1504
@@E252	001	003E	1504	1506
@@E253	001	003F	1506	1508
@@E254	001	0040	1508	1510
@@E255	001	0041	1510	1512
@@E256	001	0042	1512	1514
@@E300	001	0043	1514	1516
@@E301	001	0044	1516	1518
@@E302	001	0045	1518	1520
@@E303	001	0046	1520	1522
@@E304	001	0047	1522	1524
@@E305	001	0048	1524	1526
@@E308	001	0049	1526	1528
@@E310	001	004A	1528	1530
@@E315	001	004B	1530	1532
@@E316	001	004C	1532	1534
@@E320	001	004D	1534	1536
@@E325	001	004E	1536	1538
@@E330	001	004F	1538	1540
@@E335	001	0050	1540	1542
@@E338	001	0051	1542	1544
@@E340	001	0052	1544	1546
@@E350	001	0053	1546	1548
@@E351	001	0054	1548	1550
@@E352	001	0055	1550	1552
@@E360	001	0056	1552	1554
@@E361	001	0057	1554	1556
@@E362	001	0058	1556	1558
@@E371	001	0059	1558	1560
@@E380	001	005A	1560	1562
@@E390	001	005B	1562	1564
@@E400	001	005C	1564	1566
@@E410	001	005D	1566	1568
@@E415	001	005E	1568	1570
@@E417	001	005F	1570	1572
@@E420	001	0060	1572	1574
@@E430	001	0061	1574	1576
@@E432	001	0062	1576	1578
@@E433	001	0063	1578	1580
@@E450	001	0064	1580	1582
@@E451	001	0065	1582	1584
@@E460	001	0066	1584	1586
@@E461	001	0067	1586	1588
@@E464	001	0068	1588	1590
@@E465	001	0069	1590	1592
@@E466	001	006A	1592	1594
@@E467	001	006B	1594	1596
@@E469	001	006C	1596	1598
@@E470	001	006D	1598	1600
@@E471	001	006E	1600	1602
@@E473	001	006F	1602	1604
@@E474	001	0070	1604	1606
@@E475	001	0071	1606	1608
@@E476	001	0072	1608	1610



## CROSS REFERENCE

SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 11/02/22 PAGE 58

@@E477	001	0073	1610	1612
@@E478	001	0074	1612	1614
@@E479	001	0075	1614	1616
@@E480	001	0076	1616	1618
@@E481	001	0077	1618	1620
@@E482	001	0078	1620	1622
@@E483	001	0079	1622	1624
@@E484	001	007A	1624	1626
@@E485	001	007B	1626	1628
@@E486	001	007C	1628	1630
@@E487	001	007D	1630	1632
@@E488	001	007E	1632	1634
@@E489	001	007F	1634	1636
@@E490	001	0080	1636	1638
@@E491	001	0081	1638	1640
@@E492	001	0082	1640	1642
@@E493	001	0083	1642	1644
@@E494	001	0084	1644	1646
@@E495	001	0085	1646	1648
@@E496	001	0086	1648	1650
@@E497	001	0087	1650	1652
@@E498	001	0088	1652	1654
@@E500	001	0089	1654	1656
@@E501	001	008A	1656	1658
@@E530	001	008B	1658	1660
@@E531	001	008C	1660	1662
@@E535	001	008D	1662	1664
@@E540	001	008E	1664	1666
@@E541	001	008F	1666	1668
@@E542	001	0090	1668	1670
@@E543	001	0091	1670	1672
@@E544	001	0092	1672	1674
@@E545	001	0093	1674	1676
@@E546	001	0094	1676	1678
@@E547	001	0095	1678	1680
@@E548	001	FFFF	1884	
@@E549	001	0096	1680	1682
@@E550	001	0097	1682	1684
@@E551	001	0098	1684	1686
@@E552	001	0099	1686	1688
@@E553	001	009A	1688	1690
@@E554	001	009B	1690	1692
@@E555	001	009C	1692	1694
@@E556	001	009D	1694	1696
@@E558	001	009E	1696	1698
@@E570	001	009F	1698	1700
@@E571	001	00A0	1700	1702
@@E572	001	00A1	1702	1704
@@E573	001	00A2	1704	1706
@@E574	001	00A3	1706	1708
@@E575	001	FFFF	1886	
@@E578	001	00A4	1708	1710
@@E579	001	FFFF	1888	
@@E580	001	FFFF	1890	
@@E585	001	00A5	1710	1712
@@E595	001	FFFF	1892	

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 59

SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E597	001	FFFF	1894	
@@E598	001	FFFF	1896	
@@E600	001	00A6	1712	1714
@@E601	001	00A7	1714	1716
@@E602	001	00A8	1716	1718
@@E603	001	00A9	1718	1720
@@E604	001	00AA	1720	1722
@@E606	001	00AB	1722	1724
@@E607	001	00AC	1724	1726
@@E608	001	00AD	1726	1728
@@E609	001	00AE	1728	1730
@@E610	001	00AF	1730	1732
@@E611	001	00B0	1732	1734
@@E612	001	00B1	1734	1736
@@E613	001	00B2	1736	1738
@@E614	001	00B3	1738	1740
@@E700	001	00B4	1740	1742
@@E701	001	00B5	1742	1744
@@E710	001	00B6	1744	1746
@@E712	001	00B7	1746	1748
@@E713	001	00B8	1748	1750
@@E714	001	00B9	1750	1752
@@E715	001	00BA	1752	1754
@@E716	001	00BB	1754	1756
@@E717	001	00BC	1756	1758
@@E718	001	00BD	1758	1760
@@E720	001	00BE	1760	1762
@@E721	001	00BF	1762	1764
@@E723	001	00C0	1764	1766
@@E724	001	00C1	1766	1768
@@E725	001	00C2	1768	1770
@@E726	001	00C3	1770	1772
@@E727	001	00C4	1772	1774
@@E728	001	00C5	1774	1776
@@E729	001	00C6	1776	1778
@@E730	001	00C7	1778	1780
@@E732	001	00C8	1780	1782
@@E752	001	00C9	1782	1784
@@E753	001	00CA	1784	1786
@@E754	001	00CB	1786	1788
@@E755	001	00CC	1788	1790
@@E756	001	00CD	1790	1792
@@E757	001	00CE	1792	1794
@@E758	001	00CF	1794	1796
@@E759	001	00D0	1796	1798
@@E760	001	00D1	1798	1800
@@E761	001	00D2	1800	1802
@@E762	001	00D3	1802	1804
@@E763	001	00D4	1804	1806
@@E764	001	00D5	1806	1808
@@E765	001	00D6	1808	1810
@@E766	001	00D7	1810	1812
@@E767	001	00D8	1812	1814
@@E768	001	00D9	1814	1816
@@E769	001	00DA	1816	1818
@@E770	001	00DB	1818	1820

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 60

SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E771	001	00DC	1820	1822
@@E772	001	00DD	1822	1824
@@E773	001	00DE	1824	1826
@@E774	001	00DF	1826	1828
@@E775	001	00E0	1828	1830
@@E776	001	00E1	1830	1832
@@E777	001	00E2	1832	1834
@@E778	001	00E3	1834	1836
@@E779	001	00E4	1836	1838
@@E780	001	00E5	1838	1840
@@E781	001	00E6	1840	1842
@@E782	001	00E7	1842	1844
@@E783	001	00E8	1844	1846
@@E784	001	00E9	1846	1848
@@E785	001	00EA	1848	1850
@@E786	001	00EB	1850	1852
@@E790	001	00EC	1852	1854
@@E791	001	00ED	1854	1856
@@E792	001	00EE	1856	1858
@@E793	001	00EF	1858	1860
@@E794	001	00F0	1860	1862
@@E795	001	00F1	1862	1864
@@E796	001	00F2	1864	1866
@@E797	001	00F3	1866	1868
@@E798	001	00F4	1868	1870
@@E800	001	FFFF	1898	
@@E801	001	FFFF	1900	
@@E802	001	FFFF	1902	
@@E803	001	FFFF	1904	
@@E804	001	FFFF	1906	
@@E900	001	00F5	1870	1872 3436
@@E901	001	00F6	1872	1874 3438
@@E902	001	00F7	1874	1876 3437
@@E903	001	00F8	1876	1878 3439
@@E905	001	00F9	1878	1880
@@E906	001	00FA	1880	1882
@@E910	001	00FB	1882	3435
@@M552	001	0E0F	3655	4503
@@M553	001	0E13	3659	4513
@@M554	001	0E17	3663	4508
@@M555	001	0E1B	3667	4518
@@M556	001	0E1F	3671	4521
@@T552	001	0E23	3675	3657
@@T553	001	0E50	3677	3661
@@T554	001	0E6E	3679	3665
@@T555	001	0E91	3681	3669
@@T556	001	0EBF	3683	3673
@ALTFL	001	0001	0656	
@ARR	001	0008	0015	4243 4324 4794 4832 5002* 5003 5004* 5005 5101 5245* 5246 5247* 5248
@ASIGN	001	007C	0070	
@ASTER	001	005C	0068	
@BCRDL	001	0050	0087	
@BE	001	0081	0042	
@BF	001	0090	0051	
@BH	001	0084	0040	

CROSS REFERENCE																
SYMBOL	LEN	VALUE	DEFN	REFERENCES								VER 15, MOD 00		11/02/22	PAGE	61
@BKSPC	001	0010	0753													
@BL	001	0082	0041													
@BLANK	001	0040	0064	4799	4805	4868	5327	5440								
@BM	001	0082	0053													
@BNE	001	0001	0045	4790												
@BNH	001	0004	0043													
@BNL	001	0002	0044													
@BNM	001	0002	0056													
@BNOL	001	0020	0049													
@BNOZ	001	0008	0048													
@BNP	001	0004	0055													
@BNZ	001	0001	0057													
@BOL	001	00A0	0047													
@BOZ	001	0088	0046													
@BP	001	0084	0052													
@BR	001	0001	0012	3642	3643*	3709	3710	3714	3726	3727	3728	3729	3737	3742	3743	
				3752	3759	3760	3770	3777	3782	3783	3789	3796	3797	3797	3798	
				3800	3809	3810	3818	3823	3824	3830	3837	3838	3849	3852	3863	
				3863	3864*	3868	3870	3870*	3876	3877*	3881	3883	3885	3899	3901	
				3902	3912	3912	3913	3914	3914	3915	3916	3916	3917	3927	3928	
				3929	3934	3935	3948	3950	3955	3965	3966	3970	3972	4001	4008	
				4014	4018	4022	4029	4030	4049	4050	4061	4061	4062	4063	4065	
				4069	4080	4086	4086	4087	4096	4107	4111	4116	4118	4118	4121	
				4121	4123	4127	4129	4134	4138	4138	4139	4139	4141	4142	4142	
				4144	4144	4145	4145	4146	4146	4151	4152	4152	4157	4160	4161	
				4164	4171	4173	4174	4175	4175	4176	4176	4181	4181	4194	4195	
				4200	4201	4202	4203	4211	4211	4212	4213	4214	4218	4218	4219	
				4219	4220	4220	4221	4221	4222	4222	4224	4225	4225	4226	4226	
				4229	4229	4231	4231	4234	4248	4248	4253	4253	4261	4264	4264*	
				4288	4310	4315*	4326	4335	4335	4339	4341	4351	4362	4366	4366	
				4368	4371	4371	4376	4377	4378	4384	4384	4386	4388	4388	4390	
				4390	4395	4402	4407	4408	4409	4410	4411	4412	4418	4419	4420	
				4421	4422	4423	4424	4425	4426	4431	4441	4443	4444	4449	4454	
				4455	4455	4456	4457	4459	4460	4465	4466	4466	4467	4468	4468	
				4469	4470	4472	4473	4475	4477	4478	4483	4485	4485	4486	4486	
				4490	4491	4500	4505	4510	4515	4527	4530	4535	4827	4829	4830*	
				4832	4834	4836	4836	4846	4846	4851	4851	4852	4852	4853	4853	
				4854	4854	4855	4855	4859	4860	4860	4863	4869	4870	4875	4876	
				4876	4878*	4998	4999	5001*	5002	5003	5004	5005	5007	5008	5008	
				5009	5011	5012	5014	5016	5016	5017	5017	5018	5020	5022	5023	
				5023	5024	5026	5028</									

@BT	001	0010	0050
@BZ	001	0081	0054

CROSS REFERENCE															
SYMBOL	LEN	VALUE	DEFN	REFERENCES	VER 15, MOD 00 11/02/22 PAGE 62										
@BZ37B	001	00F2	0766												
@B1	001	0001	0062	4385	4862	4867	5104	5105							
@CADDR	001	0002	0141	2753	2754	2755	3389	3416	3657	3661	3665	3669	3673	3735	3760
				3776	3796	3816	3838	3996	4027	4124	4255	4257	4301	4303	4503
				4508	4513	4518	4521	5008	5262	5434	5437				
@CARDL	001	0060	0086	0829											
@CC37B	001	0000	0762												
@CD37B	001	00F0	0780												
@CHARA	001	00C1	0071												
@CHARF	001	00C6	0072												
@CHARR	001	00D9	0073												
@CHARZ	001	00E9	0074												
@CKY01	001	0001	0714												
@CKY02	001	0002	0715												
@CKY03	001	0003	0716												
@CKY04	001	0004	0717												
@CKY05	001	0005	0718												
@CKY06	001	0006	0719												
@CKY07	001	0007	0720												
@CKY08	001	0008	0721												
@CKY09	001	0009	0722												
@CKY10	001	000A	0723												
@CKY11	001	000B	0724												
@CKY12	001	000C	0725												
@CKY13	001	000D	0726	5353											
@CKY14	001	000E	0727												
@CKY15	001	000F	0728												
@CKY16	001	0010	0729												
@CLOFF	001	0010	0093												
@CLON	001	0011	0092												
@CMLON	001	0001	0732	5277*											
@CMOFF	001	0000	0731	5281*											
@COMMA	001	006B	0065	4801											
@CPLUS	001	004E	0078												
@CP37B	001	0004	0793												
@CRERR	001	0090	0748												
@CRPRY	001	0004	0752												
@CRTDS	001	0092	0745												
@CRTQ	001	0090	0747												
@CURSR	001	0040	0749												
@DADDR	001	0002	0139	5007											
@DBFR1	001	0004	0128	5074*											
@DBFR2	001	0005	0129												
@DBUSY	001	0002	0650												
@DCALK	001	0001	0080	</											

## CROSS REFERENCE

SYMBOL	LEN	VALUE	DEFN	REFERENCES	VER 15, MOD 00	11/02/22	PAGE	63
@DD2	001	0003	0029	3705* 3706* 3753 3759* 3761 3790 3800* 3801 3831 3837* 3839 4270* 4275* 4280 4285* 4286* 4287 4292 4293* 4294* 4295 4309 4369 4379 5329* 5330* 5331				
@DEFLG	001	0002	0657					
@DERCE	001	0020	0687					
@DERD2	001	0008	0679					
@DEREQ	001	0010	0678					
@DERIN	001	0040	0676					
@DERMA	001	0020	0677					
@DERNR	001	0004	0680					
@DERR	001	0000	0651					
@DERSC	001	0001	0682					
@DERTC	001	0002	0681					
@DFCR	001	0006	0637					
@DFDR	001	0004	0638					
@DGET	001	0001	0133					
@DHARD	001	0000	0665					
@DLNCT	001	000F	0751					
@DLNLG	001	0040	0750					
@DOLAR	001	005B	0067					
@DOP2	001	0004	0027	5003* 5007* 5008* 5079 5080 5433* 5434* 5437*				
@DPLNG	001	0006	0131	5009 5043				
@DPOS	001	0000	0132					
@DPUT	001	0002	0134					
@DREAD	001	0001	0641					
@DSAD	001	0002	0126	5045				
@DSBCY	001	0004	0105	2520				
@DSBSY	001	0092	0746					
@DSCS1	001	0000	0106	2521				
@DSEEK	001	0000	0640					
@DSIVF	001	0003	0137					
@DSPIN	001	0002	0130					
@DTRSZ	001	0018	0084					
@DUNSF	001	0080	0683					
@DVBCY	001	0007	0107	2579				
@DVERY	001	0003	0646					
@DVRFY	001	0031	0135					
@DVST1	001	0002	0652					
@DVST2	001	0003	0653					
@DWAIT	001	00FF	0136					
@DWBCY	001	0005	0102	2576				
@DWBIT	001	0002	0642					
@DWSIZ	001	00C0	0104					
@DWTB1	001	0003	0103	2577				
@DZERO	001	00F0	0063					
@D1	001	0002	0025	3704* 3734 3775 3815 4261* 4287* 4292* 4309* 4363 4526* 4530* 4535 4846 5104* 5116* 5331*				
@EOF	001	001C	0076					
@EOFTC	001	0075	0161					
@EOS	001	001E	0075	2592 4807				
@ER37B	001	00F0	0767					
@FDDBC	001	0000	0194					
@FDE1	001	000C	0199					
@FDFNA	001	000B	0197					
@FDHLN	001	0002	0207					
@FDLNC	001	0002	0192					



## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 64

SYMBOL	LEN	VALUE	DEFN	REFERENCES
@FDNSC	001	0003	0209	
@FDSD	001	0000	0205	
@FLACE	001	0009	0196	
@FLDBC	001	0001	0195	
@FLDIN	001	0012	0739	
@FLENT	001	0004	0200	
@FLFNA	001	0002	0198	
@FLHLN	001	0002	0208	
@FLLNC	001	0002	0193	
@FLNSC	001	0001	0210	
@FLSD	001	0001	0206	
@HDRLN	001	0007	0091	0857
@HSTAD	001	0009	0663	
@HSTEN	001	0007	0662	
@HSTPE	001	0006	0661	
@HSTQR	001	0001	0659	
@HSTSN	001	0005	0660	
@HSTVI	001	000F	0664	
@IAR	001	0010	0016	
@ID37B	001	0040	0803	
@INDEX	001	0001	0155	0156 5360
@INST3	001	0003	0031	
@INST4	001	0004	0032	
@INST5	001	0005	0033	
@INST6	001	0006	0034	
@IP37B	001	00C0	0802	
@I1IAR	001	00C0	0019	
@KCMDK	001	0020	0713	
@KELOK	001	001B	0712	
@KENAB	001	001E	0710	
@KEXIT	001	001F	0711	
@KEYBD	001	0010	0730	5277* 5281*
@KFUNK	001	0010	0733	
@KHARD	001	0011	0738	
@KLEAR	001	000D	0734	
@LINSZ	001	00F4	0083	0831
@LO37B	001	00F0	0771	
@MAPEN	001	0005	0088	
@MINCR	001	2000	0082	
@MINUS	001	0060	0079	
@NOP	001	0080	0039	4841 4915 5012 5280 5284 5379
@NORFL	001	0000	0658	
@NTRDY	001	00A0	0795	
@NUMBR	001	007B	0069	
@OPD2	001	0004	0028	
@OP1	001	0003	0026	3716* 3760* 3796* 3838* 3907* 3951* 4002* 4027 4027* 4055* 4106* 4124 4124* 4193* 4243* 4244* 4324* 4325* 4794* 4829* 4832* 4999* 5005* 5099* 5101* 5242* 5244* 5246* 5248* 5262* 5268
@OP2	001	0005	0030	
@OVRUN	001	0004	0688	
@PBUSY	001	00E2	0700	
@PCAR	001	00E6	0697	
@PCNT	001	0003	0632	
@PCTRL	001	0000	0148	5275 5315 5415*
@PCYL	001	0001	0630	
@PC37B	001	00F2	0787	

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 65

SYMBOL	LEN	VALUE	DEFN	REFERENCES
@PDAR	001	00E4	0696	
@PDATA	001	0003	0150	5250 5250* 5332
@PD37B	001	0080	0801	
@PERR	001	00E0	0703	
@PFLAG	001	0000	0629	
@PFORM	001	00E1	0701	
@PGCSZ	001	0020	0081	0082
@PLITE	001	00E2	0702	
@PLNGH	001	0004	0693	
@PMGCK	001	0020	0704	
@PN37B	001	00F0	0786	
@PPLNG	001	0004	0147	5250 5359
@PRCNT	001	0001	0149	4535* 5317* 5322 5322* 5323 5323* 5329 5382 5384 5386 5388* 5395 5398* 5401* 5409* 5410* 5411* 5444*
@PRETR	001	00C0	0153	3655 3659 3663 3667 3671
@PRINT	001	0040	0151	0153 5415
@PRITY	001	0080	0737	
@PSAD	001	0002	0631	
@PSIOQ	001	00E0	0699	
@PSIOR	001	0000	0698	
@PSNSQ	001	00E2	0705	
@PSR	001	0004	0014	
@PWAIT	001	00FF	0157	5275 5315 5318 5324
@P1IAR	001	0020	0017	
@P2IAR	001	0040	0018	
@Q	001	0001	0023	3703* 3707* 3708* 4135 4204 4271 4288 4293 4295* 4310 4385* 4389 4389* 4813 4909 4913 5011* 5012* 5022* 5028* 5054 5055 5057 5066* 5068 5105* 5113 5113* 5116 5282* 5284*
@RD37B	001	00F1	0781	
@REGL	001	0002	0011	
@RETRN	001	0080	0152	0153 5367
@RLDWN	001	004F	0158	
@RTCNT	001	0003	0695	
@RTRNC	001	0080	0160	
@RT37B	001	0005	0794	
@SBLN	001	0005	0169	
@SBLNL	001	0002	0183	
@SCTS	001	0100	0099	
@SDFLN	001	0007	0089	
@SDF0	001	0000	0165	
@SDF1	001	0001	0166	
@SDF2	001	0002	0167	
@SDF3	001	0003	0168	
@SECCY	001	0030	0085	
@SIST	001	0001	0180	
@SKCTL	001	0000	0645	
@SLASH	001	0061	0066	
@SLAST	001	0002	0182	
@SMIDL	001	0003	0181	
@SNSB0	001	0000	0669	
@SNSB1	001	0001	0670	
@SNSB2	001	0002	0671	
@SNSB3	001	0003	0672	
@SNNULL	001	0080	0172	
@SN37B	001	00F2	0775	
@SONLY	001	0000	0179	

VER 15, MOD 00 11/02/22 PAGE 66

SYMBOL	LEN	VALUE	DEFN	REFERENCES					VER 15, MOD 00					11/02/22		PAGE	66
@SPINA	001	00A0	0654														
@SPINB	001	00B0	0655														
@STEXT	001	0007	0171														
@STYPE	001	0006	0170														
@SYCNT	001	0002	0694														
@SYLVL	001	0005	3471														
@TBCNT	001	0000	0159														
@TBLEF	001	0010	0154	0156													
@TBLIX	001	0011	0156														
@TJ37B	001	0040	0792														
@TYPAM	001	0002	0736														
@TYPO	001	001C	0735														
@UCB	001	0087	0038	4791	4802	4911	5066	5282									
@UPARW	001	005A	0077	3454													
@VADDR	001	0002	0140	2313	2749	2761	2762	2763	2763	2777	2780	2782	2806	2807	2808		
				2846	2849	2852	2855	2858	2861	2864	2873	2876	2879	2882	2885		
				3390	3416	3737	3742	3777	3782	3818	3823	3965	3970	4022	4174		
@VENTA	001	0056	0112	2580	2835												
@VMDDV	001	00FE	0113														
@VMFD1	001	0000	0108														
@VMFD2	001	0001	0109														
@VMRS3	001	0002	0111														
@VMTRL	001	0001	0110														
@VOLID	001	0006	0090														
@VQ	001	0001	0024	5333													
@WA37B	001	00FF	0800														
@WSFIT	001	0500	0100														
@WSTBL	001	0503	0101														
@XR	001	0002	0013	3709*	3716	3733*	3737	3742	3751*	3752	3774*	3777	3782	3788*	3789		
				3814*	3818	3823	3829*	3830	3848*	3852*	3868	3881	3883	3889	3889*		
				3890	3901	3907	3908*	3913*	3917*	3922	3928*	3939	3951	3952*	3954*		
				3955*	3965	3970	3979*	3988	3988*	3990	4002	4007*	4013*	4018*	4022		
				4028*	4030*	4034	4048	4048*	4049*	4050	4054*	4055	4056	4069*	4073		
				4078	4091	4098	4106	4107*	4116	4125*	4127	4129	4141	4151	4157*		
				4159*	4160	4161*	4163*	4164	4165*	4171	4174	4184*	4193	4194*	4200		
				4201	4202	4212	4213	4233*	4234*	4244	4262*	4263	4263*	4268	4288		
				4304*	4310	4314*	4325	4326*	4350	4351	4362	4368	4378	4395	4396		
				4397	4397	4398	4399	4401	4402	4403	4407	4408	4409	4410	4411		
				4412	4418	4419	4420	4421	4422	4423	4424	4425	4426	4431	4432		
				4433	4433	4444	4491	4527*	4528	4541*	4795	4798	4798*	4799	4801		
				4804	4804*	4805	4807	4809	4834	4843	4859	4862	4862*	4867	4867*		
				4868	4875	5107	5244	5249*	5250	5326*	5327	5328	5328	5333	5336*		
				5432*	5433	5435	5436	5436*	5440	5441	5441*						
@ZERO	001	0000	0061	5011	5292	5317	5383	5419	5420	5425							
@4K	001	0010	0754														
B\$ADMK	001	0001	2217														
B\$ADSW	001	159D	2216														
B\$ARMK	001	0001	2202														
B\$ARSW	001	0A45	2201														
B\$BABF	001	1D00	2007														
B\$BCKT	001	1590	2129														
B\$BDPL	001	19E8	2081														
B\$BDSA	001	19EA	2082														
B\$BINO	001	1A6A	2145														
B\$BRLN	001	19F1	2080														
B\$BROP	001	1AF7	2186														

CROSS REFERENCE

SYMBOL   LEN   VALUE   DEFN   REFERENCES   VER 15, MOD 00   11/02/22   PAGE   67

B\$BRVA	001	19EF	2079													
B\$BRVP	001	19EE	2078													
B\$BTAB	001	1996	2077													
B\$CADR	001	1AF9	2187													
B\$CASA	001	0000	2022													
B\$CASC	001	0671	2026													
B\$CASM	001	0608	2024													
B\$CBAS	001	14BB	2152													
B\$CBFA	001	0CBC	2107													
B\$CCGT	001	0600	2032													
B\$CCLS	001	0695	2038													
B\$CCON	001	001F	2105													
B\$CDAT	001	0600	2018													
B\$CDEF	001	0600	2019													
B\$CDIM	001	0673	2020													
B\$CDUM	001	0000	2056	2055												
B\$CEND	001	0600	2054													
B\$CEOF	001	0600	2055													
B\$CFOR	001	0600	2027													
B\$CGET	001	06A3	2035													
B\$CGSB	001	0690	2033													
B\$CGTO	001	06B3	2031													
B\$CIFA	001	0600	2029													
B\$CIFC	001	0600	2030													
B\$CIMG	001	0600	2044													
B\$CINP	001	0600	2039													
B\$CLTA	001	0000	2021													
B\$CLTC	001	0669	2025													
B\$CLTM	001	0600	2023													
B\$CMAT	001	0600	2045													
B\$CMGT	001	0665	2046													
B\$CMIN	001	06D3	2047													
B\$CMPR	001	069B	2050													
B\$CMPT	001	069B	2049													
B\$CMPU	001	0600	2051													
B\$CMRD	001	06D0	2048													
B\$CNXT	001	0600	2028													
B\$CPCT	001	0CA8	2110													
B\$CPRT	001	0600	2042													
B\$CPRU	001	0600	2043													
B\$CPSE	001	06E7	2052													
B\$CPUT	001	0600	2036													
B\$CPWA	001	0CA6	2181													
B\$CRAD	001	150D	2151													
B\$CRBS	001	1509	2153													
B\$CREA	001	06CF	2040													
B\$CREM	001	0000	2017													
B\$CRMK	001	0001	2229													
B\$CRSR	001	06E3	2041													
B\$CRST	001	06A6	2037													
B\$CRSW	001	0E42	2228													
B\$CRTN	001	06CF	2034													
B\$CSBF	001	0600	2004		2018	2019	2020	2023	2024	2025	2026	2027	2028	2029	2030	2031
					2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
					2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2057
					2058	2059	2060	2061								

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 68

SYMBOL	LEN	VALUE	DEFN	REFERENCES
B\$CSCN	001	14B0	2126	
B\$CSMK	001	0007	2232	
B\$CSSW	001	14BC	2231	
B\$CSTP	001	06D6	2053	
B\$CSTR	001	14CC	2150	
B\$CSXA	001	2000	2010	
B\$CTYP	001	0A5F	2104	
B\$CVPD	001	0C5D	2109	
B\$CVPG	001	0CA5	2108	
B\$CWRK	001	F500	2178	
B\$DIST	001	0700	2070	
B\$DLNK	001	1B37	2176	
B\$DL4T	001	1A6B	2147	
B\$DPWA	001	0E46	2182	
B\$DST2	001	073A	2071	
B\$ERMK	001	0007	2205	
B\$ERSW	001	0993	2204	
B\$FACA	001	0E53	2113	
B\$FAIS	001	15AC	2130	
B\$FAIW	001	15A0	2131	
B\$FCON	001	0A46	2103	
B\$FORT	001	1B0E	2172	
B\$FPWA	001	15AC	2183	
B\$FRMK	001	0007	2223	
B\$FRSW	001	16CC	2222	
B\$FSC1	001	0E4C	2114	
B\$FSC2	001	0E4D	2115	
B\$FSMK	001	0007	2214	
B\$FSSW	001	0E5C	2213	
B\$FSVA	001	0E4F	2116	
B\$FTND	001	1B0B	2174	
B\$FTPT	001	1B0D	2173	
B\$FVME	001	15A2	2135	
B\$FVMP	001	15A4	2136	
B\$FVMS	001	15A6	2137	
B\$FVPE	001	15A8	2132	
B\$FVPP	001	15AA	2133	
B\$FVPS	001	15AC	2134	
B\$GBSW	001	08AF	2207	
B\$GBWK	001	0001	2208	
B\$GETC	001	0867	2084	
B\$GPTR	001	0878	2086	
B\$GTBF	001	1E00	2008	
B\$IFMK	001	0007	2226	
B\$IFSW	001	16E5	2225	
B\$INVT	001	1B38	2166	
B\$KWMK	001	0001	2220	
B\$KWSW	001	159E	2219	
B\$LBAS	001	185E	2157	
B\$LBSV	001	18E7	2155	
B\$LDRP	001	1A00	2005	4634 4635 4636 4637 4638
B\$LINE	001	07D0	2072	
B\$LIST	001	1853	2139	
B\$LRTN	001	18EB	2156	
B\$LSTR	001	1862	2154	
B\$LTYP	001	18F2	2140	

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 69

SYMBOL	LEN	VALUE	DEFN	REFERENCES
B\$MATR	001	18F3	2142	
B\$MBMK	001	0007	2241	
B\$MBSW	001	1903	2240	
B\$MFBK	001	1B8F	2168	
B\$MGMK	001	0007	2238	
B\$MGSW	001	18FF	2237	
B\$MPMK	001	0007	2244	
B\$MPSW	001	1981	2243	
B\$MRMK	001	0007	2235	
B\$MRSW	001	0DDE	2234	
B\$NUMC	001	0873	2085	
B\$NXMK	001	0007	2211	
B\$NXSW	001	071D	2210	
B\$PARP	001	0A41	2093	
B\$PBNL	001	0A01	2099	
B\$PCAD	001	0A40	2094	
B\$PCDL	001	09D3	2098	
B\$PCPG	001	0A35	2097	
B\$PECT	001	0A44	2101	
B\$PERC	001	0A39	2100	
B\$PFAE	001	0033	2091	
B\$PFCL	001	009D	2092	
B\$PFNC	001	094E	2089	
B\$PFWP	001	0015	2090	
B\$PNBY	001	0A41	2095	
B\$PPWA	001	0A35	2180	
B\$PRM1	001	1AF3	2184	
B\$PTBF	001	1F00	2009	
B\$PUTC	001	093A	2088	
B\$PVAD	001	0A43	2096	
B\$RMRK	001	1AE6	2149	
B\$RTRN	001	1AF5	2185	
B\$SABF	001	1C00	2006	
B\$SCAN	001	1514	2128	
B\$SCAT	001	13C8	2123	
B\$SCON	001	001B	2106	
B\$SCVT	001	12E0	2121	
B\$SDPL	001	07DA	2074	
B\$SFAB	001	0E48	2118	
B\$SFNT	001	143C	2124	
B\$SLDT	001	109C	2120	
B\$SLVT	001	1062	2119	
B\$SNAT	001	131A	2122	
B\$SPAT	001	07E0	2075	
B\$SSTA	001	1BAC	2170	
B\$STAS	001	061B	2059	
B\$STIF	001	0606	2061	
B\$STMA	001	061B	2060	
B\$STML	001	0600	2058	
B\$STRL	001	0600	2057	
B\$SVRB	001	0E46	2117	
B\$SYMB	001	0DBC	2112	
B\$TCD2	001	0001	2190	
B\$TLTH	001	0002	2191	2192
B\$TOD1	001	0000	2189	
B\$TOTB	001	1AF8	2192	



## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 70

SYMBOL	LEN	VALUE	DEFN	REFERENCES
B\$TTAB	001	1AFA	2188	2192
B\$TYPE	001	0739	2073	
B\$WORK	001	15A0	2177	
B\$ZDBN	001	19F2	2144	
B@ABAS	001	0007	2777	4151 4202
B@ACD1	001	0001	2774	2775 4116 4127 4200
B@ACD2	001	0003	2775	2776 4129 4141 4201
B@AFLG	001	0000	2769	
B@ALLA	001	005C	2594	
B@AMAX	001	0005	2776	2777
B@BLNK	001	0040	2603	3728 3934 4330 4399 4432 4528
B@BLSZ	001	0100	2728	2867 2870 2873 2888 2891
B@BREQ	001	0084	2383	
B@BRHI	001	0088	2384	
B@BRLO	001	0082	2382	
B@BRNE	001	0094	2386	
B@BRNH	001	0098	2387	
B@BRNL	001	0092	2385	
B@CADD	001	0006	2252	
B@CADF	001	0058	2293	
B@CBAS	001	0003	2780	4174 4213
B@CBNX	001	004A	2286	
B@CBRA	001	0046	2284	
B@CBRC	001	0044	2283	
B@CBRD	001	0048	2285	
B@CBRS	001	004C	2287	
B@CCLS	001	005E	2296	
B@CCMC	001	0042	2282	
B@CCMF	001	0040	2281	
B@CCNT	001	001F	2706	
B@CCSA	001	003E	2280	
B@CDCA	001	006A	2302	
B@CDDL	001	006C	2303	
B@CDIV	001	000C	2255	
B@CDMN	001	0001	2779	2780 4171 4212
B@CDWA	001	006E	2304	
B@CEOF	001	0070	2305	
B@CEOP	001	0068	2301	
B@CFCI	001	0016	2260	
B@CFN0	001	0012	2258	
B@CFN1	001	0014	2259	
B@CFOR	001	004E	2288	
B@CGET	001	0052	2290	
B@CHAR	001	0000	2719	
B@CHLT	001	0004	2251	
B@CIEX	001	00C5	2679	
B@CIMH	001	0066	2300	
B@CINI	001	0056	2292	
B@CIPI	001	00D7	2682	
B@CIS2	001	00E2	2685	
B@CMF1	001	0018	2261	
B@CMF2	001	001A	2262	
B@CMF3	001	001C	2263	
B@CMMMA	001	006B	2614	4098 4467 4483
B@CMPY	001	000A	2254	
B@CMSM	001	001E	2264	

CROSS REFERENCE																		
SYMBOL	LEN	VALUE	DEFN	REFERENCES										VER 15, MOD 00	11/02/22	PAGE	71	
B@CNEG	001	0010	2257															
B@CNXT	001	0050	2289															
B@COLN	001	007A	2616															
B@CPMK	001	00FF	2524	2528	2532	2533	2567											
B@CPRS	001	0060	2297															
B@CPRU	001	0062	2298															
B@CPUT	001	0054	2291															
B@CPWR	001	000E	2256															
B@CRSR	001	005A	2294															
B@CRST	001	005C	2295															
B@CSA1	001	0036	2276															
B@CSA2	001	0038	2277															
B@CSB1	001	003A	2278															
B@CSC1	001	002A	2270															
B@CSD0	001	002E	2272															
B@CSD1	001	0030	2273															
B@CSD2	001	0032	2274															
B@CSF1	001	0022	2266															
B@CSF2	001	0024	2267															
B@CSTA	001	0034	2275															
B@CSTC	001	0028	2269															
B@CSTF	001	0020	2265															
B@CSTH	001	0064	2299															
B@CSTX	001	003C	2279															
B@CSUB	001	0008	2253															
B@CSVC	001	0002	2250															
B@CTYP	001	0020	2704															
B@CUSC	001	002C	2271															
B@CUSF	001	0026	2268															
B@CVAR	001	005B	2593	3809	3922	3927												
B@DAMK	001	0080	2772															
B@DASA	001	00FF	2533															
B@DASC	001	0040	2537															
B@DASM	001	0038	2535															
B@DCGT	001	0050	2543															
B@DCLS	001	0054	2549															
B@DDAT	001	0024	2529															
B@DDEF	001	0034	2530															
B@DDIM	001	0004	2531															
B@DDUM	001	00FF	2567															
B@DEC0	001	00F0	2662	3770	3890	4056	4073	4078	4224	4396	4457	4470	4475					
B@DEC1	001	00F1	2663															
B@DEC2	001	00F2	2664															
B@DEC3	001	00F3	2665															
B@DEC4	001	00F4	2666															
B@DEC5	001	00F5	2667															
B@DEC6	001	00F6	2668															
B@DEC7	001	00F7	2669															
B@DEC8	001	00F8	2670															
B@DEC9	001	00F9	2671	3798														
B@DEND	001	0058	2565	2566														
B@DEOF	001	0058	2566															
B@DFOR	001	0028	2538															
B@DGET	001	0040	2546															

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 72

SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@DIFA	001	0048	2540	
B@DIFC	001	004C	2541	
B@DIGS	001	007B	2596	
B@DIMG	001	003C	2555	
B@DINP	001	0000	2550	
B@DIVD	001	0061	2613	
B@DLTA	001	00FF	2532	
B@DLTC	001	0040	2536	
B@DLTM	001	0038	2534	
B@DL01	001	0001	2847	2850
B@DL02	001	0003	2850	2853
B@DL03	001	0005	2853	2856
B@DL04	001	0007	2856	2859
B@DL05	001	0009	2859	2862
B@DL06	001	000B	2862	2865 4634
B@DL07	001	0045	2865	2868 4635
B@DL08	001	0145	2868	2871
B@DL09	001	0245	2871	2874
B@DL10	001	0289	2874	2877 4636
B@DL11	001	02C3	2877	2880 4637
B@DL12	001	02FD	2880	2883 4638
B@DL13	001	0337	2883	2886
B@DL14	001	0371	2886	2889
B@DL15	001	0471	2889	2892
B@DL16	001	0507	2892	
B@DMAT	001	0008	2556	
B@DMGT	001	0044	2557	
B@DMIN	001	0038	2558	
B@DMPR	001	0048	2561	
B@DMPT	001	004C	2560	
B@DMPU	001	0054	2562	
B@DMRD	001	003C	2559	
B@DNXT	001	0044	2539	
B@DPNT	001	004B	2604	4403
B@DPRT	001	002C	2553	
B@DPRU	001	0030	2554	
B@DPSE	001	0050	2563	
B@DPUT	001	0040	2547	
B@DREA	001	000C	2551	
B@DREM	001	00FF	2528	
B@DRSR	001	005C	2552	
B@DRST	001	0050	2548	
B@DRTN	001	005C	2545	
B@DSCY	001	0004	2520	
B@DSIF	001	001C	2569	
B@DSLT	001	0010	2568	
B@DSML	001	0010	2570	
B@DSNS	001	0018	2522	
B@DSS1	001	0000	2521	
B@DSTP	001	0054	2564	
B@DTBN	001	0010	2586	
B@DTB1	001	0050	2585	
B@DTCY	001	0009	2582	
B@DTSN	001	0010	2584	
B@DTS1	001	0040	2583	
B@DTYP	001	0040	2698	4268

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 73

SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@DVCY	001	0007	2579	
B@DVC1	001	0056	2580	
B@DWCY	001	0005	2576	
B@DWT1	001	0003	2577	
B@D1MK	001	0080	2770	
B@D2MK	001	00C0	2771	
B@EOST	001	001E	2592	3990
B@EQUL	001	007E	2618	4443 4490
B@EXPC	001	00C5	2595	
B@FOFL	001	005C	2597	
B@FVAD	001	0001	2782	
B@GETC	001	0001	2721	
B@GETE	001	00FF	2722	
B@GETS	001	0000	2720	
B@GRTR	001	006E	2615	
B@ICON	001	0050	2677	
B@LADD	001	0001	2321	
B@LADF	001	0002	2362	
B@LADV	001	0008	2806	2827
B@LBIN	001	0002	2731	2732 2738 4061 4086 4087 4116 4118 4121 4376* 4384 4388 4388 4390 4390
B@LBNX	001	0003	2355	
B@LBRA	001	0003	2353	
B@LBRC	001	0004	2352	
B@LBRD	001	0003	2354	
B@LBRS	001	0001	2356	
B@LCCA	001	0004	2762	
B@LCCC	001	0001	2314	2352
B@LCDV	001	0004	2807	2828
B@LCER	001	0001	2312	2376
B@LCFN	001	0004	2763	
B@LCLN	001	0002	2317	2368 2369 2376
B@LCLS	001	0001	2365	
B@LCMC	001	0001	2351	
B@LCMF	001	0001	2350	
B@LCNA	001	0006	2761	
B@LCNN	001	0001	2315	2340 2349 2361 2373
B@LCOP	001	0001	2311	2319 2320 2321 2322 2323 2324 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2362 2363 2364 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374
B@LCRV	001	0013	2805	2825 4173 4214 4275
B@LCSA	001	0002	2349	
B@LCVA	001	0002	2313	2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2338 2339 2341 2342 2343 2344 2345 2346 2347 2352 2353 2354 2355 2357 2358 2359 2371 2372
B@LCXX	001	0001	2316	2348 2360 2362 2366 2367
B@LDAT	001	0004	2475	
B@LDCA	001	0003	2371	
B@LDDL	001	0003	2372	
B@LDDM	001	0004	2735	4160 4164 4218 4219 4221 4225
B@LDEF	001	0003	2476	
B@LDIM	001	0003	2477	
B@LDIN	001	0004	2734	2735 2736
B@LDIV	001	0001	2324	

## CROSS REFERENCE

SYMBOL	LEN	VALUE	DEFN	REFERENCES	VER 15, MOD 00	11/02/22	PAGE	74
B@LDMN	001	0002	2732	2761 2762 2774 2775 2776 2779 2806 2807 4127 4129 4138 4139 4141 4142 4144 4145 4151 4152 4171 4175 4181 4200 4201 4202 4211 4212 4213 4220 4226 4229 4231				
B@LDSN	001	0004	2736					
B@LDWA	001	0002	2373					
B@LELP	001	0010	2804					
B@LEND	001	0003	2504					
B@LEOF	001	0001	2374					
B@LEOP	001	0001	2370					
B@LERC	001	0003	2376					
B@LESP	001	0008	2803					
B@LESS	001	004C	2605					
B@LET\$	001	005B	2625					
B@LET#	001	007B	2626					
B@LET@	001	007C	2627					
B@LETA	001	00C1	2629					
B@LETB	001	00C2	2631					
B@LETC	001	00C3	2632					
B@LETD	001	00C4	2633					
B@LETE	001	00C5	2634					
B@LETF	001	00C6	2635					
B@LETG	001	00C7	2636					
B@LETH	001	00C8	2637					
B@LETI	001	00C9	2638					
B@LETJ	001	00D1	2639					
B@LETK	001	00D2	2640					
B@LETL	001	00D3	2641					
B@LETM	001	00D4	2642					
B@LETN	001	00D5	2643					
B@LETO	001	00D6	2644					
B@LETP	001	00D7	2645					
B@LETQ	001	00D8	2646					
B@LETR	001	00D9	2647					
B@LETS	001	00E2	2648					
B@LETT	001	00E3	2649					
B@LETU	001	00E4	2650					
B@LETV	001	00E5	2651					
B@LETW	001	00E6	2652					
B@LETX	001	00E7	2653					
B@LETY	001	00E8	2654					
B@LETZ	001	00E9	2655					
B@LEXP	001	0008	2694	3704 3705 3706				
B@LFCI	001	0003	2329					
B@LFNA	001	0002	2808	2829				
B@LFN0	001	0003	2327					
B@LFN1	001	0003	2328					
B@LFOR	001	0003	2357					
B@LFRT	001	0004	2749	2750				
B@LGET	001	0003	2359					
B@LGSB	001	0005	2483					
B@LGTO	001	0004	2482					
B@LHLT	001	0001	2320					
B@LIEX	001	0002	2680					
B@LIFN	001	0003	2743					
B@LILP	001	0009	2802	2820 2821 2822 3703 3707 3708 4395				
B@LIMG	001	0001	2494					

## CROSS REFERENCE

SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 11/02/22 PAGE 75

B@LIMH	001	0003	2369	
B@LINI	001	0002	2361	
B@LINP	001	0005	2489	
B@LIPI	001	0003	2683	
B@LISP	001	0005	2801	2809 2815 2816 2817 4136 4205 4272
B@LIS2	001	0005	2686	
B@LIVT	001	0001	2759	
B@LKCL	001	0005	2488	
B@LKFR	001	0003	2479	
B@LKGT	001	0003	2485	
B@LKIF	001	0002	2481	
B@LKON	001	0002	2514	
B@LKPT	001	0003	2486	
B@LKPU	001	000A	2493	
B@LKRR	001	0007	2491	
B@LKRT	001	0005	2487	
B@LKTO	001	0002	2508	
B@LLET	001	0003	2478	
B@LL01	001	0002	2846	2847
B@LL02	001	0002	2849	2850
B@LL03	001	0002	2852	2853
B@LL04	001	0002	2855	2856
B@LL05	001	0002	2858	2859
B@LL06	001	0002	2861	2862
B@LL07	001	003A	2864	2865
B@LL08	001	0100	2867	2868
B@LL09	001	0100	2870	2871
B@LL10	001	0044	2873	2874
B@LL11	001	003A	2876	2877
B@LL12	001	003A	2879	2880
B@LL13	001	003A	2882	2883
B@LL14	001	003A	2885	2886
B@LL15	001	0100	2888	2889
B@LL16	001	0096	2891	2892
B@LMAT	001	0003	2495	
B@LMF1	001	0003	2330	
B@LMF2	001	0003	2331	
B@LMF3	001	0003	2332	
B@LMGT	001	0006	2496	
B@LMIN	001	0008	2497	
B@LMPR	001	0008	2500	
B@LMPT	001	0006	2499	
B@LMPU	001	000D	2501	
B@LMPY	001	0001	2323	
B@LMRD	001	0007	2498	
B@LMSM	001	0003	2333	
B@LNEG	001	0001	2326	
B@LNEX	001	0004	2480	
B@LNXT	001	0003	2358	
B@LPAR	001	004D	2606	3939 4454 4465
B@LPRS	001	0002	2366	
B@LPRT	001	0005	2492	
B@LPRU	001	0002	2367	
B@LPSE	001	0005	2502	
B@LPUT	001	0002	2360	
B@LPWR	001	0001	2325	



## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 76

SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@LREA	001	0004	2490	
B@LREM	001	0003	2474	
B@LRSR	001	0001	2363	
B@LRST	001	0001	2364	
B@LRTN	001	0006	2484	
B@LSA1	001	0003	2345	
B@LSA2	001	0003	2346	
B@LSB1	001	0003	2347	
B@LSC1	001	0003	2339	
B@LSDF	001	0004	2729	
B@LSD0	001	0003	2341	
B@LSD1	001	0003	2342	
B@LSD2	001	0003	2343	
B@LSF1	001	0003	2335	
B@LSF2	001	0003	2336	
B@LSKW	001	0002	2745	
B@LSNO	001	0002	2738	
B@LSPT	001	0003	2753	2756
B@LSTA	001	0003	2344	
B@LSTC	001	0003	2338	
B@LSTE	001	0004	2509	
B@LSTF	001	0003	2334	
B@LSTH	001	0003	2368	
B@LSTP	001	0004	2503	
B@LSTX	001	0002	2348	
B@LSUB	001	0001	2322	
B@LSVC	001	0001	2319	
B@LTHN	001	0004	2510	
B@LTYP	001	0001	2739	
B@LUFN	001	0002	2746	
B@LUSC	001	0002	2340	
B@LUSF	001	0001	2337	
B@LVPG	001	0100	2833	2836
B@MINS	001	0060	2612	4376 4401
B@MULT	001	005C	2609	
B@NAAR	001	001D	2797	2827 2879
B@NCAR	001	001D	2798	2828 2882
B@NCRV	001	001D	2796	2825 2876
B@NDGT	001	000A	2789	2795
B@NEQL	001	007F	2619	
B@NFRT	001	000A	2748	2750
B@NICN	001	0006	2791	2793
B@NIEL	001	0007	2793	2809 2815 2820
B@NIFN	001	0018	2742	
B@NIVR	001	0001	2792	2793
B@NIVT	001	0057	2758	
B@NLDV	001	0122	2795	2817 2822 2873
B@NLRV	001	001D	2794	2816 2821 2864
B@NLTR	001	001D	2788	2794 2795 2796 2797 2798 2799
B@NSKW	001	0004	2744	
B@NSPT	001	0028	2752	
B@NUFN	001	001D	2799	2829 2885
B@NVPG	001	0100	2832	2836
B@NXHI	001	00E3	2713	
B@NXLO	001	001E	2712	
B@NXZR	001	0080	2711	2712 2713 4377

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 77

SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@PLUS	001	004E	2607	
B@POWR	001	005A	2608	
B@PREC	001	0020	2700	
B@PROD	001	0023	2809	
B@PRPL	001	0002	2396	
B@PRPN	001	0001	2395	
B@PRPR	001	0004	2398	
B@PRPS	001	0003	2397	
B@PRRC	001	0007	2401	
B@PRRL	001	0008	2402	
B@PRSL	001	0005	2399	
B@PRSS	001	0006	2400	
B@PTAB	001	0000	2754	
B@PTAD	001	0001	2755	
B@PTSA	001	0002	2756	
B@PUD1	001	0006	2412	
B@PUD2	001	0007	2413	
B@PUI0	001	0001	2406	
B@PUI1	001	0004	2407	
B@PUI2	001	0005	2408	
B@PUNL	001	0002	2410	
B@PUNS	001	0003	2411	
B@PURE	001	0020	2416	
B@PUTM	001	0010	2415	
B@RPAR	001	005D	2610	4034 4091 4456 4469
B@SADV	001	00E8	2827	2830
B@SAVL	001	0B76	2823	2840
B@SAVS	001	065E	2818	2839
B@SCDV	001	0074	2828	2830
B@SCLN	001	005E	2611	
B@SCRV	001	0227	2825	2839 2840
B@SDMK	001	0080	2740	
B@SEXP	001	0004	2693	4364 4370 4380
B@SFAT	001	0196	2830	2839 2840 2891
B@SFNA	001	003A	2829	2830
B@SFRT	001	0028	2750	
B@SIEL	001	003F	2820	2823
B@SIES	001	0023	2815	2818
B@SIGN	001	0010	2702	4398
B@SLDL	001	0A32	2822	2823
B@SLDS	001	05AA	2817	2818
B@SLVL	001	0105	2821	2823
B@SLVS	001	0091	2816	2818
B@SQUO	001	007D	2617	4350
B@STAT	001	0000	2692	
B@TASA	001	0012	2427	
B@TASC	001	001E	2433	
B@TASM	001	0018	2429	
B@TASS	001	007B	2434	
B@TCGT	001	0030	2442	
B@TCLS	001	0042	2448	
B@TDAT	001	0006	2423	
B@TDEF	001	0009	2424	
B@TDIM	001	000C	2425	
B@TDUM	001	0078	2466	
B@TEND	001	0072	2464	

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 78

SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@TEOF	001	0075	2465	
B@TFOR	001	0021	2436	
B@TGET	001	0039	2445	
B@TGSB	001	0033	2443	
B@TGTO	001	002D	2441	
B@TIFA	001	0027	2438	
B@TIFC	001	002A	2439	
B@TIFS	001	007D	2440	
B@TIMG	001	0054	2454	
B@TINP	001	0045	2449	
B@TLTA	001	000F	2426	
B@TLTC	001	001B	2430	
B@TLTM	001	0015	2428	
B@TLTS	001	0079	2431	
B@TMAS	001	007C	2435	
B@TMAT	001	0057	2455	
B@TMGT	001	005A	2456	
B@TMIN	001	005D	2457	
B@TMLS	001	007A	2432	
B@TMPR	001	0066	2460	
B@TMPT	001	0063	2459	
B@TMPU	001	0069	2461	
B@TMRD	001	0060	2458	
B@TNXT	001	0024	2437	
B@TPRT	001	004E	2452	
B@TPRU	001	0051	2453	
B@TPSE	001	006C	2462	
B@TPUT	001	003C	2446	
B@TRAC	001	0080	2696	
B@TREA	001	0048	2450	
B@TREM	001	0003	2422	
B@TRSR	001	004B	2451	
B@TRST	001	003F	2447	
B@TRTN	001	0036	2444	
B@TSTP	001	006F	2463	
B@VMC1	001	0056	2835	
B@VMLB	001	F0CD	2840	
B@VMSB	001	F5E5	2839	
B@VMSZ	001	0000	2836	2838 2839 2840
B@VMTB	001	0000	2838	
B@ZNEG	001	00D0	2709	
B@ZPOS	001	00F0	2708	
C2DEC5	001	16CD	5097	4158 4162 5098 5100
C2DVAL	005	170B	5125	4159 4163 5110 5110 5110* 5112 5112
C2D020	003	16DF	5105	5116 5117
C2D030	003	16E2	5107	5104* 5105* 5113 5113* 5114 5116*
C2D040	004	16EC	5112	5108
C2D050	004	16FE	5118	5099*
C2D052	004	1702	5119	5101*
C2D901	001	1706	5123	5103 5103 5103
C2D902	001	1707	5124	5103
C2D903	005	1710	5126	5103 5103* 5110 5110 5110 5112 5112 5112 5112*
C4BCHC	001	0004	4903	
C4BCHR	001	160D	4891	4859* 4860
C4BINI	001	160C	4889	4836
C4BIN2	001	15A1	4826	3906 4085 4827 4830

CROSS REFERENCE																	
SYMBOL	LEN	VALUE	DEFN	REFERENCES										VER 15, MOD 00	11/02/22	PAGE	79
C4BLEN	002	1609	4901	4875*	4876*												
C4BLNK	003	15BC	4909														
C4BLOW	001	00F0	4905	4843													
C4BLVL	002	0002	4907	4836	4851	4852	4853	4854	4855	4860							
C4BNMC	004	15B8	4913														
C4BNOP	001	0080	4915														
C4BSAV	002	160F	4895	4834*	4876												
C4BSPC	001	0087	4911														
C4BVAL	002	160B	4887	3915	4087	4836*	4851	4851*	4852	4853	4853*	4854	4854*	4855*	4860*		
				4907													
C4BWRK	002	1609	4884	4852*	4855	4901	4907										
C4BYT1	001	160A	4886														
C4B100	004	15B7	4837	4913													
C4B200	003	15BB	4841	4863	4909												
C4B300	003	15BE	4843	4869													
C4B590	003	15ED	4867	4846	4870												
C4B600	003	15F0	4868	4841													
C4B700	003	15F9	4875	4844													
C4B800	004	1600	4878	4829*	4847												
C4B850	004	1604	4880	4832*													
C4B900	001	1610	4897	4837*	4846*												
C4END	001	1611	4916														
DCRCNT	001	1828	5347	5348													
DLIBUF	001	1900	4629	5326	5357	5432											
DLPBLN	001	00F4	5448	5327*	5328	5328	5328*	5430									
DLPBSD	001	173C	5257	5344	5345	5346											
DLPBSE	004	174A	5268	5240	5243	5423	5424										
DLPBS2	001	182D	5447	5374	5376	5428	5429										
DLPCNT	001	1828	5348	5292*	5293	5302*	5349										
DLPCRT	001	001B	5346														
DLPEXT	002	175A	5273	5251*	5252*	5262											
DLPK13	001	182C	5353	5277	5281												
DLPLIN	001	182B	5352	5285	5298												
DLPLPC	002	182A	5351	5285*	5286*	5298*	5299*										
DLPMAX	001	000D	5354	5293													
DLPMPR	001	0085	5344														
DLPNDX	001	1835	5360	5422													
DLPNPT	001	17C1	5307	5261	5266	5344											
DLPNXT	001	183B	5364	5382*	5389*	5395	5399	5401	5444								
DLPONE	002	1837	5361	5245	5247	5286	5299	5302	5330	5411	5437	5438	5442				
DLPPNT	001	0001	5368	5408													
DLPPRL	001	1897	5407	5391													
DLPPRT	001	183F	5375	5319	5445												
DLPREM	001	183C	5365	5430*	5431*	5442*											
DLPRES	001	1838	5362	5383*	5386*	5387*	5388	5389	5425	5431	5438*						
DLPRNT	001	1711	5241	3995	4502	4507	4512	4517	4520	4536							
DLPRTN	001	183D	5366	5321	5323												
DLPSPI	001	173C	5259	5345													
DLPSPT	001	0000	5345	5256													
DLPTIF	001	1757	5270	5346													
DLPTYP	001	173B	5254	3710*	5255												
DLPWK1	001	182D	5355	5318	5322*	5324	5329	5384	5386	5388*	5395	5398*	5401*	5409*	5410*		
				5411*	5415*	5418	5444*	5447									
DLPWK2	001	1831	5358	5250*	5264	5274	5275	5311	5315	5317*	5322	5323*	5332	5382			
DLPWTH	002	183A	5363	5380*	5381*	5384	5387	5398	5399	5434							
DLP100	004	1729	5249	5246*													

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 80

SYMBOL	LEN	VALUE	DEFN	REFERENCES
DLP120	004	1747	5263	5262* 5268
DLP140	003	1763	5277	5288
DLP160	003	176D	5280	5282* 5284*
DLP180	003	1779	5284	5280
DLP200	004	177C	5285	5283
DLP220	004	1780	5286	5287
DLP240	004	178A	5289	5279
DLP260	003	1798	5293	5290
DLP280	003	17A2	5297	5295
DLP300	004	17A9	5299	5300
DLP320	004	17B3	5302	5297
DLP340	003	17B7	5303	5301
DLP360	004	17BA	5304	5276
DLP380	004	17C8	5310	5325
DLP400	003	17D7	5315	5309
DLP420	003	17E0	5318	5316
DLP440	004	17EC	5322	5426
DLP460	004	1814	5333	5329* 5330* 5331 5331*
DLP480	004	1818	5335	5242* 5267 5303 5305 5314
DLP500	004	181C	5336	5244*
DLP520	004	1824	5338	5248*
DLP540	006	1875	5390	5385
DLP560	003	18A9	5415	5396 5400 5403
DLP580	005	18E0	5435	5433* 5434* 5437* 5439
DLP600	003	18F3	5440	5443
DL4CYL	001	1687	5044	5016*
DL4C01	002	168D	5052	5002 5004 5016
DL4C05	002	168F	5053	5008
DL4C24	003	165E	5055	5029
DL4C48	003	164B	5057	5023 5064 5070
DL4C96	003	163A	5054	5017
DL4DPL	006	168B	5043	5009*
DL4EFD	001	0001	5050	5022 5068
DL4END	001	16CD	5081	
DL4ETB	001	0080	5051	5028
DL4E01	001	0001	5049	5024
DL4E24	001	0018	5048	5026
DL4E48	001	0030	5047	5020 5062
DL4E96	001	0060	5046	5014
DL4ICS	001	1611	4997	4254 4300
DL4LST	001	1686	5042	5035 5044 5045 5056 5074*
DL4SAV	005	1628	5080	5067* 5070* 5073
DL4SCD	001	1688	5045	5014 5017* 5020 5023* 5026 5029* 5030 5030* 5031 5031* 5032* 5061
				5067 5073* 5075*
DL4SCT	001	1689	5056	5024 5059 5065* 5074 5075 5076*
DL4SPT	004	1690	5060	5025
DL4WRK	005	1629	5079	5059* 5061* 5062 5064* 5065 5076
DL4010	001	1615	5000	4998 5001
DL4020	005	1625	5007	5003* 5079 5080
DL4030	005	162E	5009	5007* 5008*
DL4035	003	1633	5011	5077
DL4040	003	1639	5014	5018 5054
DL4050	003	164A	5020	5015 5057
DL4060	003	1657	5024	5021
DL4070	003	165D	5026	5055 5063 5069 5071
DL4080	004	166A	5030	5027

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 81

SYMBOL	LEN	VALUE	DEFN	REFERENCES
DL4100	003	1672	5032	5011* 5022* 5028* 5068
DL4200	003	167B	5037	5012* 5066*
DL4500	004	1690	5059	5060
DL4600	004	16BA	5073	5037
DL4900	004	167E	5039	4999*
DL4920	004	1682	5040	5005*
I\$ADJX	001	0D56	2969	
I\$ADST	001	0C9D	2924	
I\$BASE	001	0C60	2926	
I\$BRCN	001	117B	2978	
I\$BSET	001	119D	2977	
I\$B1SW	001	0040	3034	
I\$B2SW	001	0020	3036	
I\$CADR	001	144C	3015	
I\$CALL	001	12B1	3009	
I\$CBM1	001	0D43	2945	
I\$CBN1	001	0D3E	2941	
I\$CBN2	001	0D3F	2942	
I\$CBN3	001	0D40	2943	
I\$CBN4	001	0D41	2944	
I\$CFBS	001	0AE3	2992	
I\$CLFA	001	0D4A	2951	
I\$CLVA	001	0D49	2950	
I\$CL1C	001	0D46	2948	
I\$CL1F	001	0D44	2946	
I\$CL2C	001	0D47	2949	
I\$CL2F	001	0D45	2947	
I\$CPG1	001	1600	2906	
I\$CPUF	001	0A27	2988	
I\$CSCT	001	0D5A	2964	
I\$CSSW	001	0010	3038	
I\$CSXA	001	2000	2905	
I\$CUPF	001	0A85	2990	
I\$CVAD	001	1358	3003	
I\$DATA	001	0D53	2932	
I\$DAT1	001	0D55	2933	
I\$DMSW	001	0BC1	2986	
I\$ECSW	001	0004	3042	
I\$ERRC	001	0CBC	2931	
I\$FACT	001	0DD1	2971	
I\$FADD	001	075D	2994	
I\$FATE	001	0DE6	2972	
I\$FATP	001	0DE8	2973	
I\$FDVD	001	0919	2999	
I\$FMPY	001	082A	2997	
I\$FSUB	001	0751	2995	
I\$FWRK	001	0607	2915	
I\$IMC1	001	0DCE	2962	
I\$IMLN	001	0DC6	2958	
I\$IMPT	001	0DCC	2961	
I\$INDR	001	0DC5	2957	
I\$INIT	001	0607	2914	
I\$INTR	001	0C5C	2918	
I\$IRSW	001	0CDE	2938	
I\$I700	001	0E24	3000	
I\$LBFR	001	12B6	3010	



## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 82

SYMBOL	LEN	VALUE	DEFN	REFERENCES
I\$LDBR	001	1329	3007	
I\$LDXR	001	1330	3008	
I\$LOCK	001	1354	3005	
I\$MDFY	001	1349	3004	
I\$MOD4	001	130B	3001	
I\$NCPG	001	000A	3026	
I\$NDSW	001	0002	3044	
I\$NISW	001	0080	3032	
I\$NPAG	001	0C68	2919	
I\$PARM	001	0D57	2934	
I\$PGDS	001	144A	3013	
I\$PGNO	001	1449	3012	
I\$PGTB	001	14CA	3016	
I\$PLRT	001	15E2	3017	
I\$PSTK	001	15CA	3018	
I\$PUB1	001	0DC8	2959	
I\$PUB2	001	0DCA	2960	
I\$RESW	001	0CE9	2939	
I\$RNMK	001	0001	2954	
I\$RNSW	001	0D5C	2953	
I\$RTRN	001	12D3	3011	
I\$SDCT	001	0D59	2966	
I\$SDPT	001	0DD0	2963	
I\$SFCT	001	0D5A	2967	
I\$SFFO	001	0D5D	2975	
I\$SICT	001	0D5B	2968	
I\$SLLC	001	0BA1	2982	
I\$SLNG	001	0BA2	2981	
I\$SNSW	001	0001	3046	
I\$SSCT	001	0D58	2965	
I\$STAK	001	0D4E	2927	
I\$STCK	001	0B50	2980	
I\$STHA	001	0D51	2937	
I\$STKB	001	0639	2916	
I\$STKI	001	0D4F	2928	
I\$STSW	001	0008	3040	
I\$TFSW	001	0D28	2940	
I\$ULNG	001	0C3A	2985	
I\$UNLK	001	1350	3006	
I\$USTK	001	0BB0	2984	
I\$VADR	001	144A	3014	
I\$WRK1	001	0D59	2935	
I\$WRK2	001	0D5B	2936	
I\$XAD1	001	0C89	2923	
I\$XAD2	001	0C82	2922	
I\$XAD3	001	0C7B	2921	
I\$XAD4	001	0C74	2920	
I\$XERR	001	0CAB	2925	
I\$XIAR	001	0D4C	2930	
I\$XPAG	001	0C61	2929	
KDIAAC	001	0D28	4588	4049
KDIAAE	001	0002	4560	4008
KDIACC	001	0D4D	4609	4139* 4141* 4145 4174* 4175* 4181 4279* 4280*
KDIARS	001	0D38	4593	
KDIASW	001	0D41	4600	3714 3899 3948
KDIATB	001	0D95	4623	3751 3788 3829 3864

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 83

SYMBOL	LEN	VALUE	DEFN	REFERENCES
KDIBCT	001	002C	4577	4331 4526
KDIBEX	001	0D46	4605	4368* 4371* 4377* 4378* 4386
KDIBFR	001	0C00	4579	4262 4304
KDICAЕ	001	0001	4555	4014
KDICAT	001	1CFE	4638	4013
KDICDB	001	0DDF	4625	4264 4326
KDICRT	001	0D32	4591	3881
KDICSW	001	0D47	4606	3729* 3810* 3902* 3929* 3935* 3950 4001 4062 4111 4195 4341 4449
KDICTR	001	0D51	4611	4138* 4142* 4144* 4145* 4151* 4152 4201* 4212* 4220
KDICVT	001	1C8A	4636	3816 3954
KDIDAC	001	0D55	4613	4384* 4388 4390 4390*
KDIDEV	001	0D40	4599	3710
KDIDS1	001	0D5D	4616	4160* 4218* 4221* 4224* 4466
KDIDS2	001	0D61	4617	4164* 4219* 4225* 4455 4468
KDID00	001	0D20	4583	4218 4219
KDID01	001	0D21	4584	4221 4225 4384
KDID02	001	0002	4653	4403*
KDID03	001	0003	4654	4407*
KDID04	001	0004	4655	4408*
KDID05	001	0005	4656	4409*
KDID06	001	0006	4657	4410*
KDID07	001	0007	4658	4411*
KDID08	001	0008	4659	4395 4412*
KDID09	001	0009	4660	4418*
KDID10	001	000A	4661	4419*
KDID11	001	000B	4662	4420*
KDID12	001	000C	4663	4421* 4431*
KDID13	001	000D	4664	4422*
KDID14	001	000E	4665	4423*
KDID15	001	000F	4666	4397* 4424*
KDID16	001	0010	4667	4396* 4397 4425*
KDID19	001	0013	4668	4433*
KDID20	001	0014	4669	4426* 4432* 4433 4444 4491
KDID21	001	0015	4670	4351*
KDIECT	001	0D4F	4610	4134* 4146* 4173* 4176* 4203* 4214* 4226
KDIEND	001	001D	4576	3761 3801 3839
KDIEQU	001	0D20	4552	3642 3643 3877 4315
KDIERR	001	0D45	4604	3727* 3743* 3783* 3824* 3849 3885* 3972* 4029* 4080* 4123* 4339 4500
				4505 4510 4515
KDIER1	001	0001	4558	4500
KDIER2	001	0002	4562	3972 4505
KDIER3	001	0003	4565	4029 4510
KDIER4	001	0004	4567	4080 4515
KDIER5	001	0005	4571	4123
KDIEXI	001	0D3F	4595	4366
KDIFBE	001	0DDE	4632	4330* 4331 4331*
KDIFBS	001	0DB3	4633	4335*
KDIFIL	001	0D3B	4594	4351
KDIF01	001	0DB3	4674	4465*
KDIF02	001	0DB4	4675	4454* 4475 4483
KDIF03	001	0DB5	4676	4457
KDIF04	001	0DB6	4677	4443*
KDIF05	001	0DB7	4678	4466*
KDIF06	001	0DB8	4679	4455* 4467*
KDIF07	001	0DB9	4680	4456* 4460* 4470
KDIF08	001	0DBA	4681	4459

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 84

SYMBOL	LEN	VALUE	DEFN	REFERENCES
KDIF09	001	0DBB	4682	4490*
KDIF10	001	0DBC	4683	4468*
KDIF11	001	0DBD	4684	4469* 4473* 4478* 4486*
KDIF12	001	0DBE	4685	4472 4477 4485
KDIF26	001	0DCC	4686	4444*
KDIF29	001	0DCF	4687	
KDIF31	001	0DD1	4688	
KDIF32	001	0DD2	4689	4491*
KDIF34	001	0DD4	4690	
KDIF36	001	0DD6	4691	
KDIF37	001	0DD7	4692	
KDIF44	001	0DDE	4693	
KDIGET	001	0D8B	4621	4255 4301 4630 4631
KDIHLD	001	0D78	4620	4459* 4460 4472* 4473 4477* 4478 4485* 4486
KDIILN	001	0003	4564	3881 3883
KDII00	001	0D24	4586	3737 3777 3818 3970 4022 4061 4116 4118 4121 4144 4222
KDII01	001	0D26	4587	3759 3797 3800 3837 3928 4030 4069 4142 4146 4176 4211 4229
				4231 4294 4362 4530
KDII02	001	0D2C	4590	3760 3796 3838 3852 3871 4234
KDILDT	001	1A46	4635	3776 3908
KDILVT	001	1A0C	4634	3735 3952
KDIL03	001	0003	4566	4351
KDIL04	001	0004	4569	4455 4466 4468
KDIL05	001	0005	4570	4459 4460 4472 4473
KDIL07	001	0007	4572	4433
KDIL10	001	000A	4573	4477 4478 4485 4486
KDIL15	001	000F	4574	4397
KDIL21	001	0015	4575	4444 4491
KDINAT	001	1CC4	4637	4007
KDINZX	001	0D22	4585	4371
KDIOFF	001	0000	4554	3726 3729 3743 3783 3824 3849 3885 3902 3935 3966 4063 4339
				4441
KDIONN	001	0001	4556	3714 3727 3810 3899 3929 3948 3950 4001 4062 4065 4096 4111
				4195 4341 4449
KDIPCT	001	0D8E	4631	4299
KDIPD0	001	0000	4553	3868 3868 3876 3890 3901 3922 3939 3990 4034 4073 4078 4091
				4098 4160 4164 4268 4350* 4398 4399* 4401*
KDIPD1	001	0001	4557	3737 3742 3777 3782 3818 3823 3965 3970 4022 4048 4056 4402*
KDIPD2	001	0002	4561	3881 3883
KDIPFB	001	0DB2	4624	4527 4632 4633 4674 4675 4676 4677 4678 4679 4680 4681 4682
				4683 4684 4685 4686 4687 4688 4689 4690 4691 4692 4693
KDIPGE	001	00FF	4578	4285
KDIPGN	001	0D8D	4630	4248 4253* 4299*
KDIPRI	001	0D35	4592	3883
KDIPSW	001	0D42	4601	
KDIPUT	001	0D91	4622	4535* 4537
KDIRTN	001	0D2A	4589	
KDISAV	001	0D6E	4619	4395* 4642 4643 4644 4645 4646 4647 4648 4649
KDISB1	001	0D66	4642	4402
KDISB2	001	0D67	4643	4407 4408
KDISB3	001	0D68	4644	4409 4410
KDISB4	001	0D69	4645	4411 4412
KDISB5	001	0D6A	4646	4418 4419
KDISB6	001	0D6B	4647	4420 4421
KDISB7	001	0D6C	4648	4422 4423
KDISB8	001	0D6D	4649	4424 4425

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 85

SYMBOL	LEN	VALUE	DEFN	REFERENCES
KDISLN	001	0002	4563	4335
KDISS1	001	0D57	4614	4086* 4118 4121 4127 4138 4157 4200* 4211* 4222 4231*
KDISS2	001	0D59	4615	4061* 4086 4087* 4129 4139 4161 4171 4175 4220* 4229*
KDIST5	001	0D43	4602	4063* 4065* 4096
KDISYM	001	0D53	4612	3728* 3752* 3770* 3789* 3797* 3798 3809* 3830* 3876* 3901* 3927* 3934* 4335
KDITYP	001	0D44	4603	3726* 3966* 4008* 4014* 4441
KDIUXL	001	0004	4568	4366 4426 4431
KDIVAD	001	0D4B	4608	3709 3742* 3782* 3823* 3965* 4050* 4107 4152* 4181* 4194 4202* 4213* 4226* 4248 4253 4261 4279 4286
KDIVRL	001	0E07	3641	
KDIXLN	001	0002	4559	3863 3871 3912 3914 3915 3916
KDIXND	001	0D49	4607	3863 3863* 3871* 3912 3912* 3913 3914 3914* 3915* 3916 3916* 3917 3955 4018
KDIXWK	001	0D65	4618	4366* 4376* 4388* 4426 4431
KDI120	004	0F12	3697	3644
KDI121	003	0F35	3709	3699
KDI122	003	0F3D	3714	
KDI125	003	0F47	3726	
KDI130	004	0F53	3733	3734 3760* 3762
KDI140	004	0F5E	3742	
KDI145	004	0F65	3747	
KDI150	004	0F69	3751	
KDI155	004	0F6D	3752	3753 3759* 3761
KDI160	005	0F75	3759	3738
KDI165	003	0F87	3770	3802
KDI170	004	0F8A	3774	3775 3796* 3799
KDI175	004	0F8E	3777	
KDI180	004	0F95	3782	
KDI185	004	0FA0	3788	
KDI190	004	0FA4	3789	3790 3800* 3801
KDI195	005	0FAC	3796	3778
KDI200	005	0FBC	3800	
KDI205	003	0FC9	3809	
KDI210	004	0FCF	3814	3815 3838* 3840
KDI220	004	0FDA	3823	
KDI225	004	0FE5	3829	
KDI230	004	0FE9	3830	3831 3837* 3839
KDI240	005	0FF1	3837	3819
KDI245	004	1003	3848	3716*
KDI250	003	1011	3852	3850
KDI255	004	1017	3863	3715 3991
KDI260	004	101F	3868	3872
KDI265	005	1033	3876	3869
KDI270	004	103C	3881	
KDI275	003	104D	3889	
KDI280	003	1056	3899	
KDI285	004	106F	3912	
KDI290	003	1089	3922	3891
KDI295	003	108F	3927	
KDI300	003	109B	3934	3923
KDI305	003	10A1	3939	3930
KDI310	003	10A7	3948	
KDI315	003	10AD	3950	
KDI320	004	10B4	3952	
KDI325	004	10BB	3954	

## CROSS REFERENCE

SYMBOL   LEN   VALUE   DEFN   REFERENCES   VER 15, MOD 00   11/02/22   PAGE   86

KDI330	003	10BF	3955	3953					
KDI335	004	10C2	3965	3918					
KDI340	004	10C9	3970						
KDI345	004	10D6	3977	3971					
KDI347	004	10DA	3978	3973					
KDI350	004	10DE	3979	3907*	3951*				
KDI355	003	10E5	3988	3853	3900	4040	4167	4235	
KDI360	004	10E8	3989	3949	3980				
KDI365	004	10F3	3995	3882	3884				
KDI370	003	10FD	4001	3940					
KDI375	004	1107	4007						
KDI380	004	1111	4013	4003					
KDI385	003	1118	4018	4009					
KDI390	004	111B	4022						
KDI395	006	1122	4027						
KDI400	004	1128	4028	4027*					
KDI410	003	112F	4030	4035					
KDI415	003	1132	4034	4081	4126				
KDI420	004	1139	4039						
KDI430	003	1141	4048	4023					
KDI435	004	114A	4054	4002*	4027				
KDI440	003	1152	4056						
KDI445	004	1159	4061						
KDI448	003	1166	4065	4100					
KDI450	003	1169	4069	4064	4074				
KDI455	003	116C	4073						
KDI460	003	1173	4078						
KDI465	003	1179	4080	4185					
KDI470	004	1180	4085	4079					
KDI475	003	118D	4091						
KDI490	004	11A3	4106	4092					
KDI491	003	11AA	4111						
KDI492	004	11B0	4116						
KDI494	004	11C1	4121	4117					
KDI496	003	11C8	4123	4120					
KDI497	004	11D1	4125	4124*					
KDI498	004	11D9	4127	4119	4122				
KDI500	004	11E0	4129						
KDI505	003	11E7	4134	3707*	4135				
KDI510	004	11EA	4138						
KDI515	004	11F5	4141	4143					
KDI520	004	11F9	4142	4140					
KDI525	004	1205	4145	4147					
KDI530	004	1211	4151						
KDI535	003	121D	4157						
KDI540	003	122C	4161	4183					
KDI545	004	123B	4165	4106*	4124				
KDI550	004	1247	4171	4112					
KDI555	003	124B	4172						
KDI560	004	1255	4175	4177					
KDI565	004	1261	4181						
KDI567	004	126D	4184	4055*	4097	4099	4128	4130	4172
KDI570	004	1275	4193	4057					
KDI575	003	127C	4195						
KDI580	004	1282	4200						
KDI582	003	128E	4203	3708*	4204				

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 87

SYMBOL	LEN	VALUE	DEFN	REFERENCES
KDI585	004	1294	4211	4196
KDI590	004	12A3	4218	4207
KDI595	004	12A7	4219	4232
KDI600	004	12BD	4225	4223 4230
KDI610	004	12DD	4233	4193*
KDI700	004	12E8	4243	3747 3784 3825 3977 4153 4182 4227
KDI705	004	12F0	4248	
KDI710	004	12F7	4253	
KDI715	004	12FB	4254	
KDI720	005	1307	4261	4249
KDI725	003	1310	4263	4261*
KDI730	003	1313	4264	
KDI735	003	1316	4268	
KDI740	004	131C	4270	3703* 4271
KDI745	004	1323	4275	4269
KDI750	006	1327	4279	4274
KDI755	004	1336	4285	
KDI760	004	1346	4288	4285* 4286* 4287 4287* 4293
KDI765	006	134A	4292	
KDI770	006	1362	4299	
KDI775	006	137B	4309	4281
KDI780	004	1381	4310	4270* 4275* 4280 4292 4292* 4293* 4294* 4295 4295* 4305 4309 4309*
KDI790	004	1385	4314	4244*
KDI795	004	138D	4316	4243*
KDI800	004	1391	4324	3755 3792 3833 3851 3978 4039 4166 4228
KDI805	004	139C	4330	
KDI810	004	13A6	4335	
KDI815	003	13AA	4339	
KDI820	003	13B7	4350	
KDI825	004	13C1	4362	3704* 4342 4363
KDI827	004	13C9	4368	3705* 4369
KDI832	004	13DA	4378	3706* 4379
KDI835	004	13DE	4384	4372
KDI837	003	13E6	4386	4385* 4389 4389* 4391
KDI839	006	13F0	4389	4387
KDI840	004	13FE	4395	
KDI845	003	1409	4398	
KDI850	004	1415	4402	4400
KDI855	004	141C	4407	
KDI865	004	143B	4418	
KDI867	004	145B	4426	
KDI870	004	1462	4431	4414
KDI875	003	146D	4441	4352 4427
KDI880	003	147D	4449	4442
KDI885	003	1483	4454	
KDI890	003	148D	4457	4461
KDI895	003	14A1	4465	4450
KDI900	003	14B2	4470	4474
KDI905	003	14C6	4475	4471 4479
KDI907	003	14DA	4483	4476
KDI910	003	14E8	4490	4458 4484
KDI915	003	14F2	4500	4340
KDI920	003	1501	4505	4501
KDI925	003	1510	4510	4506
KDI930	003	151F	4515	4511
KDI935	004	152E	4520	4516

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 88

SYMBOL	LEN	VALUE	DEFN	REFERENCES
KDI945	004	1537	4526	4445 4492
KDI947	003	153B	4527	
KDI949	003	153E	4528	4526* 4530* 4531 4535
KDI950	005	154D	4535	4529
KDI960	004	1558	4541	4325* 4504 4509 4514 4519 4522
KDI980	004	155C	4542	4324*
KSI830	003	13D4	4376	
K01480	003	1193	4096	
K01860	004	1434	4413	
SCACNT	002	15A0	4819	4809* 4810*
SCACOF	001	0087	4791	
SCACOM	001	0001	4790	3697
SCAINC	001	0001	4789	4798 4804
SCAMMA	003	157D	4813	3697*
SCANIT	001	1560	4793	3989
SCASVE	002	159E	4818	4795* 4810
SCASV1	001	159D	4817	
SCA100	003	156F	4798	4800
SCA200	003	1572	4799	4797
SCA250	003	157C	4802	4813
SCA300	003	157F	4804	4806
SCA400	004	158F	4809	4802
SCA500	004	1599	4812	4794* 4808
V\$APWR	001	0800	3097	3243
V\$BFR1	001	5400	3160	3351
V\$BFR2	001	5500	3161	3352
V\$CBNZ	001	0CB2	3169	3250
V\$CCON	001	5120	3176	3348
V\$CDCV	001	3100	3173	3303
V\$CDSY	001	2E00	3172	3300
V\$CFPZ	001	0C70	3167	3249
V\$CNXZ	001	0470	3170	3238
V\$CSSR	001	5100	3175	3347
V\$CZFP	001	04AD	3168	3239
V\$DTLN	001	4600	3182	3335
V\$DTVR	001	4700	3183	3336
V\$FABS	001	1761	3068	3267
V\$FACS	001	1400	3084	3259
V\$FASN	001	1413	3083	3260
V\$FATN	001	1100	3082	3256
V\$FCOS	001	0A00	3079	3245
V\$FCOT	001	0D00	3077	3251
V\$FCSC	001	1725	3081	3266
V\$FDEG	001	17DA	3088	3271
V\$FDET	001	4540	3091	3334
V\$FEXP	001	0500	3075	3240
V\$FHCS	001	1500	3087	3261
V\$FHSN	001	1557	3086	3262
V\$FHTN	001	1593	3085	3263
V\$FINT	001	176C	3069	3268
V\$FLGT	001	0200	3073	3233
V\$FLOG	001	0219	3072	3235
V\$FLTW	001	020B	3074	3234
V\$FRAD	001	17CB	3089	3270
V\$FRND	001	1800	3090	3272
V\$FSEC	001	1700	3080	3265



## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 89

SYMBOL	LEN	VALUE	DEFN	REFERENCES
V\$FSGN	001	17A7	3070	3269
V\$FSIN	001	0A1A	3078	3246
V\$FSQR	001	0900	3071	3244
V\$FTAN	001	0D28	3076	3252
V\$IFCI	001	1B00	3060	3276
V\$IFIO	001	1A00	3062	3275
V\$ISDN	001	1900	3061	3273
V\$KBTL	001	1EAC	3204	
V\$KBTS	001	0DAC	3203	
V\$LPRB	001	4F00	3158	3345
V\$LPRT	001	4D00	3156	3343
V\$LPR2	001	4E00	3157	3344
V\$MADD	001	4007	3105	3323
V\$MASN	001	43A0	3103	3330
V\$MCON	001	4324	3110	3328
V\$MIDN	001	4300	3111	3327
V\$MINV	001	4500	3115	3333
V\$MMPY	001	4100	3107	3324
V\$MSMY	001	4264	3108	3326
V\$MSUB	001	4000	3106	3322
V\$MTRN	001	4400	3114	3332
V\$MZER	001	432B	3112	3329
V\$PCH1	001	5200	3196	3349
V\$PCH2	001	5300	3197	3350
V\$SCDI	001	2A00	3153	3294
V\$SCDO	001	2A96	3154	3295
V\$SFA2	001	5000	3138	3346
V\$SFD1	001	0000	3148	3231
V\$SFD2	001	0100	3149	3232
V\$SKEY	001	2500	3152	3289
V\$SPRT	001	2800	3151	3292
V\$VMPL	001	4C06	3190	3342
V\$VMPS	001	4C00	3189	3341
V\$XKAF	001	1C00	3137	3277
V\$XKCA	001	2400	3141	3285
V\$XKCL	001	240A	3140	3286
V\$XKIN	001	2B00	3136	3296
V\$XKLP	001	24AD	3142	
V\$XKRS	001	240D	3139	3287
V\$XMGT	001	3E06	3130	3317
V\$XMIN	001	3D00	3129	3315
V\$XMPL	001	3F06	3133	3320
V\$XMPS	001	3F00	3132	3319
V\$XMPT	001	3E0C	3131	3318
V\$XMPU	001	3F13	3134	3321
V\$XMRD	001	3E00	3128	3316
V\$XSGT	001	2100	3123	3282
V\$XSIN	001	2B6E	3122	3297
V\$XSPR	001	3400	3125	3306
V\$XSPT	001	1D00	3124	3278
V\$XSPU	001	3800	3126	3310
V\$XSRD	001	3300	3121	3305
V\$00E1	001	0000	3231	
V\$01E1	001	0100	3232	
V\$02E1	001	0200	3233	
V\$02E2	001	020B	3234	

## CROSS REFERENCE

SYMBOL	LEN	VALUE	DEFN	REFERENCES	VER 15, MOD 00	11/02/22	PAGE	90
V\$02F3	001	0219	3235					
V\$03CC	001	0300	3236					
V\$04CC	001	0400	3237					
V\$04E1	001	0470	3238					
V\$04E2	001	04AD	3239					
V\$05E1	001	0500	3240					
V\$06CC	001	0600	3241					
V\$07CC	001	0700	3242					
V\$08E1	001	0800	3243					
V\$09E1	001	0900	3244					
V\$10E1	001	0A00	3245					
V\$10E2	001	0A1A	3246					
V\$11CC	001	0B00	3247					
V\$12CC	001	0C00	3248					
V\$12E1	001	0C70	3249					
V\$12E2	001	0CB2	3250					
V\$13E1	001	0D00	3251					
V\$13E2	001	0D28	3252					
V\$14CC	001	0E00	3253					
V\$15CC	001	0F00	3254					
V\$16CC	001	1000	3255					
V\$17E1	001	1100	3256					
V\$18CC	001	1200	3257					
V\$19CC	001	1300	3258					
V\$20E1	001	1400	3259					
V\$20E2	001	1413	3260					
V\$21E1	001	1500	3261					
V\$21E2	001	1557	3262					
V\$21E3	001	1593	3263					
V\$22CC	001	1600	3264					
V\$23E1	001	1700	3265					
V\$23E2	001	1725	3266					
V\$23E3	001	1761	3267					
V\$23E4	001	176C	3268					
V\$23E5	001	17A7	3269					
V\$23E6	001	17CB	3270					
V\$23E7	001	17DA	3271					
V\$24E1	001	1800	3272					
V\$25E1	001	1900	3273					
V\$26E1	001	1A00	3275					
V\$27E1	001	1B00	3276					
V\$28E1	001	1C00	3277					
V\$29E1	001	1D00	3278					
V\$30CC	001	1E00	3279					
V\$31CC	001	1F00	3280					
V\$32CC	001	2000	3281					
V\$33E1	001	2100	3282					
V\$34CC	001	2200	3283					
V\$35CC	001	2300	3284					
V\$36CC	001	2400	3288					
V\$36E1	001	2400	3285					
V\$36E2	001	240A	3286					
V\$36E3	001	240D	3287					
V\$37E1	001	2500	3289					
V\$38CC	001	2600	3290					
V\$39CC	001	2700	3291					

## CROSS REFERENCE

SYMBOL   LEN   VALUE   DEFN   REFERENCES   VER 15, MOD 00   11/02/22   PAGE   91

V\$40E1   001   2800   3292  
V\$41CC   001   2900   3293  
V\$42E1   001   2A00   3294  
V\$42E2   001   2A96   3295  
V\$43E1   001   2B00   3296  
V\$43E2   001   2B6E   3297  
V\$44CC   001   2C00   3298  
V\$45CC   001   2D00   3299  
V\$46E1   001   2E00   3300  
V\$47CC   001   2F00   3301  
V\$48CC   001   3000   3302  
V\$49E1   001   3100   3303  
V\$50CC   001   3200   3304  
V\$51E1   001   3300   3305  
V\$52E1   001   3400   3306  
V\$53CC   001   3500   3307  
V\$54CC   001   3600   3308  
V\$55CC   001   3700   3309  
V\$56E1   001   3800   3310  
V\$57CC   001   3900   3311  
V\$58CC   001   3A00   3312  
V\$59CC   001   3B00   3313  
V\$60CC   001   3C00   3314  
V\$61E1   001   3D00   3315  
V\$62E1   001   3E00   3316  
V\$62E2   001   3E06   3317  
V\$62E3   001   3E0C   3318  
V\$63E1   001   3F00   3319  
V\$63E2   001   3F06   3320  
V\$63E3   001   3F13   3321  
V\$64E1   001   4000   3322  
V\$64E2   001   4007   3323  
V\$65E1   001   4100   3324  
V\$66CC   001   4200   3325  
V\$66E1   001   4264   3326  
V\$67E1   001   4300   3327  
V\$67E2   001   4324   3328  
V\$67E3   001   432B   3329  
V\$67E4   001   43A0   3330  
V\$68E1   001   4400   3332  
V\$69E1   001   4500   3333  
V\$69E2   001   4540   3334  
V\$70E1   001   4600   3335  
V\$71E1   001   4700   3336  
V\$72CC   001   4800   3337  
V\$73CC   001   4900   3338  
V\$74CC   001   4A00   3339  
V\$75CC   001   4B00   3340  
V\$76E1   001   4C00   3341  
V\$76E2   001   4C06   3342  
V\$77CC   001   4D00   3343  
V\$78CC   001   4E00   3344  
V\$79CC   001   4F00   3345  
V\$80E1   001   5000   3346  
V\$81E2   001   5100   3347  
V\$81E3   001   5120   3348

## CROSS REFERENCE

VER 15, MOD 00 11/02/22 PAGE 92

SYMBOL	LEN	VALUE	DEFN	REFERENCES
V\$82E1	001	5200	3349	
V\$83E2	001	5300	3350	
V\$84E1	001	5400	3351	
V\$85E2	001	5500	3352	
V@CDPT	001	0007	3363	
V@CHGH	001	0008	3468	
V@CMIC	001	0002	3364	
V@CMNI	001	00FF	3361	
V@CMUL	001	0007	3469	
V@CNIX	001	0080	3362	
V@COEX	001	001E	3359	
V@CPLS	001	00F0	3366	
V@CPRC	001	000A	3368	
V@CSQR	001	0003	3466	
V@CSTR	001	0002	3467	
V@CTTA	001	0027	3369	
V@DCAD	001	0002	3389	3390
V@DEXP	001	0000	3394	
V@DMAN	001	000D	3396	3397
V@DMN1	001	0001	3395	
V@DPDF	001	0002	3384	
V@DSAD	001	0001	3385	
V@DSGN	001	000D	3397	
V@DVAD	001	0004	3390	
V@EART	001	0001	3367	
V@ECRT	001	0038	3440	
V@EFUL	001	00F8	3439	
V@EINV	001	00FB	3435	
V@EIPR	001	00F5	3436	
V@ENSV	001	00F7	3437	
V@ENUL	001	0000	3434	
V@ERPC	001	0020	3365	
V@ESAV	001	00F6	3438	
V@FEHN	001	0002	3464	
V@FEPL	001	0091	3460	
V@FERS	001	0003	3463	
V@FPGS	001	0081	3459	
V@FRET	001	0015	3462	
V@FSPC	001	0040	3461	
V@FTAB	001	0000	3465	
V@KADD	001	004E	3450	
V@KCLE	001	006E	3447	
V@KDIV	001	0061	3453	
V@KEMN	001	006C	3445	
V@KEPL	001	006B	3444	
V@KMUL	001	005C	3452	
V@KPER	001	004B	3455	
V@KPST	001	007B	3449	
V@KPWR	001	005A	3454	
V@KSQR	001	006F	3446	
V@KSTO	001	006D	3448	
V@KSUB	001	0060	3451	
V@LAIP	001	0003	3415	3416
V@LDEX	001	0002	3418	
V@LETE	001	0003	3422	
V@LEXP	001	0001	3412	3414

CROSS REFERENCE

SYMBOL    LEN VALUE DEFN    REFERENCES    VER 15, MOD 00    11/02/22    PAGE    93

V@LFKO	001	0006	3417	
V@LINI	001	0200	3421	
V@LLKS	001	0010	3414	
V@LMAN	001	000F	3413	3414
V@LNOP	001	0015	3419	
V@LTBE	001	0007	3416	
V@LVPG	001	0100	3420	3421
V@MCHS	001	00C0	3401	
V@MCRD	001	0010	3377	
V@MDEF	001	0008	3378	
V@MEXC	001	0080	3375	
V@MEXT	001	0004	3404	
V@MICC	001	0010	3360	
V@MIPC	001	0080	3402	
V@MIPL	001	0020	3408	
V@MLST	001	0040	3376	
V@MPND	001	0000	3407	
V@MPOF	001	0080	3405	
V@MPRC	001	0020	3374	
V@MSFU	001	0002	3379	
V@MSTN	001	0004	3373	
V@OALL	001	00F4	3430	
V@ONUL	001	00F0	3426	3427
V@OPM1	001	00F2	3428	3429
V@ORTN	001	00F1	3427	3428
V@OSTK	001	00F3	3429	3430
V@PEOF	001	0002	3403	
V@PSQ2	001	0014	3406	

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY =        0

OL105 I    THE CODE LENGTH OF #KDOVR IS    6407 DECIMAL.  
OL103 I    TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS    18  
          NAME-#KDOVR,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-R,CATEGORY-000

START ADDRESS	CATEGORY	NAME AND ENTRY	CODE LENGTH HEXADECIMAL	DECIMAL
0C00	0	#KDOVR	1907	6407
OL100 I	THE TOTAL CORE USED BY #KDOVR IS 6407 DECIMAL.			
OL101 I	THE START CONTROL ADDRESS OF THIS MODULE IS 0C00.			
OL104 I	TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS 26			
ENTRY	NAME-#KDOVR,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-O HEXADECIMAL DECIMAL			

0C00	0	#KDOVR	1907	6407
OL100	I	THE TOTAL CORE USED BY #KDOVR IS	6407	DECIMAL.
OL101	I	THE START CONTROL ADDRESS OF THIS MODULE IS	0C00.	
OL104	I	TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS	26	
		NAME-#KDOVR,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-O		