

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

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

0000	1	#KLLAY	START	0
	2		PRINT	ON,NODATA
	3	*	@SYS	EXP-N
	214+		PRINT	ON
	215	*	@FXD	EXP-N
	620+		PRINT	ON
	621	*	@HDW	EXP-N
	806+		PRINT	ON
	807	*	@CY0	EXP-N
	880+		PRINT	ON
	881	*	@HLT	EXP-N
	936+		PRINT	ON

#KLLAY DCDOUT - MODULE PROLOG

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 19/06/20 PAGE 3
		938		*****	
		939	*	5703-XM1 COPYRIGHT IBM CORP. 1970	*
		940	*	REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE. 120-2083	*
		941	*		*
		942		*****	
		943	*	STATUS	*
		944	*	VERSION 1 MODIFICATION 0	*
		945	*		*
		946	*	FUNCTION	*
		947	*	DCDOUT IS THE PHYSICAL IOCS USED FOR PUNCHING CARDS ON THE DATA	*
		948	*	RECORDER. I/O ERRORS OCCURRING IN THE PROCESS ARE PROCESSED BY	*
		949	*	THIS ROUTINE.	*
		950	*		*
		951	*	ENTRY POINTS	*
		952	*	DCDOUT	*
		953	*	THIS ENTPT POINT IS USED FOR BOTH STARTING THE PUNCH OPERATION	*
		954	*	AND WAITING FOR ITS COMPLETION.	*
		955	*	CALLING SEQUENCE:	*
		956	*	B DCDOUT	*
		957	*	DC AL2(PPLA)	*
		958	*	WHERE PPLA IS A TWO BYTE CORE ADDRESS OF A PUNCH PARAMETER LIST.	*
		959	*		*
		960	*	INPUT	*
		961	*	DCDOUT INPUT CONSISTS OF A FOUR BYTE PARAMETER LIST.	*
		962	*	THE FORMAT OF THE LIST IS:	*
		963	*	BYTE 0: X'40' INITIATE PUNCHING.	*
		964	*	X'FF' WAIT AND CHECK FOR ERRORS.	*
		965	*	BYTE 1: NOT USED.	*
		966	*	BYTE 2+3: CORE ADDRESS OF LEFT BYTE OF 96 CHARACTERS	*
		967	*	TO BE PUNCHED.	*
		968	*	BYTES 1-3 ARE NOT REQUIRED FOR WAIT AND CHECK FOR ERRORS.	*
		969	*		*
		970	*	OUTPUT	*
		971	*	REGISTERS 1 AND 2 ARE RESTORED UPON EXIT.	*
		972	*		*
		973	*	EXTERNAL REFERENCES	*
		974	*	\$HISH1 - OBR ENTRY.	*
		975	*	\$INDR2 - ERROR INDICATOR.	*
		976	*	\$IOIND - HARD ERROR INDICATOR.	*
		977	*	\$DISKN - ENTRY TO LOG AN I/O ERROR.	*
		978	*	\$WAITF - OPL FOR ERROR LOGGING.	*
		979	*		*
		980	*	EXITS, NORMAL	*
		981	*	NORMAL EXIT IS TO THE CALLING PROGRAM AT THE INSTR FOLLOWING THE	*
		982	*	PPL ADDRESS.	*
		983	*		*
		984	*	EXITS, ERROR	*
		985	*	\$DISKS	*
		986	*	UNRECOVERABLE I/O ERRORS CAUSE EXIT TO DKDISK TO LOG THE ERROR	*
		987	*	AND EXECUTE A HARD HALT.	*
		988	*		*
		989	*	TABLES/WORK AREAS	*
		990	*	N/A	*
		991	*		*
		992	*	ATTRIBUTES	*
		993	*	RELOCATABLE	*

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	19/06/20	PAGE	4
		994	*					*
		995	*	*CHARACTER CODE DEPENDENCY				*
		996	*	N/A				*
		997	*					*
		998	*	*NOTES				*
		999	*	ERROR PROCEDURES				*
		1000	*	COMPARE ERRORS AND TRANSPORT JAMS RESULT IN THE EXECUTION OF				*
		1001	*	A SOFT HALT. WHEN START IS PRESSED THE PUNCH OPERATION IS				*
		1002	*	RETRIED. AN UNRECOVERABLE COMPARE OR TRANSPORT ERROR RESULTS				*
		1003	*	IN THE @BR ENTRY BEING PLACED AT \$HIST1 AND EXIT TO DKDISK				*
		1004	*	TO ENVOKE NERLOG.				*
		1005	*					*
		1006	*	REGISTER USAGE				*
		1007	*	REGISTER 1 IS USED FOR BASE ADDRESSING.				*
		1008	*	REGISTER 2 IS USED FOR ACCESSING THE PARAMETER LIST				*
		1009	*					*
		1010	*	SAVED/RESTORED AREAS				*
		1011	*	N/A				*
		1012	*					*
		1013	*	MODIFICATION CONSIDERATION				*
		1014	*	N/A				*
		1015	*					*
		1016	*	REQUIRED MODULES				*
		1017	*	@SYSEQ - SYSTEM EQUATES.				*
		1018	*	@FXDEQ - NUCLEUS LOCATION EQUATES.				*
		1019	*	@HDWEQ - HARDWARE VALUE EQUATES.				*
		1020	*	@CY0EQ - CYLINDER ZERO EQUATES.				*
		1021	*	@HLTEQ - HALT CODE EQUATES				*
		1022	*					*
		1023	*	OTHER				*
		1024	*	N/A				*
		1025	*	*****				*

#KLLAY DCDOU - MODULE PROLOG

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 19/06/20 PAGE 5
					1027	*****	*****	
					1028	* DCDOU IS USED FOR PUNCHING 96 BYTES OF DATA ON THE DATA RECORDER	*	
					1029	*****	*****	
				061A	1030	USING DCDBSE,@BR	BASE SPEC	
				05FF	1031	DCDOU EQU *	ENTRY TO PUNCH A CARD	
05FF	34	01	063E		1032	ST DCD390+@OP1,@BR	SAVE BASE REGISTER	
0603	C2	01	0697		1033	LA DCDONE,@BR	LOAD BASE REGISTER	
0607	76	08	7D		1034	A DCDONE(,@BR),@ARR	POINT TO PPL ADDR	
060A	74	08	03		1035	ST DCD100+@OP1(,@BR),@ARR	SAVE PPL ADDR	
060D	76	08	7D		1036	A DCDONE(,@BR),@ARR	CALCULATE RETURN ADDR	
0610	74	08	2C		1037	ST DCD400+@OP1(,@BR),@ARR	SAVE RETURN ADDR	
0613	74	02	20		1038	ST DCD380+@OP1(,@BR),@XR	SAVE XR	
0616	3C	80	0476		1039	MVI \$CIMSK,@NOP	MASK IR	
				061A	1040	DCDBSE EQU *	BASE ADDR	
061A	35	02	0000		1041	DCD100 L *-*,@XR	XR POINTS TO PPL	
061E	7C	87	5D		1042	MVI DCD510+@Q(,@BR),@UCB	SET OFF HARD ERROR INDR	
0621	F1	F2	00		1043	DCD200 APL @BZ37B	WAIT FOR NOT BUSY	
0624	D1	F0	2D		1044	TIO DCD500(,@BR),@ER37B	BRANCH ON ERROR	
0627	BD	FF	00		1045	DCD220 CLI @PCTRL(,@XR),@PWAIT	IS THIS WAIT ONLY REQUEST	
062A	F2	81	0A		1046	JE DCD380	EXIT IF YES	
062D	6C	01	7F 03		1047	MVC DCDATA(@CADDR,@BR),@PDATA(,@XR)	MOVE IN DATA ADDR	
0631	71	F0	7F		1048	LIO DCDATA(,@BR),@LO37B	LOAD DATA LSR	
0634	F3	F2	00		1049	SIO @CC37B,@PC37B	START PUNCHING	
					1050	*		
0637	C2	02	0000		1051	DCD380 LA *-*,@XR	RESTORE XR	
063B	C2	01	0000		1052	DCD390 LA *-*,@BR	RESTORE BR	
063F	C0	87	048D		1053	B \$UNMSK	UNMASK AND CHECK FOR IR	
0643	C0	87	0000		1054	DCD400 B *-*	RETURN TO CALLING PROGRAM	
					1055	*		
					1056	* ERP SECTION		
					1057	*		
				0647	1058	DCD500 EQU *	ENTRY FOR ERROR RECOVERY	
0647	70	F2	7B		1059	SNS DCDSNS(,@BR),@SN37B	SENSE ERROR BITS	
064A	78	80	7B		1060	TBN DCDSNS(,@BR),DCDOFF	IS RECORDER OFF-LINE/PWR OFF ?	
064D	F2	90	03		1061	JF DCD505	SKIP HALT IF NO	
0650	F0	00	00		1062	HPL *-*,*-*	HALT	
0651					1063	ORG *-2	PLACE HALT CODE	
0651	1008			0652	1064	DC AL2(@HDNRY)	HALT CODE 'C4'	
0653	79	A0	7B		1065	DCD505 TBF DCDSNS(,@BR),@NTRDY	SIMPLE NOT READY	
0656	D0	90	07		1066	BF DCD200(,@BR)	LOOP IF TES	
0659	5C	01	6E 81		1067	MVC DCD530+@D1(2,@BR),DCDTJH(,@BR)	SET TRANSPORT JAM CODE	
065D	78	40	7B		1068	TBN DCDSNS(,@BR),@TJ37B	FEED CHECK ?	
0660	F2	10	23		1069	JT DCD530	REDO OPERATION	
0663	5C	01	6E 83		1070	MVC DCD530+@D1(2,@BR),DCDCPH(,@BR)	SET COMPARE ERROR HALT	
0667	78	04	7B		1071	TBN DCDSNS(,@BR),@CP37B	COMPARE ERROR ?	
066A	D0	90	0D		1072	BF DCD220(,@BR)	EXIT EPP IF NO	
066D	1C	07	0435 7F		1073	MVC \$HIST1(#HISLN),DCDOBR(,@BR)	SET @BR ENTRY FOR NERLOGG	
0672	3A	04	03D5		1074	SBN \$INDR2,\$ERPND	SET ERROR PENDING INDR	
0676	F2	00	0A		1075	DCD510 JC DCD520,*-*	JUMP IF FIRST ERROR	
0679	3A	20	03D2		1076	SBN \$IOIND,\$HRDER	SET HARD ERROR INDICATOR	
067D	C0	87	0025		1077	B \$DISKN	GO LOG ERROR	
0681	057F			0682	1078	DC AL2(\$WAITF)	WAIT CODE ADDR	
0683	7C	80	5D		1079	DCD520 MVI DCD510+@Q(,@BR),@NOP	SET NEXT ERROR HARD	
0686	F0	00	00		1080	DCD530 HPL *-*,*-*	HALT AND DISPLAY CODE	
0689	71	F0	7F		1081	DCD550 LIO DCDATA(,@BR),@LO37B	LOAD DATA LSR	
068C	F3	F2	00		1082	SIO @CC37B,@PC37B	RESTART PUNCHING OP	

[illegible]

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	19/06/20	PAGE	8
				1096	* PATCH 3				
				1097	*****				
				1098	* PATCH 3				
				1099	*****				
				1100	*				
				1101	* CALCULATE AREA LEFT IN THIS SECTOR				
				1102	*				
			069E	1103	\$\$\$\$L3 EQU * START OF PATCH AREA 3				
0700				1104	ORG *,256,0 SET LOC CNTR TO NEXT SECTOR				
			0700	1105	\$\$\$\$T3 EQU * DEFINE ADDR OF SCTR BOUNDARY				
069E				1106	ORG \$\$\$\$L3 SET LOC CNTR TO START OF				
				1107	* * PATCH AREA				
069E			06FF	1108	\$\$\$\$\$3 DS CL(\$\$\$T3-\$\$\$\$L3) PATCH AREA				
				1109	*****				
				1110	*** END OF EXPANSION ***				
				1111	PRINT ON				
			FFFF	1112	END				
TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY =					0				

CROSS REFERENCE

SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 19/06/20 PAGE 9

\$\$\$\$\$3	098	06FF	1108						
\$\$\$\$L3	001	069E	1103	1106	1108				
\$\$\$\$T3	001	0700	1105	1108					
\$\$ZERO	001	0000	0223	0224	0226	0227	0228	0232	
\$ABORT	001	0010	0336						
\$BASIC	001	0080	0394						
\$BIGCD	001	0080	0470						
\$BLDPL	001	0579	0603	0605					
\$BLNOE	001	0569	0593						
\$BLOAD	001	0522	0584	0586	0589	0602	0603		
\$BLRTN	001	0550	0592	0593					
\$BRSAV	001	03C5	0281	0282					
\$BSADR	001	0587	0608	0610					
\$BUFPT	001	03E3	0489	0490					
\$CABLD	001	04B4	0562	0563					
\$CAERK	001	0469	0539	0542					
\$CAERR	001	03CD	0287	0289					
\$CAIPL	001	049D	0558	0560					
\$CALLI	001	0008	0479						
\$CARDI	001	0001	0250						
\$CARPL	001	04A1	0560	0562					
\$CIENT	001	0483	0549	0550					
\$CIEXT	001	0480	0548	0549					
\$CIMSK	001	0476	0545	0548	1039*				
\$CISUS	001	0496	0553	0558					
\$CLBFR	001	0010	0437						
\$CMDKY	001	0008	0349						
\$CMODE	001	0002	0399						
\$CONFG	001	03DD	0462	0472					
\$CRPOS	001	03E2	0488	0489					
\$CRTAD	001	044D	0527	0528					
\$CRTAV	001	0002	0343						
\$CRTDN	001	0002	0367						
\$CRTIN	001	03D3	0364	0371					
\$CRTNO	001	0004	0346						
\$CRTPU	001	0004	0368						
\$CRTSP	001	0008	0369						
\$CRTUP	001	0001	0366						
\$CRUSH	001	0080	0475						
\$CSDPL	001	050E	0574	0575					
\$C0001	001	0464	0531	0537					
\$DATE	001	043A	0512	0513					
\$DBGUF	001	03E0	0474	0483					
\$DBLOK	001	0001	0424						
\$DFDET	001	03E8	0495	0496					
\$DISKN	001	0025	0226	1077					
\$DKERR	001	0008	0405						
\$DKSIZ	001	03D7	0449	0457	0498				
\$DK100	001	0001	0451						
\$DK200	001	0002	0452						
\$DK400	001	0004	0453						
\$DK600	001	0008	0454						
\$DK800	001	0010	0455						
\$DPLSV	001	0449	0523	0525					
\$DTNMB	001	0040	0270						
\$DTRDR	001	0040	0358						

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$ENDNU	001	0600	0617	
\$ERDPL	001	046F	0542	0544
\$ERFIL	001	0040	0297	
\$ERHRD	001	0004	0429	
\$ERKEY	001	0080	0301	
\$ERLOG	001	0345	0231	
\$ERMAD	001	0472	0544	0545
\$ERPND	001	0004	0402	1074
\$ERRCT	001	03CF	0303	
\$ERRPG	001	03CE	0291	
\$ERSFL	001	0035	0296	
\$ERSTK	001	0030	0294	
\$ER050	001	0363	0232	
\$ER1N2	001	0050	0299	
\$EXADR	001	0517	0577	0579
\$EXCMD	001	0001	0331	
\$EXFTR	001	043B	0513	0518
\$FCIND	001	0010	0409	
\$FDIND	001	0040	0416	
\$FEARR	001	0004	0224	
\$FEMAP	001	0588	0610	0611
\$FILIB	001	03DA	0460	0461
\$FITIN	001	0010	0385	
\$FUIND	001	0020	0414	
\$GUFIO	001	0583	0607	0608
\$GUFIR	001	0008	0259	
\$HISTE	001	042E	0510	0511
\$HIST1	001	0435	0511	0512 1073*
\$HRDER	001	0020	0355	1076
\$INDR1	001	03D4	0371	0397
\$INDR2	001	03D5	0397	0422 1074*
\$INDR3	001	03D6	0422	0449
\$INLNO	001	03CF	0289	0291 0303 0310
\$INRPT	001	0020	0267	
\$IOIND	001	03D2	0338	0364 1076*
\$IOPGS	001	0010	0478	
\$IOYES	001	0002	0253	
\$IPLDV	001	05FF	0614	0617
\$IRKEY	001	0020	0477	
\$KEYBD	001	03E1	0483	0488
\$KEYCD	001	03C3	0247	0281
\$KEYDT	001	0040	0391	
\$KE090	001	00DE	0227	
\$KE130	001	01D5	0228	
\$KYBSY	001	0010	0264	
\$LDRTN	001	0571	0602	
\$LEVEL	001	03DF	0472	0474
\$LIST	001	0002	0426	
\$LMRGN	001	03C1	0242	0244
\$LNPTR	001	0080	0361	
\$LOADB	001	054A	0586	
\$LOADR	001	051A	0579	0582
\$LPRIO	001	03EA	0496	
\$LPROS	001	03E5	0491	0493
\$LPRP3	001	03E4	0490	0491
\$MOUNT	001	0020	0440	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$MPDWN	001	0001	0340	
\$NEXTB	001	03E6	0493	0494
\$NEXTL	001	03E7	0494	0495
\$NOENB	001	0008	0432	
\$NOLST	001	0004	0256	
\$NUCBS	001	03C0	0239	0240
\$NWRKF	001	0080	0445	
\$NWRKR	001	0040	0442	
\$PASWD	001	042D	0509	0510
\$PAUSD	001	04BA	0563	0565
\$PAUSE	001	0002	0333	
\$PGMDT	001	0020	0388	
\$PGMST	001	0010	0352	
\$PKERT	001	0419	0507	0509
\$PLST1	001	0454	0528	0529
\$PLST2	001	045B	0529	0530
\$PLST3	001	0462	0530	0531
\$PRDEV	001	044B	0525	0527
\$PRESN	001	0002	0376	
\$PROCI	001	0001	0373	
\$PRPOS	001	03C2	0244	0247
\$PSDBR	001	04FA	0568	
\$PSDXR	001	04F2	0567	0568
\$PSTEP	001	0004	0334	
\$PSTMT	001	0008	0335	
\$PTCH1	001	03F5	0498	0502
\$READY	001	0080	0418	
\$REORD	001	0040	0476	
\$RLOAD	001	051E	0582	0584
\$RMGRN	001	03C0	0240	0242
\$RSTR	001	04D6	0565	0567 0569 0574
\$RUNIT	001	0001	0312	
\$SFAID	001	050D	0570	
\$SPRNT	001	0465	0537	0539
\$SRTRN	001	04FE	0569	0570
\$STEPT	001	0002	0313	
\$SWPCR	001	0511	0575	0577
\$TABLN	001	03CB	0284	0287
\$TFLOW	001	0008	0319	
\$TRACE	001	0004	0314	
\$TRALL	001	0010	0320	
\$TROVR	001	054E	0589	0592
\$TRUNK	001	0080	0272	
\$TRVAR	001	0020	0321	
\$UNMSK	001	048D	0550	0553 1053
\$USRDR	001	03DC	0461	0462
\$VMDEF	001	0080	0325	
\$VOLF1	001	03FE	0504	0505
\$VOLF2	001	040E	0506	
\$VOLID	001	03F6	0502	0503 0507
\$VOLR1	001	03F6	0503	0504
\$VOLR2	001	0406	0505	0506
\$WAITF	001	057F	0605	0607 1078
\$WFDEF	001	0040	0519	
\$WFLOK	001	0008	0382	
\$WFNME	001	0443	0518	0523

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$WSIND	001	0004	0379	
\$XIND1	001	03D0	0310	0329
\$XIND2	001	03D1	0329	0338
\$XIND3	001	03D8	0457	0460
\$XPREC	001	0040	0322	
\$XRSAV	001	03C7	0282	0284
\$ZTRAD	001	05A2	0611	
\$12K	001	0004	0466	
\$16CKY	001	0008	0468	
\$16K	001	0002	0465	
\$22IMP	001	0001	0463	
#@CORS	001	0005	0855	
#@MVSD	001	0001	0863	
#@NERO	001	0003	0857	
#@OBRA	001	0002	0859	
#@PTFL	001	0006	0878	
#@PTFS	001	0001	0877	
#@VCNT	001	0002	0875	
#@VLAB	001	0001	0870	
#@VLSD	001	0001	0861	
#CNDIS	001	0001	0830	
#CNFIG	001	0005	0866	
#CORSV	001	0010	0854	
#DKEXT	001	0002	0837	
#FIGSC	001	0001	0867	
#HISCT	001	0006	0844	
#HISDX	001	0003	0839	
#HISLN	001	0008	0836	0837 1073
#HISN1	001	0003	0842	
#HISN2	001	0005	0843	
#HISTC	001	0007	0846	
#HISTN	001	0009	0848	
#HISTQ	001	0000	0840	
#HISTR	001	0001	0841	
#HISTS	001	0008	0847	
#HISTV	001	000F	0849	
#HSEND	001	0007	0845	
#HSENT	001	0001	0838	
#IOSDR	001	0019	0865	
#KLLAY	001	0000	0001	
#MVSDR	001	000D	0862	
#NEROV	001	009C	0856	
#OBRAD	001	001D	0858	
#PKCNT	001	0002	0823	
#PKMRW	001	002B	0824	
#PKRDD	001	0003	0821	
#PKRTD	001	0003	0820	
#PKRTL	001	0004	0827	
#PKVRD	001	000B	0825	
#PKVWD	001	0007	0826	
#PKWTD	001	0001	0822	
#PTFDA	001	00DC	0876	
#RDWTL	001	0004	0828	
#SDRDK	001	0011	0864	
#VLSDR	001	000C	0860	
#VLTBE	001	0008	0815	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
#VOLF1	001	0009	0868	
#VOLNG	001	0006	0813	0815 0837
#VOLOC	001	0005	0814	
#VOLR1	001	0008	0869	
#VTCF1	001	0025	0872	
#VTCF2	001	0027	0874	
#VTCR1	001	0024	0871	
#VTCR2	001	0026	0873	
@ALTFL	001	0001	0657	
@ARR	001	0008	0016	1034* 1035 1036* 1037
@ASIGN	001	007C	0071	
@ASTER	001	005C	0069	
@BCRDL	001	0050	0088	
@BE	001	0081	0043	
@BF	001	0090	0052	
@BH	001	0084	0041	
@BKSPC	001	0010	0754	
@BL	001	0082	0042	
@BLANK	001	0040	0065	
@BM	001	0082	0054	
@BNE	001	0001	0046	
@BNH	001	0004	0044	
@BNL	001	0002	0045	
@BNM	001	0002	0057	
@BNOL	001	0020	0050	
@BNOZ	001	0008	0049	
@BNP	001	0004	0056	
@BNZ	001	0001	0058	
@BOL	001	00A0	0048	
@BOZ	001	0088	0047	
@BP	001	0084	0053	
@BR	001	0001	0013	1030 1032 1033* 1034 1035 1036 1037 1038 1042 1044 1047 1048 1052* 1059 1060 1065 1066 1067 1067 1068 1070 1070 1071 1072 1073 1079 1081 1083
@BT	001	0010	0051	
@BZ	001	0081	0055	
@BZ37B	001	00F2	0767	1043
@B1	001	0001	0063	
@CADDR	001	0002	0142	1047 1090
@CARDL	001	0060	0087	
@CC37B	001	0000	0763	1049 1082 1087
@CD37B	001	00F0	0781	
@CHARA	001	00C1	0072	
@CHARF	001	00C6	0073	
@CHARR	001	00D9	0074	
@CHARZ	001	00E9	0075	
@CKY01	001	0001	0715	
@CKY02	001	0002	0716	
@CKY03	001	0003	0717	
@CKY04	001	0004	0718	
@CKY05	001	0005	0719	
@CKY06	001	0006	0720	
@CKY07	001	0007	0721	
@CKY08	001	0008	0722	
@CKY09	001	0009	0723	
@CKY10	001	000A	0724	

CROSS REFERENCE

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@CKY11 001 000B 0725
@CKY12 001 000C 0726
@CKY13 001 000D 0727
@CKY14 001 000E 0728
@CKY15 001 000F 0729
@CKY16 001 0010 0730
@CLOFF 001 0010 0094
@CLON 001 0011 0093
@CMLON 001 0001 0733
@CMOFF 001 0000 0732
@COMMA 001 006B 0066
@CPLUS 001 004E 0079
@CP37B 001 0004 0794
@CRERR 001 0090 0749
@CRPRY 001 0004 0753
@CRTDS 001 0092 0746
@CRTQ 001 0090 0748
@CURSR 001 0040 0750
@DADDR 001 0002 0140
@DBFR1 001 0004 0129
@DBFR2 001 0005 0130
@DBUSY 001 0002 0651
@DCALK 001 0001 0081
@DCBCY 001 0009 0115
@DCBT1 001 0050 0117
@DCFLN 001 0004 0635
@DCNT 001 0003 0128
@DCRID 001 0001 0649
@DCST1 001 0040 0116
@DCTRL 001 0000 0125
@DCTRW 001 0000 0648
@DCWID 001 0001 0645
@DCYL 001 0001 0126
@DCYMV 001 0001 0636
@DD2 001 0003 0030
@DEFLG 001 0002 0658
@DERCE 001 0020 0688
@DERD2 001 0008 0680
@DEREQ 001 0010 0679
@DERIN 001 0040 0677
@DERMA 001 0020 0678
@DERNR 001 0004 0681
@DERR 001 0000 0652
@DERSC 001 0001 0683
@DERTC 001 0002 0682
@DFCR 001 0006 0638
@DFDR 001 0004 0639
@DGET 001 0001 0134
@DHARD 001 0000 0666
@DLNCT 001 000F 0752
@DLNLG 001 0040 0751
@DOLAR 001 005B 0068
@DOP2 001 0004 0028
@DPLNG 001 0006 0132
@DPOS 001 0000 0133
@DPUT 001 0002 0135

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CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@DREAD	001	0001	0642	
@DSAD	001	0002	0127	
@DSBCY	001	0004	0106	
@DSBSY	001	0092	0747	
@DSCS1	001	0000	0107	
@DSEEK	001	0000	0641	
@DSIVF	001	0003	0138	
@DSPIN	001	0002	0131	
@DTRSZ	001	0018	0085	
@DUNSF	001	0080	0684	
@DVBCY	001	0007	0108	
@DVERY	001	0003	0647	
@DVRFY	001	0031	0136	
@DVST1	001	0002	0653	
@DVST2	001	0003	0654	
@DWAIT	001	00FF	0137	
@DWBCY	001	0005	0103	
@DWRIT	001	0002	0643	
@DWSIZ	001	00C0	0105	
@DWTB1	001	0003	0104	
@DZERO	001	00F0	0064	
@D1	001	0002	0026	1067* 1070*
@EOF	001	001C	0077	
@EOFTC	001	0075	0162	
@EOS	001	001E	0076	
@ER37B	001	00F0	0768	1044
@FDDBC	001	0000	0195	
@FDE1	001	000C	0200	
@FDFNA	001	000B	0198	
@FDHLN	001	0002	0208	
@FDLNC	001	0002	0193	
@FDNSC	001	0003	0210	
@FDSD	001	0000	0206	
@FLACE	001	0009	0197	
@FLDBC	001	0001	0196	
@FLDIN	001	0012	0740	
@FLENT	001	0004	0201	
@FLFNA	001	0002	0199	
@FLHLN	001	0002	0209	
@FLLNC	001	0002	0194	
@FLNSC	001	0001	0211	
@FLSD	001	0001	0207	
@HCEPK	001	003C	0910	
@HCOPS	001	001C	0917	
@HCOPY	001	081C	0912	
@HCRHE	001	7858	0933	
@HDNRY	001	1008	0898	1064
@HDRHE	001	7854	0931	
@HDLN	001	0007	0092	
@HDRV1	001	7840	0923	
@HDRV2	001	7844	0925	
@HDTRD	001	1040	0894	1092
@HDTRJ	001	1010	0896	1091
@HERPG	001	087C	0900	
@HFEHT	001	0804	0915	
@HIPLE	001	006C	0907	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@HKBER	001	2040	0890	
@HKBHE	001	7848	0927	
@HLOGE	001	1844	0902	
@HPRER	001	0070	0892	
@HPRHE	001	784C	0929	
@HSTAD	001	0009	0664	
@HSTEN	001	0007	0663	
@HSTPE	001	0006	0662	
@HSTQR	001	0001	0660	
@HSTSN	001	0005	0661	
@HSTVI	001	000F	0665	
@HUNSF	001	1850	0905	
@IAR	001	0010	0017	
@ID37B	001	0040	0804	
@INDEX	001	0001	0156	0157
@INST3	001	0003	0032	
@INST4	001	0004	0033	
@INST5	001	0005	0034	
@INST6	001	0006	0035	
@IP37B	001	00C0	0803	
@I1IAR	001	00C0	0020	
@KCMDK	001	0020	0714	
@KELOK	001	001B	0713	
@KENAB	001	001E	0711	
@KEXIT	001	001F	0712	
@KEYBD	001	0010	0731	
@KFUNK	001	0010	0734	
@KHARD	001	0011	0739	
@KLEAR	001	000D	0735	
@LINSZ	001	00F4	0084	
@LO37B	001	00F0	0772	1048* 1081*
@MAPEN	001	0005	0089	
@MINCR	001	2000	0083	
@MINUS	001	0060	0080	
@NOP	001	0080	0040	1039 1079
@NORFL	001	0000	0659	
@NTRDY	001	00A0	0796	1065
@NUMBR	001	007B	0070	
@OPD2	001	0004	0029	
@OP1	001	0003	0027	1032* 1035* 1037* 1038*
@OP2	001	0005	0031	
@OVRUN	001	0004	0689	
@PBUSY	001	00E2	0701	
@PCAR	001	00E6	0698	
@PCNT	001	0003	0633	
@PCTRL	001	0000	0149	1045
@PCYL	001	0001	0631	
@PC37B	001	00F2	0788	1049 1082 1086
@PDAR	001	00E4	0697	
@PDATA	001	0003	0151	1047
@PD37B	001	0080	0802	
@PERR	001	00E0	0704	
@PFLAG	001	0000	0630	
@PFORM	001	00E1	0702	
@PGCSZ	001	0020	0082	0083
@PLITE	001	00E2	0703	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@PLNGH	001	0004	0694	
@PMGCK	001	0020	0705	
@PN37B	001	00F0	0787	
@PPLNG	001	0004	0148	
@PRCNT	001	0001	0150	
@PRETR	001	00C0	0154	
@PRINT	001	0040	0152	0154
@PRITY	001	0080	0738	
@PSAD	001	0002	0632	
@PSIOQ	001	00E0	0700	
@PSIOR	001	0000	0699	
@PSNSQ	001	00E2	0706	
@PSR	001	0004	0015	
@PWAIT	001	00FF	0158	1045
@P1IAR	001	0020	0018	
@P2IAR	001	0040	0019	
@Q	001	0001	0024	1042* 1079*
@RD37B	001	00F1	0782	
@REGL	001	0002	0012	1088
@RETRN	001	0080	0153	0154
@RLDWN	001	004F	0159	
@RTCNT	001	0003	0696	
@RTRNC	001	0080	0161	
@RT37B	001	0005	0795	
@SBLNL	001	0002	0184	
@SCTSZ	001	0100	0100	
@SDFLN	001	0007	0090	
@SDF0	001	0000	0166	
@SDF1	001	0001	0167	
@SDF2	001	0002	0168	
@SDF3	001	0003	0169	
@SDLN	001	0005	0170	
@SECCY	001	0030	0086	
@SIST	001	0001	0181	
@SKCTL	001	0000	0646	
@SLASH	001	0061	0067	
@SLAST	001	0002	0183	
@SMIDL	001	0003	0182	
@SNSB0	001	0000	0670	
@SNSB1	001	0001	0671	
@SNSB2	001	0002	0672	
@SNSB3	001	0003	0673	
@SNUL	001	0080	0173	
@SN37B	001	00F2	0776	1059
@SONLY	001	0000	0180	
@SPINA	001	00A0	0655	
@SPINB	001	00B0	0656	
@STEXT	001	0007	0172	
@STYPE	001	0006	0171	
@SYCNT	001	0002	0695	
@TBCNT	001	0000	0160	
@TBLEF	001	0010	0155	0157
@TBLIX	001	0011	0157	
@TJ37B	001	0040	0793	1068
@TYPAM	001	0002	0737	
@TYPO	001	001C	0736	

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@UCB	001	0087	0039	1042					
@UPARW	001	005A	0078						
@VADDR	001	0002	0141						
@VENTA	001	0056	0113						
@VMDDV	001	00FE	0114						
@VMFD1	001	0000	0109						
@VMFD2	001	0001	0110						
@VMRS3	001	0002	0112						
@VMTRL	001	0001	0111						
@VOLID	001	0006	0091						
@VQ	001	0001	0025						
@WA37B	001	00FF	0801						
@WSFIT	001	0500	0101						
@WSTBL	001	0503	0102						
@XR	001	0002	0014	1038	1041*	1045	1047	1051*	
@ZERO	001	0000	0062						
@4K	001	0010	0755						
DCDATA	002	0699	1090	1047*	1048	1081	1094		
DCDBSE	001	061A	1040	1030					
DCDCPH	002	069D	1092	1070					
DCDOBR	002	0699	1094	1073					
DCDOFF	001	0080	1093	1060					
DCDONE	002	0697	1089	1033	1034	1036			
DCDOUT	001	05FF	1031						
DCDSNS	002	0695	1088	1059*	1060	1065	1068	1071	
DCDTJH	002	069B	1091	1067					
DCD100	004	061A	1041	1035*					
DCD200	003	0621	1043	1066	1083				
DCD220	003	0627	1045	1072					
DCD380	004	0637	1051	1038*	1046				
DCD390	004	063B	1052	1032*					
DCD400	004	0643	1054	1037*					
DCD500	001	0647	1058	1044					
DCD505	003	0653	1065	1061					
DCD510	003	0676	1075	1042*	1079*				
DCD520	003	0683	1079	1075					
DCD530	003	0686	1080	1067*	1069	1070*			
DCD550	003	0689	1081						

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY = 0

OL105 I THE CODE LENGTH OF #KLLAY IS 1792 DECIMAL.
OL103 I TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS 2
NAME-#KLLAY,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-R,CATEGORY-000

START ADDRESS	CATEGORY	NAME AND ENTRY	CODE LENGTH HEXADECIMAL DECIMAL	
0920	0	#KLLAY	0700 1792	
OL100 I		THE TOTAL CORE USED BY #KLLAY IS 1792 DECIMAL.		
OL101 I		THE START CONTROL ADDRESS OF THIS MODULE IS 0920.		
OL104 I		TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS 8		
		NAME-#KLLAY,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-O		
3		0D58 2487	DC IL1'3'	LENTGH-1 OF CARD
0D59 02		0D59 2488	DC	AL1(KLIMK1) MASK FOR CARD
0D5A C3C1D9C4		0D5D 2489	DC	CL4'CARD' KEYWORD CARD
0D5E 02		0D5E 2490	DC	IL1'2' LENGTH-1 OF NUM
0D5F 04		0D5F 2491	DC	AL1(KLIMK3) MASK FOR NUM
0D60 D5E4D4		0D62 2492	DC	CL3'NUM'
0D63 04		0D63 2493	DC	IL1'4' LENGTH-1 OR NONUM
0D64 14		0D64 2494	DC	AL1(KLIMK2) MASK FOR NONUM
0D65 D5D6D5E4D4		0D69 2495	DC	CL5'NONUM'
0D6A 06		0D6A 2496	DC	IL1'6' LENGTH-1 OF PRINTER
0D6B 01		0D6B 2497	DC	AL1(KLIMK4) MASK FOR PRINTER
0D6C D7D9C9D5E3C5D9		0D72 2498	DC	CL7'PRINTER'
0D73 02		0D73 2499	DC	IL1'2' LENGTH-1 OF CRT
0D74 0F		0D74 2500	DC	AL1(KLIMK5) MASK FOR CRT
0D75 C3D9E3		0D77 2501	DC	CL3'CRT'
0D78 FF		0D78 2502	DC	IL1'-1' END OF TABLE
		2503 *		
		2504 *****		

#KLIST - MAINLINE LIST ROUTINE

ERR LOC		OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/06/21	PAGE 11
				2506	*			
				2507	* EQUATES AND DPL TO LOAD DCDOUT (#KLIVR)			
				2508	*			
			2004	2509	KLICDA EQU X'2004'			RELATIVE DISK ADDRESS OF #KLOVR
			0001	2510	KLICDL EQU 1			LENGTH OF #KLOVR
			0920	2511	KLICDC EQU \$\$PRES+X'90'			CORE LOAD ADDRESS
				2512	*			
				2513	*LIDCD \$DPL FUNC-@DGET,DADDR-KLICDA,CNT-KLICDL,CADDR-KLICDC			
			0D79	2514	+KLIDCD EQU *			DISK PARAMETER LIST
0D79	01		0D79	2515	+	DC	AL1(@DGET)	REQUESTED FUNCTION
0D7A	2004		0D7B	2516	+	DC	AL2(KLICDA)	DISK ADDRESS
0D7C	01		0D7C	2517	+	DC	AL1(KLICDL)	SECTOR COUNT
0D7D	0920		0D7E	2518	+	DC	AL2(KLICDC)	BUFFER ADDRESS
				2519	***	END OF EXPANSION	***	
				2520	*			

#KLIST - MAINLINE LIST ROUTINE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/06/21 PAGE 12
				0D7F	2522		USING KLI070,@BR	
				0D7F	2523	KLI070	EQU *	CRT SPECIFICATION
	0D7F	C2	01	0D7F	2524		LA KLI070,@BR	SET UP BASE
	0D83	3C	1B	148B	2525		MVI DLPTYP,DLPCRT	SET CRT INDICATION
	0D87	C0	87	1A84	2526		B SCKDEV	CHECK OUTPUT DEVICE
	0D8B	3C	08	0D57	2527		MVI KLIDVT,KLICRT	SET CRT AS OUTPUT DEVICE
	0D8F	38	20	03D4	2528		TBN \$INDR1,\$PGMDT	PGM GENERATED FILE ?
	0D93	D0	10	3E	2529		BT KLI074(,@BR)	
	0D96	3A	02	03D6	2530		SBN \$INDR3,\$LIST	ACCEPT ROLL-DOWN
	0D9A	0F	01	1B37 1B37	2531		SLC GFILNO(@CADDR),GFILNO	ASK FOR LINE ZERO
	0DA0	3C	01	1401	2532		MVI GRSCTR,KLI2BF	SET DOUBLE BUFFER OPTION
	0DA4	C0	87	1ADB	2533		B GFINDN	RETRIEVE BUFFER FROM DISK
	0DA8	C0	87	127F	2534		B GRABIT	RETRIEVE FIRST LINE NUMBER
	0DAC	0C	01	0FC5 1191	2535		MVC KLIFLF(@CADDR),GRLINE	FIRST LINE IN FILE
	0DB2	F2	87	08	2536		J KLI074	EXIT ---
				0DB5	2537	KLI072	EQU *	PROCESS LINE NUMBER LIST
	0DB5	C2	01	0D7F	2538		LA KLI070,@BR	SET UP BASE REGISTER
	0DB9	C0	87	1A84	2539		B SCKDEV	CHECK OUTPUT DEVICE
	0DBD	75	02	D7	2540	KLI074	L KLIXR1(,@BR),@XR	CURRENT POINTER INTO SLLINE
	0DC0	BD	FF	00	2541		CLI @ZERO(,@XR),@SCTS-1	NULL LINE-NUMBER-LIST ?
	0DC3	D0	81	67	2542		BE KLI075(,@BR)	YES --- CALL OUTPUT PROCESSOR
	0DC6	3C	50	03CD	2543		MVI \$CAERR,@E335	SET ILLEGAL WITH LINE NO
	0DCA	38	20	03D4	2544		TBN \$INDR1,\$PGMDT	PGM GENERATED TILE ?
N04	0DCE	00	00	0000	2545		BT SCAERK	YES --- GO TO ERROR ROUTINE
	0DD2	2C	01	0FB7 01	2546	KLI073	MVC KLIBLN(@CADDR),@B1(,@XR)	LINENO(1) --> BEGINNING LINE
	0DD7	BD	60	02	2547		CLI KLITNO(,@XR),@MINUS	RANGE SPECIFIED ?
	0DDA	D0	01	B9	2548		BNE KLI080(,@BR)	NO --- GO SET STOP = START
N04	0DDD	00	00	0000 00	2549		MVC KLISLN(@CADDR),KLIFOR(,@XR)	MOVE STOP LINE
	0DE2	5E	01	D7 D3	2550		ALC KLIXR1(@CADDR,@BR),KLIFIV(,@BR)	BUMP I --- I = I + 5.
	0DE6	0C	01	0FC0 0FC8	2551	KLI075	MVC KLICLN(@CADDR),KLISLN	SET CURRENT TO START
N04	0DEC	00	00	0000	2552		TBN DLPYYP,DLPCRT	CRT SPECIFIED ?
	0DF0	D0	90	79	2553		BF KLI076(,@BR)	NO --- GO TO OUTPUT PROCESSOR
	0DF3	1C	01	0FC8 D1	2554		MVC KLISLN(@CADDR),KLIMAX(,@BR)	SET MAX LINE NUMBER
	0DF8	D0	87	DE	2555	KLI076	B KLI100(,@BR)	LIST OUTPUT FUNCTION
	0DFB	38	1B	148B	2556		TBN DLPTYP,DLPCRT	CRT SPECIFIED ?
	0DFF	F2	10	43	2557		JT KLI090	GO WAIT FOR LAST LINE TO LIST
	0E02	75	02	D7	2558		L KLIXR1(,@BR),@XR	PICK UP INDEX INTO SLLINE
	0E05	BD	FF	00	2559		CLI @ZERO(,@XR),@SCTS-1	END OF LINE LIST ?
	0E08	D0	01	53	2560		BNE KLI073(,@BR)	RETURN TO LOOP
	0E0B	39	03	0FDD	2561		TBF KLINDC,KLONGL+KLIASK	ANY ERRORS DETECTED ?
	0E0F	F2	10	33	2562		JT KLI090	GO WAIT FOR LAST LINE TO LIST
	0E12	38	02	0FDD	2563		TBN KLINDC,KLONGL	TRUNCATED LINES
	0E16	F2	90	0C	2564		JF KLI078	EXIT TO ERROR ROUTINE
	0E19	7C	9F	D8	2565		MVI KLICD1(,@BR),@E570	SWITCH ERROR MESSAGES
	0E1C	7C	A0	DB	2566		MVI KLICD2(,@BR),@E571	*
	0E1F	0F	00	0FDD 0FCC	2567		SLC KLINDC,KLIPL1(1)	DECREMENT COUNT
	0E25	1C	05	1C05 DD	2568	KLI078	MVC \$\$ERSK+KLITLG(KLISIX),KLIER2(,@BR)	MOVE ERROR TO STACK
	0E2A	0C	00	03CF 0FDD	2569		MVC \$ERRCT(1),KLINDC	MOVE COUNT VALUE
	0E30	3C	30	03CE	2570		MVI \$ERRPG,\$ERSTK	TURN ON STACK INDICATOR
N04	0E34	00	00	0000	2571		B SCAERK	YES --- GO TO ERROR ROUTINE
	0E38	0C	01	0FC8 0FB7	2572	KLI080	MVC KLISLN(@CADDR),KLIBLN	
	0E3E	5E	01	D7 D5	2573		ALC KLIXR1(@CADDR,@BR),KLITWO(,@BR)	I = I + 2.
	0E42	D0	87	67	2574		B KLI075(,@BR)	CONTINUE
	0E45	C0	87	1461	2575	KLI090	B DLPRNT	GO WAIT FOR LAST LINE TO LIST
	0E49	057F			2576	0E4A	DC AL2(\$WAITF)	WAIT FUNCTION PARM LIST
	0E4B	C0	87	04A1	2577		B \$CARPL	RETURN TO SYSTEM

#KLIST - MAINLINE LIST ROUTINE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/06/21 PAGE 13
				2579		*****		
				2580	*	C O N S T A N T S	A N D W O R K A R E A S	*
				2581		*****		
				0D51	2582	\$CKFRR EQU	KLI061	CRT ERROR
0E4F	270F			0E50	2583	KLIMAX DC	IL2'9999'	MAXIMUM LINE NLMBER
0E51	0003			0E52	2584	KLIFIV DC	IL2'3'	LENGH OF LINE NUMBER RANGE
0E53	0002			0E54	2585	KLITWO DC	IL2'2'	LENGTH OF LINE-NUMBER
0E55				0E56	2586	KLIXR1 DS	CL2	INDEX FOR SLLINE - 1
0E55					2587	ORG	*-2	RESET LOCATION COUNTER
0E55	1948			0E56	2588		DC AL2(SLLINE)	BEGINNING OF AREA
0E57	A0			0E57	2589	KLICD1 DC	AL1(@@E571)	DISABLED LINES ENCOUNTERED
0E58	A0			0E58	2590		DC AL1(\$\$N\$NLN)	NO LINE NUMBER INDICATOR
0E59				0E59	2591	KLIER1 DS	CL1	FILLER
0E5A	9F			0E5A	2592	KLICD2 DC	AL1(@@E570)	TRUNCATED LINES-ENCOUNTERED
0E5B	A0			0E5B	2593		DC AL1(\$\$N\$NLN)	NO LINE NUMBER INDICATOR
0E5C				0E5C	2594	KLIER2 DS	CL1	FILLER
					2595	*		
				0E5D	2596	KLI100 EQU	*	LIST OUTPUT SERTION
0E5D	34 08 1078				2597	ST	KLI400+@OP1,@ARR	SAVE RETURN ADDRESS
0E61	34 01 1074				2598	ST	KLI399+@OP1,@BR	SAVE BASE
0E65	C2 01 0EE0				2599	LA	KLI135,@BR	SET BASE REGISTER
				0EE0	2600		USING KLI135,@BR	
					2601	MVI	KLICTR(,@BR),KLI14	SET ROW COUNT
					2602	MVC	KLIXRJ(@CADDR,@BR),KLIMN5(,@BR)	SET MINUS 5 TO INTIAL J
					2603	MVI	KLIMLS(,@BR),@B1	INTIALIZE FIELD
N04	0E73 00 00 00				2604	MVI	KLICLO(,@BR),@B1	INTIALIZE FIELD
					2605	L	KLILST,@XR	CRT VECTOR ADDRESS
N04	0E7A 00 00 00 00				2606	KLI104 MVC	KLIFOR(KLITLG,@XR),KLIMLS(,@BR)	INTIALIZE VECTOR
					2607	LA	KLITLG(,@XR),@XR	BUMP TO NEXT ROW
					2608	SLC	KLICTR(@B1,@BR),KLIPL1(,@BR)	REDUCE COUNT
					2609	BNZ	KLI104	CONTINUE TO INTIALIZE
					2610	TBN	\$INDR1,\$PGMDT	PROGRAM GENERATED FILE ?
					2611	BT	KLI380	OUTPUT PROGRAM GENERATED FILE
					2612	KLI105 B	KLI500	LINE RETRIEVAL ROUTINE
					2613	CLI	KLITYP(,@BR),@ZERO	GO CONDITION ?
					2614	BNE	KLI399	NO --- RETURN
					2615	TBN	KLIDVT,KLICRT	CRT SPECIFIED ?
					2616	BF	KLI210	CRT NOT SPECIFIED
					2617	KLI106 CLI	KLITYP(,@BR),@ZERO	GO CONDITION ?
					2618	BNE	KLI250	GO WAIT FOR INTERRUPT
					2619	KLI110 SBF	KLIMOD(,@BR),\$CRTPU	
					2620	MVC	KLI150+@Q(@B1,@BR),KLIMOD(,@BR)	SET BIT PATTERN
N04	0EB2 00 00 00 00				2621	KLI120 CLC	KLIMLS(1,@BR),KLICLO(,@BR)	CRT SEGMENTS EXHAUSTED ?
					2622	JH	KLI125	NO
					2623	ALC	KLICLN(@CADDR,@BR),KLIINC(,@BR)	BUMP LINE NUMBER
					2624	B	KLI500	RETRIEVE LINE ROUTINE
					2625	CLI	KLITYP(,@BR),@ZERO	GO CONDITION ?
					2626	BNE	KLI250	STOP CONDITION
				0EC8	2627	KLI125 EQU	*	CHECK MODE
N04	0EC8 00 00 00				2628	TBN	KLIMOD(,@BR),@CRTDN	MODE EQUAL ROLL-DOWN ?
					2629	BT	KLI185(,@BR)	YES --- MODE ROLL-DOWN
					2630	MVI	KLIOPT(,@BR),@PRINT+@RETRN	SET PRINTER INDICATOR
					2631	ALC	KLIXRJ(@CADDR,@BR),KLIPL5(,@BR)	J = J + 1;
					2632	CLC	KLIXRJ(@CADDR,@BR),KLIMXJ(,@BR)	J > MAX ?
					2633	JNH	KLI135	CONTINUE
					2634	SLC	KLIXRJ(@CADDR,@BR),KLIXRJ(,@BR)	0 --> J

#KLIST - MAINLINE LIST ROUTINE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/06/21	PAGE 14
N04	0EE0	00	00	00	00	2635	KLI135 MVC KLIYWK(1,@BR),KLICLO(,@BR)			SET UP LINES OUTPUT
	0EE4	7C	00	FC		2636	KLI136 MVI KLICTR(,@BR),@ZERO			CLEAR MULITIPLY COUNTER
	0EE7	C2	02	0000		2637	LA @ZERO,@XR			CLEAR PRODUCT ACCUMULATOR
	0EEB	4C	01	DD	118D	2638	MVC KLIBUF(@CADDR,@BR),KLIBF@			RESET BUFFER ADDRESS
	0EF0	5D	00	FC	F5	2639	KLI140 CLC KLICTR(1,@BR),KLIYWK(,@BR)			MULTIPLICATION COMPLETE ?
	0EF4	D0	02	21		2640	BNL KLI145(,@BR)			YES --- EXIT
	0EF7	76	02	F4		2641	A KLIC64(,@BR),@XR			MULTIPLICAND EQUAL 64
	0EFA	5E	00	FC	EC	2642	ALC KLICTR(1,@BR),KLIPL1(,@BR)			INCREMENT COUNT
	0EFE	D0	87	10		2643	B KLI140(,@BR)			CONTINUE
						2644	*			
						2645	* PRODUCT IS IN @XR			
						2646	*			
	0F01	76	02	DD		2647	KLI145 A KLIBUF(,@BR),@XR			COMPLETE LOCATION II BUFFER
	0F04	74	02	DD		2648	ST KLIBUF(,@BR),@XR			STORE BUFFER ADDRESS IN LCB
N04	0F07	00	00	00	00	2649	ALC KLICLO(1,@BR),KLIPL1(,@BR)			BUMP LINES OUTPUT FIELD
	0F0B	75	02	F2		2650	L KLIXRJ(,@BR),@XR			INDEX J
N04	0F0E	00	00	00		2651	A KLCLST(,@BR),@XR			COMPLTE ROW IN TABLE
N04	0F11	00	00	00	00	2652	MVC KLISTM(1,@XR),KLIMOD(,@BR)			MOVE MODE TO TABLE (J)
	0F15	9C	01	02	E0	2653	MVC KLISTL(@CADDR,@XR),KLICLN(,@BR)			MOVE CURRENT LINE TO TAN
N04	0F19	00	00	00	00	2654	MVC KLISTO(1,@XR),KLICLO(,@BR)			MOVE SEGMENTS %TM TO TABLE
	0F1D	9C	00	04	E2	2655	MVC KLISTS(1,@XR),KLIMLS(,@BR)			MOVE MAX SEGMENTS TO TABLE (J)
	0F21	C0	87	1461		2656	B DLPRNT			CRT INTERFACE ROUTINE
	0F25	0FBA				2657	DC AL2(KLIOPT)			DLPRNT PARAMETER LIST
						2658	KLI150 EQU *			
	0F27	38	00	03D3		2659	TBN \$CRTIN,*-*			MODE CHANGE
	0F2B	C0	10	0EA4		2660	BT KLI106			NO CHANGE CONTINUE OUTPUT
	0F2F	38	08	03D3		2661	TBN \$CRTIN,\$CRTSP			ROLL-STOP ?
	0F33	C0	10	0EA4		2662	BT KLI106			YES --- CONTINUE
	0F37	78	02	DE		2663	TBN KLIMOD(,@BR),\$CRTDN			MODE EQUAL ROLL-DOWN ?
	0F3A	D0	10	A6		2664	BT KLI182(,@BR)			YES GO DECREMENT J
	0F3D	5E	01	F2	F7	2665	ALC KLIXRJ(@CADDR,@BR),KLIPL5(,@BR)			J = J + 1;
	0F41	5D	01	F2	EA	2666	CLC KLIXRJ(@CADDR,@BR),KLIMXJ(,@BR)			J > MAX ?
	0F45	F2	04	04		2667	JNH KLI160			NO ---
	0F48	5F	01	F2	F2	2668	SLC KLIXRJ(@CADDR,@BR),KLIXRJ(,@BR)			0 --> J
	0F4C	5C	01	D9	EE	2669	KLI160 MVC KLIINC(@CADDR,@BR),KLIMN1(,@BR)			SET INCREMENT TO -1
						2670	*			
N04	0F50	75	02	F2		2671	KLI170 L KLIXRJ(,@BR),@XR			PICK UP INDEX J
	0F53	00	00	00		2672	A KLCLST(,@BR),@XR			COMPUTE DISPLACEMENT
	0F56	6C	01	E0	02	2673	MVC KLICLN(@CADDR,@BR),KLISTL(,@XR)			TABLE(J) --> CURR. LINE
	0F5A	6C	00	E2	04	2674	MVC KLIMLS(,@BR),KLISTS(,@XR)			TABLE(J) --> MAX SEGMENTS
N04	0F5E	00	00	00		2675	MVI KLICHG(,@BR),KLIMON			TURN ON MODE CHANGE
	0F61	4C	00	DE	03D3	2676	MVC KLIMOD(,@BR),\$CRTIN			SET NEW MODE
	0F66	6C	00	A0	03	2677	MVC KLI180+@Q(1,@BR),KLISTO(,@XR)			SAVE LINES OUTPUT FIELD
	0F6A	7B	04	DE		2678	SBF KLIMOD(,@BR),\$CRTPU			SET OFF POP BIT
N04	0F6D	00	00	00	00	2679	CLC KLIMOD(,@BR),KLISTM(,@XR)			OLD MODE : NEW MODE ?
	0F71	F2	01	6C		2680	JNE KLI190			REVERSE FIELDS
	0F74	6D	00	A0	04	2681	KLI175 CLC KLI180+@Q(1,@BR),KLISTS(,@XR)			ALL SEGMENTS OUTPUT ?
	0F78	F2	02	04		2682	JNL KLI180			NO --- CONTINUE
	0F7B	C0	87	1079		2683	B KLI500			LINE RETRIEVAL ROUTINE
N04	0F7F	00	00	00		2684	KLI180 MVI KLICLO(,@BR),*-*			MOVE FIELD TO LCB
	0F82	C0	87	0EAB		2685	B KLI110			BACK TO MAINLINE
	0F86	5F	01	F2	F7	2687	KLI182 SLC KLIXRJ(@CADDR,@BR),KLIPL5(,@BR)			J = J - 1;
	0F8A	F2	04	04		2688	JNH KLI183			J < 0 ? --- NO
	0F8D	5C	01	F2	EA	2689	MVC KLIXRJ(@CADDR,@BR),KLIMXJ(,@BR)			YES ---
	0F91	5C	01	D9	EC	2690	KLI183 MVC KLIINC(@CADDR,@BR),KLIPL1(,@BR)			SET INCREMENT TO +1

#KLIST - MAINLINE LIST ROUTINE

ERR LOC		OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/06/21 PAGE 15		
	0F95	D0 87 70		2691	B	KLI170(,@BR)			
	0F98	5F 01 F2 F7		2692	KLI185	SLC KLI170(,@BR),KLIPL5(,@BR) J = J - 1;			
	0F9C	D0 02 C3		2693	BNM	KLI186(,@BR) CONIINLE			
	0F9F	5C 01 F2 EA		2694	MVC	KLI186(,@BR),KLIMXJ(,@BR) J = 13;			
	0FA3	5C 00 F5 E2		2695	KLI186	MVC KLIYWK(1,@BR),KLIMLS(,@BR) COMPUTE			
N04	0FA7	00 00 00 00		2696	SLC	KLIYWK(1,@BR),KLICLO(,@BR) DISPLACEMENT			
	0FAB	5F 00 F5 EC		2697	SLC	KLIYWK(1,@BR),KLIPL1(,@BR) BUMP			
	0FAF	7C 4F DA		2698	MVI	KLIOPT(,@BR),@RLDWN SET ROLL-DOWN INDICATOR			
	0FB2	D0 87 04		2699	B	KLI136(,@BR) RETURN			

#KLIST - MAINLINE LIST ROUTINE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/06/21 PAGE 16
					2701	*****		
					2702	****	L I S T C O N T R O L B L O C K	****
					2703	*****		
				0FB5	2704	KLILCB EQU *	L I S T C O N T R O L	
	0FB5			0FB5	2705	KLITYP DS CL1	FILE CONDITION CODE	
	0FB6			0FB7	2706	KLIBLN DS CL2	STARTING LINE NUMBER	
	0FB6				2707	ORG *-2	RESET LOCATION COUNTER	
	0FB6	0000		0FB7	2708	DC IL(@CADDR)'0'	SET TO MINIMUM LINENO	
	0FB8			0FB9	2709	KLIINC DS CL2	LINE INCREMENT VALUE	
	0FB8				2710	ORG KLIINC-1	RESET LOCATION COUNTER	
	0FB8	0001		0FB9	2711	DC IL2'1'	SET INTIAL VALUE	
	0FBA			0FBA	2712	KLIOPT DS CL1	PPL CONTROL CHARACTER	
	0FBA				2713	ORG *-1	RESET LOCATION COUNTER	
	0FBA	C0		0FBA	2714	DC XL1'C0'	ROLL-UP INDICATOR	
					2715	*	* 4F -- ROLL-DOWN	
					2716	*	* C0 -- ROLL-UP OR PRINT	
	0FBB			0FBB	2717	KLIFLL DS CL1	LENGTH OF CURRENT LINE	
	0FBC			0FBD	2718	KLIBUF DS CL2	BUFFER ADDRESS	
	0FBE			0FBE	2719	KLIMOD DS CL1	CRT MODE	
	0FBE				2720	ORG *-1	RESET	
	0FBE	05		0FBE	2721	DC IL1'05'	SET TO LP	
	0FBF			0FC0	2722	KLICLN DS CL2	CURRENT LINE NUMBER	
	0FC1			0FC1	2723	CLICLO DS CL1	CRT LINES OUTPUT	
	0FC2			0FC2	2724	KLIMLS DS CL1	MAXIMUM CRT LINE SEGMENTS	
	0FC3			0FC3	2725	KLICHG DS CL1	MODE CHANGE INDICATOR	
	0FC3				2726	ORG *-1	RESET LOCATION COUNTER	
	0FC3	01		0FC3	2727	DC IL1'01'	SET MODE CHANGE ON	
	0FC4			0FC5	2728	KLIFLF DS CL2	FIRST LINE NUMBER IN WORK FILE	
	0FC6			0FC6	2729	KLIICI DS CL1	INTIAL CALL INDICATOR	
	0FC7			0FC8	2730	KLISLN DS CL2	STOP LINE NUMBER	
	0FC7				2731	ORG *-2	RESET LOCATION COUNTER	
	0FC7	270F		0FC8	2732	DC IL(@CADDR)'9999'	SET TO MAXIMUM LINENO	
					2733	*		
					2734	*****		
					2735	*	C O N S T A N T S A N D W O R K A R E A S	
					2736	*****		
					2737	*		
	0FC9	0041		0FCA	2738	KLIMXJ DC IL2'65'	MAXIMUM INDEX VALUE FOR J	
	0FCB	0001		0FCC	2739	KLIPL1 DC IL2'+1'	CONSTANT PLUS ONE	
	0FCD	FFFF		0FCE	2740	KLIMN1 DC IL2'-1'	MINUS ONE	
	0FCF	0D7F		0FD0	2741	KLILST DC AL2(KLITAB)	ADDRESS OR CRT TAKE	
	0FD1			0FD2	2742	KLIXRJ DS CL2	INDEX J	
	0FD3	0040		0FD4	2743	KLIC64 DC IL2'64'	CONSTANT 64	
	0FD5			0FD5	2744	KLIYWK DS CL1	WORK AREA	
	0FD6	0005		0FD7	2745	KLIPL5 DC IL2'+5'	INCREMENT FOR J	
	0FD8	FFFB		0FD9	2746	KLIMN5 DC IL2'-5'	INTIAL SETTINS	
	0FDA			0FDB	2747	KLIMAG DS CL2	NUM --- NONUM PARAMETER	
	0FDA				2748	ORG KLIMAG-1	RESET LOCATION COUNTER	
	0FDA	0000		0FDB	2749	DC IL2'0'	SET INITIAL VALUE	
	0FDC			0FDC	2750	KLICTR DS CL1	MULTIPLY COUNTER	
	0FDC				2751	ORG *-1	RESET LOCATION COUNTER	
	0FDC	0E		0FDC	2752	DC IL1'14'	TABLE ROW COUNT	
	0FDD			0FDD	2753	KLINDC DS CL1	CARD READER INDICATOR	
	0FDD				2754	ORG KLINDC	RESET LOCATION COUNTER	
	0FDD	00		0FDD	2755	DC IL1'0'	INITIALIZE	
	0FDE			0FDF	2756	KLIICT DS XL2	INTIT 14 LINE COUNTER	

#KLIST - MAINLINE LIST ROUTINE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/06/21	PAGE 17
	0FE0	AF	00 04 03		2758	KLI190	SLC KLISTS(,@XR),KLISTO(,@XR) CLO = MAX -CLO			
	0FE4	6C	00 A0 04		2759		MVC KLI180+@Q(1,@BR),KLISTS(,@XR)			
	0FE8	5E	00 A0 EC		2760		ALC KLI180+@Q(1,@BR),KLIPL1(,@BR) CLO = CLO 0 1			
	0FEC	5C	00 04 E2		2761		MVC KLISTS(,@BR),KLIMLS(,@BR) RESTORE VECTOR ENTRY			
	0FF0	D0	87 94		2762		B KLI175(,@BR) BACK TO MAINLINE			
				0FF3	2764	KLI210	EQU *			
	0FF3	38	02 0D57		2765		TBN KLIDVT,KLICDO CARD OUTPUT			
	0FF7	F2	90 40		2766		JF KLI220 NO ---			
	0FFA	5E	01 DD FB		2767		ALC KLIBUF(@CADDR,@BR),KLIMAG(,@BR) INCREMENT FOR NUM-NONLM			
	0FFE	38	80 03DD		2768		TBN \$CONFIG,\$BIGCD IS 129 CONFIGURED ? 1-4			
	1002	F2	90 06		2769		JF KLI21A JUMP IF NOT 1-4			
	1005	7D	50 DB		2770		CLI KLIFLL(,@BR),KLICBW LENGTH GREATER THAN 80 ? 1-4			
N04	1008	00	00 00		2771		J KLI2IB CONTINUE 1-4			
					2772	*				1-4
N04	100B	00	00 00		2773	KLI21A	CLI KLIFLL(,@BR),KLICWD LENGTH GREATER THAN 96 ? 1-4			
	100E	F2	04 03		2774	KLI21B	JNH KLI212 NO --- CONTINUE 1-4			
	1011	7A	02 FD		2775		SBN KLINDC(,@BR),KLONGL SET LONG LINE INDICATOR			
	1014	75	02 DD		2776	KLI212	L KLIBUF(,@BR),@XR PICK-UP BUFFER ADDRESS			
	1017	BD	5C 00		2777		CLI O(,@XR),C' ' LINE DISABLED ?			
	101A	F2	01 07		2778		JNE KLI214 NO			
	101D	7A	01 FD		2779		SBN KLINDC(,@BR),KLIASK SET DISABILITY INDICATOR			
N04	1020	00	00 00 00		2780		ALC KLIBLF(,@BR),KLIPL1(,@BR) BUMP OUTPUT AREA ADDRESS			
				1024	2781	KLI214	EQU *			
N04	1024	00	00 0000		2782		B DCDOUT CARD IOCS			
	1028	0FBA		1029	2783		DC AL2(KLIOPT) PPL FOR CARD IOCS			
N04	102A	00	00 0000		2784		B DCDOUT CARD IOCS			
	102E	057F		102F	2785		DC AL2(\$WAITF) WAIT FUNCTION CODE			
	1030	74	02 DD		2786		ST KLIBUF(,@BR),@XR REINSTATE BUFFER ADDRESS			
	1033	38	01 0D57		2787		TBN KLIDVT,KLIPRT PRINTER			
	1037	F2	90 06		2788		JF KLI230 GO BUMP LINENO			
	103A	C0	87 1461		2789	KLI220	B DLPRNT PRINT LINE			
	103E	0FBA		103F	2790		DC AL2(KLIOPT) DLPRNT PARAMETER LIST			
	1040	5E	01 E0 D9		2791	KLI230	ALC KLICLN(@CADDR,@BR),KLIINC(,@BR) BUMP CURRENT LINE NUMBER			
	1044	C0	87 0E91		2792		B KLI105 RETRIEVE NEXT LINE			
	1048	7C	02 D5		2793	KLI245	MVI KLITYP(,@BR),KLIBOF BEGINNING OF FILE			
	104B	3A	08 03D3		2794	KLI250	SBN \$CRTIN,\$CRTSP SET STOP WITH			
	104F	38	08 03D3		2795	KLI260	TBN \$CRTIN,\$CRTSP CHECK MODE			
	1053	C0	10 104F		2796		BT KLI260 LOOP ON INDICATOR			
	1057	3C	40 1578		2797		MVI DCRcnt,KLICRL SET COUNT 1-4			
	105B	38	04 03D3		2798		TBN \$CRTIN,\$CRTPU POPUP MODE			
	105F	D0	90 47		2799		BF KLI150(,@BR) NO --- CONTINUE			
	1062	3C	01 1578		2800		MVI DCRcnt,@B1 SET COUNTER TO INITIAL VALUE			
	1066	3B	04 03D3		2801		SBF \$CRTIN,\$CRTPU TURN OFF POP INDICATOR			
	106A	D0	87 47		2802		B KLI150(,@BR) CHECK FOR MODE CHANGE			
					2803	*				
				106D	2804	KLI380	EQU *			PROGRAM GENERATED FILE
	106D	C0	87 19B5		2805	KLI387	B SDLPGM CONVERT AND OUTPUT FILE			
	1071	C2	01 0000		2806	KLI399	LA *-*,@BR RESTORE BASE REGISTER			
				1075	2807	KLI400	EQU *			RESTORE AND RETURN
	1075	C0	87 0000		2808		B *-* RETURN TO EXECUTIVE			

#KLIST - MAINLINE LIST ROUTINE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/06/21	PAGE 18
				109B	2810		USING KLI505,@BR			INFORM ASSEMBLER
				1079	2811	KLI500	EQU *			LINE RETRIEVAL SUBROUTINE
	1079	C2	02	0FB5	2812		LA KLILCB,@XR			
				0FB5	2813		USING KLILCB,@XR			
N04	107D	00	00	0000	2814		ST KLI54+@OP1,@BR			SAEE BASE REGISTER
	1081	C2	01	109B	2815		LA KLI505,@BR			SET UP BASE REG
	1085	74	08	E0	2816		ST KLI541+@OP1(,@BR),@ARR			SAVE RETURN REGISTER
N04	1088	00	00	00 0000	2817		CLC KLICLN(,04),KLIEOF(AR)			PAST END OF FILE ?
	108D	D0	84	E1	2818		BH KLI560(,@BR)			YES --- EXIT
N04	1090	00	00	00	2819		TBN KLICHG(,@XR),KLIMON			MODE CHANGE ON ?
	1093	D0	90	37	2820		BF KLI510(,@BR)			NO --- CONTINUE
	1096	2C	01	1B37 0B	2821		MVC GFILNO(@CADDR),KLICLN(,@XR)			SET-UP CURRENT LINE
				109B	2822	KLI505	EQU *			
	109B	C0	87	1ADB	2823		B GFINDN			RETRIEVE LINE
	109F	38	01	0FBE	2824		TBN KLIMOD,\$CRTUP			MODE ROLL UP
	10A3	D0	10	37	2825		BT KLI510(,@BR)			YES SO CHECK RANGE
	10A6	0D	01	0FC0 0FC5	2826		CLC KLICLN,KLIFLF			BEGINNING OF FILE ?
	10AC	3C	02	0FB5	2827		MVI KLITYP,KLIBOF			SET V BOF INDICATOR
	10B0	D0	82	D2	2828		BL KLI540(,@BR)			BEGINNING OF FILE
	10B3	8D	01	00 1B37	2829		CLC @ZERO(@CADDR,@XR),GFILNO			DOES BLOCK CONTAIN RECORD ?
	10B8	D0	04	45	2830		BNH KLI515(,@BR)			RETURN TO MAINLINE
N04	10BB	00	00	0000	2831		LA GFINTY-4,@CR			SET UP F I T ADDRESS
N04	10BF	00	00	00	2832	KLI504	LA KLIFOR(,@XR),@XR			BUMP TO ENTRY (1)
	10C2	8D	01	06 1B37	2833		CLC KLISIX(@CADDR,@XR),GFILNO			CHECK REQUESTED LINE ?
	10C7	D0	82	24	2834		BL KLI504(,@BR)			CONTINUE SEARCH
	10CA	2C	01	1B37 02	2835		MVC GFILNO(@CADDR),KLITNO(,@XR)			POP LAST BLOCK NUMBER
N04	10CF	00	00	00	2836		B KLI305(,@BR)			RETURN
				10D2	2837	KLI510	EQU *			
	10D2	C2	02	0FB5	2838		LA KLILCB,@XR			RESET CONSTANT BASE
N04	10D6	00	00	00	2839		MVI KLICHG(,@XR),KLIOF			SET MODE CHANGE OFF
	10D9	AD	01	0B 13	2840		CLC KLICLN(@CADDR,@XR),KLISLN(,@XR)			CURRENT : STOP ?
	10DD	D0	84	E8	2841		BH KLI570(,@BR)			CURRENT EXIT
				10E0	2842	KLI515	EQU *			
	10E0	3C	40	0CFB	2843		MVI KLISHF,@BLANK			SET INTIAL BLANK
	10E4	0C	F3	0CFA 0CFB	2844		MVC GRTEXT+KLITXE(KLI244),KLISHF			SET FIED TO BLANKS
	10EA	C0	87	127F	2845		B GRABIT			LINE RETRIEVAL ROUTINE,
	10EE	1D	01	1191 F4	2846		CLC GRLINE(@CADDR),KLIEOF(,@BR)			END OF FILE ?
N04	10F3	00	00	00	2847		BE KLI960(,@BR)			YES ---
	10F6	8D	01	00 0FC0	2848		CLC @ZERO(@CADDR,@XR),KLICLN			CURRENT : NEXT FILE LINENO ?
	10FB	C2	02	0FB5	2849		LA KLILCB,@XR			RESET CONSTANT BASE
	10FF	D0	04	45	2850		BNH KLI515(,@BR)			SET NEXT LINE
	1102	B8	02	09	2851		TBN KLIMOD(,@XR),\$CRTDN			ROLL-DOWN ?
	1105	D0	10	74	2852		BT KLI516(,@BR)			YES --- CONTINUE
	1108	6D	01	F6 0B	2853		CLC GRLINE(@CADDR,@BR),KLICLN(,@XR)			LINE LISTED ?
	110C	D0	82	45	2854		BL KLI515(,@BR)			YES --- RETRIEVE NEXT LINE
				110F	2855	KLI516	EQU *			
	110F	9C	01	0B F6	2856		MVC KLICLN(@CADDR,@XR),GRLINE(,@BR)			POP FILE TO CURRENT
	1113	4C	01	EF 13B5	2857		MVC KLIWRK(@CADDR,@BR),GRTEND			PICK UP END ADDRESS
N04	1118	00	00	00 00	2858		SLC KLIWRK(@CADDR,@BR),KLIBF0(,@BR)			COMPUTE LINE LENGTH
	111C	38	01	03D4	2859		TBN \$INDR1,\$PROCI			PROCEDURE ? 1-4
	1120	F2	10	07	2860		JT KLI503			YES --- CONTINUE
	1123	38	40	03D4	2861		TBN \$INDR1,\$KEYDT			KEYBOARD DATA FILE ?
	1127	D0	10	F7	2862		BT KLI580(,@BR)			YES --- GO CONVERT
	112A	78	80	F0	2863	KLI503	TBN GRTYPE(,@BR),KLIDIS			LINE DISABLED ? 1-4
	112D	D0	90	A8	2864		BF KLI517(,@BR)			LINE NOT DISABLED
	1130	0C	F3	0CFB 0CFA	2865		MVC KLISHF(KLI244),GRTEXT+KLITXE			SHIFT LINE ONE BYTE

#KLIST - MAINLINE LIST ROUTINE

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	1136	3C 5C 0C07		2866	MVI	GRTEXT,@ASTER	INDICATE DISABILITY
	113A	6E 01 EF 17		2867	ALC	KLIWRK(@CADDR,@BR),KLIPL1(@XR)	BUMP LINE LENGTH
	113E	2E 01 13B5 17		2868	ALC	GRTEND(@CADDR),KLIPL1(@XR)	NEW EOS ADDRESS
			1143	2869	KLI517 EQU	*	
N04	1143	00 00 00 00		2870	MVC	KLIFLL(1,@XR),KLIW(@BR)	MOVE LINE LENGTH TO LCB
	1147	9C 01 08 F2		2871	MVC	KLIBUF(@CADDR,@XR),KLIBF(@BR)	SET BUFFER ADDRESS IN LCB
	114B	38 08 0D57		2872	KLI520 TBN	KLIDVT,KLICRT	DEVICE EQUAL CRT ?
	114F	BC 00 00		2873	MVI	KLITYP(@XR),@ZERO	GO CONDITION
	1152	D0 90 D2		2874	BF	KLI540(@BR)	NO --- SKIP CRT SET-UP
	1155	BC 40 06		2875	MVI	KLIFLL(@XR),KLICRL	SET CRT LENGTH
N04	1158	00 00 00		2876	MVI	KLICLO(@XR),@ZERO	INITIALIZE LCB FIELD
	115B	BC 00 0D		2877	MVI	KLIMLS(@XR),@ZERO	INITIALIZE LCB FIELD
	115E	8E 00 0D 0FCC		2878	KLI530 ALC	KLIMLS(1,@XR),KLIPL1	COMPUTE QUOTIENT
	1163	6F 01 EF 1F		2879	SLC	KLIWRK(@CADDR,@BR),KLIC64(@XR)	DIVIDE LENGTH / 64
N04	1167	00 00 00		2880	BNP	KLI940(@BR)	FINISHED ?
	116A	D0 87 C3		2881	B	KLI530(@BR)	
	116D	C2 01 0000		2883	KLI540 LA	*-*,@BR	RESTORE BASE REG
	1171	35 02 13B5		2884	L	GRTEND,@XR	PICK UP ADDRESS OF EOS
	1175	BC 40 00		2885	MVI	@ZERO(@XR),@BLANK	SET IT TO BLANK
	1178	C0 87 0000		2886	KLI541 B	*-*	RETURN
	117C	3C 03 0FB5		2888	KLI560 MVI	KLITYP,KLIEFI	SET END OF FILE INDICATOR
	1180	D0 87 D2		2889	B	KLI540(@BR)	RETURN
	1183	BC 01 00		2890	KLI570 MVI	KLITYP(@XR),KLILLE	LINE LIST EXHAUSTED
	1186	D0 87 D2		2891	B	KLI540(@BR)	RETURN
	1189		118A	2893	KLIWRK DS	CL2	WORK AREA
	118B		118B	2894	GRTYPE DS	CL1	LINE TYPE CODE
	118C	0C07	118D	2895	KLIBF@ DC	AL2(GRTEXT)	ADDRESS OF LINE
	118E	2710	118F	2896	KLIEOF DC	XL2'2710'	EOF INDICATOR
	1190		1191	2897	GRLINE DS	CL2	CURRENT LINE NUMBER
				2898	*		
			1192	2899	KLI580 EQU	*	HANDELING OF KEYBOARD DATA FILE
	1192	C0 87 1657		2900	B	SDLIST	CONVERT DATA FILE
	1196	4C 01 F2 18A1		2901	MVC	KLIBF(@CADDR,@BR),SDLOT@	RESET BUFFER ADDRESS(DATA)
	119B	4C 01 EF 1896		2902	MVC	KLIWRK(@BR),SDLSAV	PICK UP ENDING ADDRESS
	11A0	4F 01 EF 18A1		2903	SLC	KLIWRK(@BR),SDLOT@	ADDRESS OF BEGINNING OF DATA
	11A5	8C 01 08 18A1		2904	MVC	KLIBUF(@XR),SDLOT@	SETUP BUFFER ADDRESS IN LCB
	11AA	78 80 F0		2905	TBN	GRTYPE(@BR),KLIDIS	LINE DISABLED
	11AD	F2 90 0E		2906	JF	KLI581	NO --- CONTINUE
N04	11B0	00 00 0000 0000		2907	MVC	SDLBUF+KLI244(KLI244),SDLBUF+KLITXE	SHIFT RIGHT 1 BYTE
N04	11B6	00 00 0000		2908	MVI	SDLBUF,@ASTER	INDICATE DISABILITY
	11BA	6E 01 EF 17		2909	ALC	KLIWRK(@CADDR,@BR),KLIPL1(@XR)	BUMP LINE LENGTH
			11BE	2910	KLI581 EQU	*	VARIABLE LABEL
N04	11BE	00 00 00 00		2911	MVC	KLIFIL(@XR),KLIWRK(@BR)	MOVE LINE LENGTH TO LCB
				2912	*		
	11C2	D0 87 B0		2913	B	KLI520(@BR)	RETURN TO MAINLINE PROCESSING

#KLIST - MAINLINE LIST ROUTINE

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/06/21 PAGE 20
		2915		*****		
		2916	*	EQUATES		
		2917		*****		
	0000	2918	KLISTH EQU	0	DISPLACEMENT MODE (J)	
	0002	2919	KLISTL EQU	2	DISPLACEMENT OF LINE (J)	
	0006	2920	KLISIX EQU	6	LENTGH OF ERROR STACK ENTRY	
	0003	2921	KLISTO EQU	3	DISPLACEMENT OF LINES OUTPUT (J)	
	0004	2922	KLISTS EQU	4	DISPLACEMENT OF MAX LINE (J)	
	0001	2923	KLIASK EQU	01	INDICATOR FOR DISABLED LINES	
	0002	2924	KLONGL EQU	02	INDICATOR FOR TRUNCATED LINES	
	000E	2925	KLI14 EQU	14	CRT VECTOR ROW COUNT	
	0080	2926	KLISYS EQU	X'80'	SYSTEM PRINTER	
	0004	2927	KLIKEY EQU	4	LENGTH OF KEYWORD CARD	
	00F4	2928	KLI244 EQU	244	LENGTH OF LINE BUFFER	
	00F3	2929	KLITXE EQU	243	MAXIMUM MOVE LENGTH	
	0080	2930	KLIDIS EQU	X'80'	ENABLED LINE INDICATOR	
	0040	2931	KLICRL EQU	64	CRT PHYSICAL LINE LENGTH	
	0002	2932	KLITNO EQU	2	DISPLACEMENT OF DASH IN LIST	
	0004	2933	KIIFOR EQU	4	NEXT LINE LIST	
	0002	2934	KLIBOF EQU	2	BEGINNING OF FILE INDICATOR	
	0003	2935	KLIEFI EQU	3	END OF FILE CODE	
	0001	2936	KLILLE EQU	1	LINE LIST EXHAUSTED	
	0005	2937	KLITLG EQU	5	TABLE LENGTH	
	00C0	2938	KLIPPP EQU	X'C0'	PRINT CONTROL CHARACTER	
	0000	2939	KLIMOF EQU	0	MODE CHANGE OFF	
	0001	2940	KLI2BF EQU	1	DOUBLE BUFFER OPTION	
	0001	2941	KLINIT EQU	1	INTIAL CALL INDICATOR	
	0001	2942	KLDMON EQU	1	MODE CHANGE ON	
	0008	2943	KLICRT EQU	8	CRT BIT FOR DEVICE SPEC	
	0001	2944	KLIPRT EQU	1	PRINTER	
	0004	2945	KLIBMP EQU	4	INCREMENT FOR @XR	
	0002	2946	KLICDO EQU	2	CARD OPTION	
N04		2947	KLICWD EQU	\$CARDL	LOGICAL WIDTH FOR CARD OUTPUT	
	0050	2948	KLIBCW EQU	80	LOG WIDTH FOR LARGE CARD OUT 1-4	
	0003	2949	KLITHR EQU	3		
		2950	*			
	0D7F	2951	KLITAB EQU	KLI070		
	0C07	2952	GRTEXT EQU	KLISTN		
	0CFB	2953	KLISHF EQU	GRTEXT+244	END OF INPUT LINE BUFFER	
	1C00	2954	GFIBF2 EQU	\$\$FITS-@SCTS	SECOND BUFFER ADDR	
	1B00	2955	GFIBF1 EQU	GFIBF2-@SCTS	FIRST BUFFER ADDR	
	0EA4	2956	DLIBUF EQU	KLI106	LINE PRINTER BUFFER	
	0607	2957	SDLBUP EQU	\$\$INLN		

[illegible][illegible]

DL4ICS - FOUR TRACK LOGICAL IOCR

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/06/21	PAGE 22
		2975+		*****			
		2976+	*	5703-XM1 COPYRIGHT IBM CORP. 1970			*
		2977+	*	REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083			*
		2978+	*				*
		2979+		*****			*
		2980+	*	STATUS			*
		2981+	*	VERSION 1 MODIFICATION 0			*
		2982+	*				*
		2983+	*	FUNCTION			*
		2984+	*	* DL4ICS WILL CONVERT A RELATIVE DISK ADDRESS TO A PHYSICAL			*
		2985+	*	DISK ADDRESS AND CALL \$DISKN TO PERFORM THE SPECIFIED FUNCTION			*
		2986+	*	* THE DISK ADDRESS IS A ONE BYTE CYLINDER ADDRESS AND A ONE BYTE			*
		2987+	*	SECTOR DISPLACEMENT RELATIVE TO SECTOR 0 ON A CYLINDER			*
		2988+	*	BOUNDARY			*
		2989+	*	* WHEN MORE THAN 1 SECTOR IS PROCESSED, DL4ICS WILL MAKE MULTIPLE			*
		2990+	*	CALLS TO \$DISKN TO CROSS CYLINDER BOUNDARIES IF REQUIRED.			*
		2991+	*	* IF 1 SECTOR ONLY IS TO BE PROCESSED, THE USER MAY OVERLAY THE			*
		2992+	*	UNUSED CODE BY ORGING HIS NEXT MODULE AT DL4SPT			*
		2993+	*				*
		2994+	*	ENTRY POINTS			*
		2995+	*	DL4ICS - ENTRY TO PROCESS A 4 SURFACE FILE. THE CALLING			*
		2996+	*	SEQUENCE IS AS FOLLOWS			*
		2997+	*	DSKL4 DPL			*
		2998+	*	WHERE DPL IS THE LABEL OF A SIX BYTE DISK PARAMETER			*
		2999+	*	LIST AS DESCRIBED FOR \$DJSKN EXCEPT FOR THE SECTOR			*
		3000+	*	ADDRESS BYTE.			*
		3001+	*				*
		3002+	*	INPUT			*
		3003+	*	* INPUT TO DL4ICS IS THE ADDRESS OF THE DPL TO BE PROCESSED.			*
		3004+	*				*
		3005+	*	OUTPUT			*
		3006+	*	* N/A			*
		3007+	*				*
		3008+	*	EXTERNAL REFENECES			*
		3009+	*	\$DISKN - ENTRY TO SYSTEM DISK ROUTINE			*
		3010+	*				*
		3011+	*	EXITS, NORMAL			*
		3012+	*	* NORMAL RETURN IS TO THE 1ST INSTRUCTION FOLLOWING THE TWO BYTE			*
		3013+	*	ADDRESS POINTING TO THE DPL.			*
		3014+	*				*
		3015+	*	EXITS, ERROR			*
		3016+	*	* N/A			*
		3017+	*				*
		3018+	*	TABLES/WORK AREAS			*
		3019+	*	* N/A			*
		3020+	*				*
		3021+	*	ATTRIBUTES			*
		3022+	*	* RELOCATABLE			*
		3023+	*	* REUSABLE			*
		3024+	*				*
		3025+	*	CHARACTER CODE DEPENDENCY			*
		3026+	*	* THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR			*
		3027+	*	INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.			*
		3028+	*				*
		3029+	*	NOTES			*
		3030+	*	ERROR PROCEDURES			*

DL4ICS - FOUR TRACK LOGICAL IOCR

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/06/21	PAGE 23
		3031+	*	N/A			*
		3032+	*	REGISTER USAGE			*
		3033+	*	@BR IS SAVED AND RESTORED ON EXIT, @XR IS NOT USED. @ARR IS			*
		3034+	*	USED TO PROVIDE THE ADDRESS OF THE PARAMETER. THE @ARR IS			*
		3035+	*	INCREMENTED BT TWO AND SAVED AS THE RETURN ADDRESS.			*
		3036+	*	SAVED/RESTORED AREAS			*
		3037+	*	N/A			*
		3038+	*	MODIFICATION CONSIDERATIONS			*
		3039+	*	N/A			*
		3040+	*	REQUIRED MODULES			*
		3041+	*	@SYSEQ - SYSTEM SOFTWARE EQUATES			*
		3042+	*	@FXDEQ - SYSTEM NUCLEUS EQUATES			*
		3043+	*	OTHER			*
		3044+	*	N/A			*
		3045+	*	*****			*

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/06/21 PAGE 24
				1200	3047+	DL4ICS	EQU *	ENTRY TO DL4ICS
				1204	3048+		USING DL4010,@BR	ESTABLISH BASE REGISTER USAGE
1200	34	01	1270		3049+		ST DL4900+@OP1,@BR	SAVE BASE REGISTER FOR EXIT
				1204	3050+	DL4010	EQU *	BASE ADDRESSABILITY
1204	C2	01	1204		3051+		LA DL4010,@BR	ESTABLISH BASE
1208	76	08	78		3052+		A DL4C01(,@BR),@ARR	BUMP TO HIGH END OF ADDR
120B	74	08	14		3053+		ST DL4020+@DOP2(,@BR),@ARR	SET UP MOVE INSTRUCTION
120E	76	08	78		3054+		A DL4C01(,@BR),@ARR	BUMP TO RETURN ADDR
1211	74	08	70		3055+		ST DL4920+@OP1(,@BR),@ARR	SAVE RETURN ADDR
					3056+*			
1214	4C	01	1D 0000		3057+	DL4020	MVC DL4030+@DOP2(@DADDR,@BR),*-*	MOVE DPL ADDR INTO MOVE
1219	5E	01	1D 7A		3058+		ALC DL4030+@DOP2(@CADDR,@BR),DL4C05(,@BR)	BUMP TO RIGHT END
121D	4C	05	76 0000		3059+	DL4030	MVC DL4DPL(@DPLNG,@BR),*-*	MOVE USER DPL TO WORK AREA
					3060+*			
1222	7C	00	5E		3061+	DL4035	MVI DL4100+@Q(,@BR),@ZERO	CLEAR TRACK, DISK SET INST
1225	7C	80	67		3062+		MVI DL4200+@Q(,@BR),@NOP	TURN OFF TWICE INDICATOR
					3063+*			
1228	7D	60	73		3064+	DL4040	CLI DL4SCD(,@BR),DL4E96	TEST IF DISPLACEMENT OVER 95 ?
122B	F2	82	0B		3065+		JL DL4050	JUMP IF NOT OVER 95
122E	5E	00	72 78		3066+		ALC DL4CYL(1,@BR),DL4C01(,@BR)	INCREMENT CYLINDER COUNT
1232	5F	00	73 25		3067+		SLC DL4SCD(1,@BR),DL4C96(,@BR)	DECREMENT DISP BY 96
1236	D0	87	24		3068+		B DL4040(,@BR)	GO BACK CHECK FOR NEXT CYLINDER
					3069+*			
1239	7D	30	73		3070+	DL4050	CLI DL4SCD(,@BR),DL4E48	TEST IF DISP ON NEXT DISK ?
123C	F2	82	07		3071+		JL DL4060	JUMP IF NOT OVER 48
123F	7A	01	5E		3072+		SBN DL4100+@Q(,@BR),DL4EFD	TURN ON BIT FOR FIXED DISK
1242	5F	00	73 36		3073+		SLC DL4SCD(1,@BR),DL4C48(,@BR)	DECREMENT DISP 1 DISK
1246	7D	01	74		3074+	DL4060	CLI DL4SCT(,@BR),DL4E01	IS SECTOR COUNT GREATER THEN 1 ?
1249	F2	84	33		3075+		JH DL4SPT	GO TO SPLIT CALL
124C	7D	18	73		3076+	DL4070	CLI DL4SCD(,@BR),DL4E24	DISPLACEMENT OVER 23 ?
124F	F2	82	07		3077+		JL DL4080	JUMP NOT OVER 24
1252	7A	80	5E		3078+		SBN DL4100+@Q(,@BR),DL4ETB	SET TRACK BIT ON
1255	5F	00	73 49		3079+		SLC DL4SCD(1,@BR),DL4C24(,@BR)	DECR DISP TO NEXT TRACK
1259	5E	00	73 73		3080+	DL4080	ALC DL4SCD(1,@BR),DL4SCD(,@BR)	SHIFT LEFT 1 PLACE
125D	5E	00	73 73		3081+		ALC DL4SCD(1,@BR),DL4SCD(,@BR)	SHIFT LEFT 1 PLACE
1261	7A	00	73		3082+	DL4100	SBN DL4SCD(,@BR),*-*	SET TRACK, DISK BIT
					3083+*			
1264	C0	87	0025		3084+		B \$DISKN	GO PERFORM DISK I/O
1268	1275			1269	3085+		DC AL2(DL4LST)	ADDR OF DISK PARAM LIST
					3086+*			
126A	F2	00	3C		3087+	DL4200	JC DL4600,*-*	BRANCH OR NOP IF TWICE SET
					3088+*			
126D	C2	01	0000		3089+	DL4900	LA *-*,@BR	RESTORE OLD BASE TO RETURN
1271	C0	87	0000		3090+	DL4920	B *-*	RETURN TO CALLER
					3092+	DL4LST	EQU *	LEFT END OF DPL
1275					127A	3093+	DL4DPL DS CL(@DPLNG)	DPL SAVE AREA
					1276	3094+	DL4CYL EQU DL4LST+@DCYL	CYLINDER COUNT BYTE
					1277	3095+	DL4SCD EQU DL4LST+@DSAD	DISPLACEMENT SECTOR COUNT
					0060	3096+	DL4E96 EQU 96	TWO DISK SECTOR COUNT PER CYL
					0030	3097+	DL4E48 EQU 48	ONE DISK SECTOR COUNT PER CYL
					0018	3098+	DL4E24 EQU 24	TRACK SECTOR COUNT
					0001	3099+	DL4E01 EQU 01	VALUE TO TEST SECTOR COUNT
					0001	3100+	DL4EFD EQU 01	VALUE TO SET FIXED DISK BIT
					0080	3101+	DL4ETB EQU X'80'	VALUE TO SET TRACK BIT
127B	0001				127C	3102+	DL4C01 DC IL2'1'	VALUE TO INCR TO CYLINDER

DL4ICS - FOUR TRACK LOGICAL IOCR

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/06/21	PAGE 25
127D	0005			127E	3103+DL4C05	DC	IL2'5'			
				1229	3104+DL4C96	EQU	DL4040+@Q			DISP TO RIGHT END OF DPL
				124D	3105+DL4C24	EQU	DL4070+@Q			VALUE TO DECR DISPLACEMENT
				1278	3106+DL4SCT	EQU	DL4LST+@DCNT			VALUE OF 1 TRACK
				123A	3107+DL4C48	EQU	DL4050+@Q			POINTER TO DPL SECTOR COUNT
										VALUE TO DECR DISP BY 1 DISK
127F	5C	00	14	74	3109+DL4500	MVC	DL4WRK(1,@BR),DL4SCT(,@BR)			PICKUP SECTOR COUNT
				127F	3110+DL4SPT	EQU	DL4500			POSSIBLE OVERLAY REFERENCE
1283	5E	00	14	73	3111+	ALC	DL4WRK(1,@BR),DL4SCD(,@BR)			BUMP BY DISPLACEMENT
1287	7D	30	14		3112+	CLI	DL4WRK(,@BR),DL4E48			TEST FOR CYLINDER OVERLAP
128A	D0	04	48		3113+	BNH	DL4070(,@BR)			BRANCH BACK IF NO OVERLAY
128D	5F	00	14	36	3114+	SLC	DL4WRK(1,@BR),DL4C48(,@BR)			DECREMENT WORK BY 48
1291	5F	00	74	14	3115+	SLC	DL4SCT(1,@BR),DL4WRK(,@BR)			SUBTRACT WORK FROM COUNT
1295	7C	87	67		3116+	MVI	DL4200+@Q(,@BR),@UCB			SET TWICE SWITCH
1298	5C	00	13	73	3117+	MVC	DL4SAV(1,@BR),DL4SCD(,@BR)			SAVE SECTOR DISP IN WORK AREA
129C	78	01	5E		3118+	TBN	DL4100+@Q(,@BR),DL4EFD			DISK BIT ON IN Q CODE ?
129F	D0	90	48		3119+	BF	DL4070(,@BR)			BRANCH NOT ON
12A2	5E	00	13	36	3120+	ALC	DL4SAV(1,@BR),DL4C48(,@BR)			BUMP TO NEXT DISK
12A6	D0	87	48		3121+	B	DL4070(,@BR)			RETURN TO CALL I/O
					3122+*					
12A9	5C	00	73	13	3123+DL4600	MVC	DL4SCD(1,@BR),DL4SAV(,@BR)			PICKUP NEXT HALF OF I/O
12AD	5E	00	75	74	3124+	ALC	DL4LST+@DBFR1(1,@BR),DL4SCT(,@BR)			BUMP CORE ADDRESS
12B1	5E	00	73	74	3125+	ALC	DL4SCD(1,@BR),DL4SCT(,@BR)			
12B5	5C	00	74	14	3126+	MVC	DL4SCT(1,@BR),DL4WRK(,@BR)			MOVE IN NEW SECTOR COUNT
12B9	D0	87	1E		3127+	B	DL4035(,@BR)			RETURN FOR SECOND PASS
					3128+*					
				1218	3129+DL4WRK	EQU	DL4020+@DOP2			1 BYTE WORK AREA FOR SPLIT CALL
				1217	3130+DL4SAV	EQU	DL4020+@DOP2-1			1 BYTE WORK AREA FOR SPLIT CALL
				12BC	3131+DL4END	EQU	*			DEFINE END OF CODE
					3132+***			END OF DL4ICS		***
					3133 *					
127F					3134	ORG	DL4SPT			OVERLAY END OF DL4ICS

GRABIT -- RETRIEVE FILE STATEMENTS

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3137 *****
3138 *      G R A B I T
3139 *****
135D 3140      USING GRABSE,@BR
127F 3141 GRABIT EQU *      ENTRY POINT TO ROUTINE
127F 3142      ST      GRASBR,@BR      SAVE CALLING PROG'S BASE REG.
1283 C2 01 135D 3143      LA      GRABSE,@BR      LOAD LOCAL BASE TO BASE REG.
1287 34 08 1300 3144      ST      GRASAR,@ARR      SAVE RETURN ADDR.
128B 7D 00 A7 3145      CLI     GRWHAT(,@BR),GRAEFI      IS FUNC REQ'D INITIALIZATION ?
128E F2 81 13 3146      JE      GRA100      YES, GO TO INITIALIZATION RTN
3147 * THE ADDRESS OF THE NEXT SEGMENT IN THE CURRENT BUFFER IS INITLZ'D
3148 * AND MAINTAINED IN THE NEXT INST, WHICH LOADS IT TO THE @XR.
1291 C2 02 0000 3149 GRA020 LA      *-*,@XR      LOAD NEXT STMT CADDR TO @XR
1295 7D 01 A7 3150      CLI     GRWHAT(,@BR),GRAEFR      IS FUNC REQ'D RETURN TEXT ?
1298 F2 81 87 3151      JE      GRA300      YES, GO RETURN STMT ROUTINE
129B 7D 02 A7 3152      CLI     GRWHAT(,@BR),GRAEFS      IS FUNC REQ'D SKIP STATEMENT
129E F2 81 35 3153      JE      GRA200      YES, GO TO SKIP STMT ROUTINE
12A1 F2 87 38 3154      J      GRA210      GO TO SKIP SEGMENT RTN
3155 *
3156 *      INITIALIZATION ROUTINE
3157 *
12A4 75 02 A0 3158 GRA100 L      GRBFRA(,@BR),@XR      LOAD 1ST BFR ADDR TO OR
12A7 74 02 A6 3159      ST      GRANCA(,@BR),@XR      PROPAGATE IT TO NEXT BFR DPL
12AA 5C 01 A3 9D 3160      MVC     GRANDA(@DADDR,@BR),GRSRDA(,@BR)      INITLZ NEXT BRF DADDR
12AE 7C FF AC 3161      MVI     GRASIZ(,@BR),GRAEBS      INITLZ BUFFER SIZE COUNTER
12B1 5C 00 9E A4 3162      MVC     GRACSC(1,@BR),GRSCTR(,@BR)      INITLZ SCTR COUNT IN DPL
12B5 C0 87 0025 3163      B      $DISKN      WAIT FOR FIRST DATA BLOCKS TO
12B9 057F 12BA 3164      DC      AL2($WAITF)      * GET INTO CORE
12BB 7C 97 B5 3165      MVI     GRAERR+@Q(,@BR),@@E550      SET ERR CODE TO SPECIFY WRKFILE
12BE 5E 01 A6 A9 3166      ALC     GRANCA(@CADDR,@BR),GRASSZ(,@BR)      SET CADDR OF NEXT BFR
12C2 BD 00 00 3167 GRA140 CLI     GRAELK(,@XR),GRAELN      IS 1ST DB LINK CODE = 0 ?
12C5 F2 81 07 3168      JE      GRA150      YES, GO INCR TO NEXT LOGICAL DB
12C8 7C 02 A3 3169      MVI     GRANDA(,@BR),GRAEDB      SET DADDR OF NEXT DB
12CB 6E 00 A3 00 3170      ALC     GRANDA(1,@BR),GRAELK(,@XR)      *
12CF 5E 00 A3 AB 3171 GRA150 ALC     GRANDA(1,@BR),GRANPB(,@BR)      INCR TO NEXT BFR DADDR
12D3 F2 87 2E 3172      J      GRA260      GO ACCESS FIRST STATEMENT
3173 *
3174 *      ACCESS NEXT STATEMENT OR NEXT SEGMENT ROUTINE
3175 *
12D6 BD 75 07 3176 GRA200 CLI     GRAEDT(,@XR),GRAEET      END-OF-FILE RECORD ?
12D9 F2 81 16 3177      JE      GRA230      YES, RESET OR TO THIS RECORD
12DC 6F 00 AC 02 3178 GRA210 SLC     GRASIZ(1,@BR),GRAES1(,@XR)      DECR BFR CT BY SEGMENT LENGTH
12E0 B6 02 02 3179      A      GRAES1(,@XR),@XR      INCR OR BY SEGMENT LENGTH
12E3 7D 00 AC 3180 GRA220 CLI     GRASIZ(,@BR),@ZERO      IS BUFFER EMPTY ?
12E6 D0 82 B4 3181      BL     GRAERR(,@BR)      GONE NEG, GO TO BAD ERR
12E9 F2 81 15 3182      JE      GRA250      YES, GO TO GET NEXT BFR
12EC BD 80 01 3183      CLI     GRAES0(,@XR),@SNUL      IS SEGMENT NULL ?
12EF F2 81 0F 3184      JE      GRA250      YES, GO TO GET NEXT BFR
12F2 34 02 1294 3185 GRA230 ST      GRA020+@OP1,@XR      SAVE CADDR OF NEXT SEG.IN INST.
N04 12F6 00 00 00 3186      LA      GRAEDL(,@XR),@XR      POINT @XR TO LINE NUMBER
12F9 C2 01 0000 3187 GRA240 LA      *-*,@BR      RESTORE THE BASE REGISTER
12FD C0 87 0000 12FC 3188 GRASBR EQU     GRA240+@OP1      * STORED IN INST AT GRA240
3189 GRA245 B      *-*      RETURN TO USER
1300 3190 GRASAR EQU     GRA245+@OP1      * TO CADDR SAVED IN GRA245
1301 D0 87 67 3191 GRA250 B      GRA500(,@BR)      ACCESS NEXT BUFFER
N04 1304 00 00 00 3192 GRA260 CLI     GRAESO(,@XR),@SNUL      IS 1ST SEG. NULL ?

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GRABIT -- RETRIEVE FILE STATEMENTS

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	1307	D0	81	B4		3193	BE	GRAERR(,@BR)	YES, GO TO BAD ERR
	130A	B9	02	03		3194	TBF	GRAES2(,@XR),GRAETP	PRIMARY SEGMENT
	130D	C0	10	12F2		3195	BT	GRA230	YES, SAVE LOCATION
	1311	7D	01	A7		3196	CLI	GRWHAT(,@BR),GRAEFR	ACTION REQ'D = RETURN TEXT ?
	1314	D0	81	B4		3197	BE	GRAERR(,@BR)	YES, GO TO BAD ERR
	1317	7D	04	A7		3198	CLI	GRWHAT(,@BR),GRAEFG	ACTION REQ'D = SKIP SEGMENT ?
	131A	C0	81	12F2		3199	BE	GRA230	YES, GO SAVE LOCATION
	131E	C0	87	12DC		3200	B	GRA210	NO, GO SKIP THIS SEGMENT
						3201	*		
						3202	*	RETURN TEXT ROUTINE	
						3203	*		
N04	1322	00	00	0000 00		3204	GRA300 MVC	GRLINE,GRAEDL(GRAELL,@XR)	SET BINARY LINE NO.IN O/P FIELD
	1327	2C	00	118B 07		3205	MVC	GRTYPE,GRAEDT(1,@XR)	SET TYPE CODE IN OUTPUT FIELD
	132C	4C	01	58 140B		3206	MVC	GRTEND(@CADDR,@BR),GRATXT	INITLZ TEXT O/P CADDR IN INST.
	1331	BD	75	07		3207	CLI	GRAEDT(,@XR),GRAEET	END OF FILE STATEMENT ?
	1334	F2	01	08		3208	JNE	GRA303	NO - GO RESET SEGMENT SWITCH
	1337	3C	1C	0C07		3209	MVI	GRTEXT,@EOF	MOVE EOF CODE TO GRTEXT
	133B	C0	87	12F2		3210	B	GRA230	GO GET OUT
	133F	7C	87	01		3212	GRA303 MVI	GRA310+@Q(,@BR),@UCB	INITLZ BRANCH FOR ONLY SEGMENT
	1342	BD	00	03		3213	CLI	GRAES2(,@XR),@ONLY	IS IT AN ONLY SEGMENT ?
	1345	F2	81	03		3214	JE	GRA305	YES, BYPASS BRANCH RESET
	1348	7C	80	00		3215	MVI	GRA310+0(,@BR),@NOP	SET FOR MORE SEGMENTS
	134B	6F	00	AC 02		3216	GRA305 SLC	GRASIZ(1,@BR),GRAES1(,@XR)	DECR BFR CT BY SEG LENGTH
	134F	9F	00	02 B0		3217	SLC	GRAES1(1,@XR),GRAPSG(,@BR)	DECR SEG CT BY SDF-HDR LENGTH
	1353	6C	00	B3 02		3218	MVC	GRASEG(1,@BR),GRAES1(,@XR)	MOVE TEXT LENGTH TO TEXT CTR
	1357	E2	02	00		3219	LA	GRAELN(,@XR),@XR	INCR TO TYPE CODE
	135A	F2	87	2A		3220	J	GRA317	GO TEST FILE TYPE
	135D	C0	87	12E3		3221	GRA310 B	GRA220	GO ACCESS NEXT STATEMENT
	135D					3222	ORG	GRA310	* UNLESS CURRENT STATEMENT
	135D	C0	87	12E3		3223	BC	GRA220,@UCB	* HAS MORE SEGMENTS
	1361	6C	00	24 00		3224	MVC	GRASVC(,@BR),@ZERO(1,@XR)	SAVE CURR CHAR IN RESTORE INST
	1365	D0	87	67		3225	B	GRA500(,@BR)	ACCESS NEXT BUFFER
	1368	BD	02	03		3226	CLI	GRAES2(,@XR),@SLAST	LAST SEGMENT ?
	136B	F2	01	03		3227	JNE	GRA313	NO, GO RESET SEG COUNTER
	136E	7C	87	01		3228	MVI	GRA310+@Q(,@BR),@UCB	RESET BRANCH OUT
	1371	6F	00	AC 02		3229	GRA313 SLC	GRASIZ(1,@BR),GRAES1(,@XR)	DECR BUFFER COUNTER
	1375	9F	00	02 B2		3230	SLC	GRAES1(1,@XR),GRASSG(,@BR)	DECR SEG COUNT BY SDF LENGTH
	1379	6C	00	B3 02		3231	MVC	GRASEG(1,@BR),GRAES1(,@XR)	MOVE TEXT LNG TO SEG COUNTER
	137D	E2	02	04		3232	LA	GRAELS(,@XR),@XR	INCR @XR PAST SECONDARY SDF
	1380	BC	00	00		3233	GRA315 MVI	@ZERO(,@XR),*-*	RESTORE CHAR SAVED IN Q-CODE
					1381	3234	GRASVC EQU	GRA315+@Q	SAVED CHAR HOLD AREA
	1383	5E	01	58 AB		3235	GRA316 ALC	GRTEND(@CADDR,@BR),GRABOA(,@BR)	INCR RECEIVING CADDR
					1387	3236	GRA317 EQU	*	MOVE TEXT TO GRTEXT
	1387	38	80	03D4		3237	TBN	\$INDR1,\$BASIC	IS FILE TYPE = BASIC ?
	138B	F2	90	24		3238	JF	GRA350	NO, BYPASS REPITION CODE CHECK
	138E	BD	1B	01		3239	CLI	GRAENC(,@XR),GRAEMR	IS CHAR REF A REPITION CODE ?
	1391	F2	84	1E		3240	JH	GRA350	NO, GO RETURN REF'D CHAR
	1394	5C	01	3E 58		3241	MVC	GRATND(@CADDR,@BR),GRTEND(,@BR)	SET RCV'G CADDR IN INSTR
	1398	2C	00	0000 00		3242	GRA320 MVC	*-*,@ZERO(1,@XR)	RETURN REPEATED CHAR TO OUTPUT
					139B	3243	GRATND EQU	GRA320+@OP1	* ADDR SUPPLIED
	139D	9F	00	01 AB		3244	SLC	GRAENC(1,@XR),GRAONE(,@BR)	DECR. REPITION COUNTER
	13A1	F2	01	07		3245	JNZ	GRA330	IF <> 0, GO INCR O/P CADDR
	13A4	5C	01	58 3E		3246	MVC	GRTEND(@CADDR,@BR),GRATND(,@BR)	RESTORE NEW O/P CADDR
	13A8	F2	87	0C		3247	J	GRA360	GO INCR @XR
	13AB	5E	01	3E AB		3248	GRA330 ALC	GRATND(@CADDR,@BR),GRABOA(,@BR)	INCR O/P CADDR IN INSTR

GRABIT -- RETRIEVE FILE STATEMENTS

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/06/21 PAGE 29
	13AF	D0	87 3B		3249	B	GRA320(,@BR)	GO MOVE CHAR TO OUTPUT
	13B2	2C	00 0000 01		3250	GRA350 MVC	*-*,GRAENC(1,@XR)	MOVE NON-REPEAT CHAR TO OUTPUT
				13B5	3251	GRTEND EQU	GRA350+@OP1	* ADDR SUPPLIED
	13B7	E2	02 01		3252	GRA360 LA	GRAENC(,@XR),@XR	INCR @XR TO NEXT CHAR.
	13BA	5F	00 B3 AB		3253	SLC	GRASEG(1,@BR),GRABOA(,@BR)	DECR BFR SPACE CTR
	13BE	D0	81 00		3254	BZ	GRA310(,@BR)	NO MORE TEXT IN SEG, CHK MORE
	13C1	D0	87 26		3255	B	GRA316(,@BR)	MORE TEXT, GO INCR RECV CADDR
					3256	*		
					3257	*	ACCESS NEXT BUFFER ROUTINE	
					3258	*		
N04	13C4	00	00 00		3259	GRA500 ST	GRASSA(,@BR),@ARR	
	13C7	C0	87 0025		3260	B	\$DISKN	WAIT FOR PRIOR READ TO COMPLETE
	13CB	057F		13CC	3261	DC	AL2(\$WAITF)	*
				13CD	3262	GRA600 EQU	*	
					3263	*		
					3264	*	DL4ICS BEING USED - ACCESS NEXT DATA BLOCK	
					3265	*		
N04	13CD	75	02 A0		3266	L	GRBFRA(,@BR),@XR	SAVE CURR BFR STARTING CADDR
	13D0	00	00 00 00		3267	MVC	GRBFRA(GRAED5,@BR),GRANCA(,@BR)	MOVE NEXT DPL TO CURR DPI
	13D4	74	02 A6		3268	ST	GRANCA(,@BR),@XR	RESTORE NEXT BFR STARTING CADDR
	13D7	75	02 A0		3269	L	GRBFRA(,@BR),@XR	POINT EN TO CURR BFR CADDR
	13DA	BD	00 00		3270	CLI	GRAELK(,@XR),GRAELN	NEXT LOGICAL DB = NEXT PHYS DB ?
	13DD	F2	81 07		3271	JE	GRA620	YES, GO INCR SCTR DISP.
	13E0	7C	02 A3		3272	MVI	GRANDA(,@BR),GRAEDB	SET DADDR OF NEXT DB
	13E3	6E	00 A3 00		3273	ALC	GRANDA(1,@BR),GRAELK(,@XR)	*
	13E7	5E	00 A3 AB		3274	GRA620 ALC	GRANDA(1,@BR),GRANPB(,@BR)	INCR SCTR DISP FOR NEXT PHYS D
	13EB	C0	87 1200		3275	GRA640 B	DL4ICS	GO READ NEXT DB
	13EF	13FE		13F0	3276	DC	AL2(GRANPL)	* CADDR OF DPL
	13F1	7C	FF AC		3277	GRA660 MVI	GRASIZ(,@BR),GRAEBS	RE-INITLZ BFR SPACE COUNT
	13F4	C0	87 0000		3278	GRA680 B	*-*	RETURN TO
				13F7	3279	GRA5SA EQU	GRA680+@OP1	* CADDR SUPPLIED
				13F8	3280	GRACPL EQU	*	DPL FOR CURRENT BUFFER
	13F8	02		13F8	3281	GRACFN DC	AL1(@DPUT)	WRITE FUNCTION CODE
	13F9			13FA	3282	GRSRDA DS	CL2	RELATIVE DADDR OF CURR. BFR
				13F9	3283	GRACCA EQU	GRSRDA-@B1	CYLINDER BYTE OF DISK ADDR.
	13F9				3284	ORG	*-2	* INITIALIZED TO THE
	13F9	0503		13FA	3285	DC	AL2(@WSTBL)	* 1ST DB OF THE WORK FILE
	13FB			13FB	3286	GRACSC DS	CL1	SECTOR COUNT
N04	13FC	0000		13FD	3287	GRBFRA DC	AL2(GRBF1)	CADDR OF CURRENT BUFFER
				13FE	3288	GRANPL EQU	*	DPL FOR NEXT BUFFER
	13FE	01		13FE	3289	DC	AL1(@DGET)	READ FUNCTION CODE
	13FF			1400	3290	GRANDA DS	CL2	RELATIVE DADDR OF NEXT BFR.
	1401			1401	3291	GRSCTR DS	CL1	SECTOR COUNT
	1401				3292	ORG	*-1	* INITIALIZE TO 1
	1401	01		1401	3293	DC	XL1'01'	
	1402			1403	3294	GRANCA DS	CL2	CADDR OF NEXT BUFFER
	1404			1404	3295	GRWHAT DS	CL1	USER SPEC'D FUNCTION CODE
	1404				3296	ORG	*-1	SET TO ZERO FOR
	1404	00		1404	3297	DC	XL1'00'	* INITIALIZATION CALL
	1405	0100		1406	3298	GRASSZ DC	XL2'0100'	SECTOR SIZE
	1407	0001		1408	3299	GRANPB DC	XL2'01'	DISP TO NEXT PHYS BFR DADDR
				0002	3300	GRAEDB EQU	2	DB DADDR ADJUSTMENT FACTOR
	1409			1409	3301	GRASIZ DS	CL1	BUFFER SPACE COUNTER
	140A	0C07		140B	3302	GRATXT DC	AL2(GRTEXT)	ADDRESS OF TEXT OUTPUT AREA
	140C	0007		140D	3303	GRAPSG DC	XL2'07'	SIZE OF PRIMARY SEG. HEADER
	140E	0004		140F	3304	GRASSG DC	XL2'04'	SIZE OF 2NDARY SEG. HEADER

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		1408	3305	GRAONE EQU	GRANPB	DECR FACTOR FOR REPITITION CTR
		1408	3306	GRABOA EQU	GRANPB	INCR FACTOR FOR NEXT TEXT CHAR
		1408	3307	GRANXC EQU	GRANPB	CYL ADJ FACTOR
1410		1410	3308	GRASEG DS	CL1	SEGMENT TEXT COUNTER
		0000	3309	GRAEFI EQU	X'00'	INITIALIZATION FUNC. CODE
		0003	3310	GRAEFW EQU	X'03'	WRITE BACK ONLY FUNC. CODE
		0001	3311	GRAEFR EQU	X'01'	RETURN TEXT FUNC. CODE
		0002	3312	GRAEFS EQU	X'02'	SKIP STATEMENT FUNC. CODE
		0004	3313	GRAEFG EQU	X'04'	SKIP SEGMENT FUNC. CODE
		00FF	3314	GRAEBS EQU	X'FF'	BUFFER TEXT AREA SIZE
		0001	3315	GRAESC EQU	X'01'	SCTR COUNT IF DL4ICS USED
		0000	3316	GRAELK EQU	X'00'	DISP TO LINK CODE WITHIN DB
		0000	3317	GRAELN EQU	X'00'	LINK CODE TO NEXT PHYS DB
N04		0001	3318	GRAEXA EQU	X'01'	ADJ TO '@' EQU'S FOR @XR ADDR
			3319	GRAEDL EQU	@SBLN+GRAEXA	DISP TO STMT BINARY LINE NO.
		0007	3320	GRAEDT EQU	@STYPE+GRAEXA	DISP TO STMT TYPE CODE
		0002	3321	GRAELL EQU	X'02'	LENGTH OF BINARY LINE NUMBER
		0075	3322	GRAEET EQU	@EOFTC	TYPE CODE OF END-OF-FILE STMT
		0001	3323	GRAES0 EQU	@SDF0+GRAEXA	DISP TO SDF0 - NULL INDR
		0002	3324	GRAES1 EQU	@SDF1+GRAEXA	DISP TO SDF1 - LENGTH
		0003	3325	GRAES2 EQU	@SDF2+GRAEXA	DISP TO SDF2 - SEGMENTATION CDE
		0002	3326	GRAETP EQU	X'02'	MASK FOR A PRIMARY SEGMENT
		0007	3327	GRAELP EQU	X'07'	LENGTH OF PRIMARY SEG.
		0004	3328	GRAELS EQU	X'04'	LENGTH OF SECONDARY SEG.
		001B	3329	GRAEMR EQU	27	MAX. REPITITION CODE
		0001	3330	GRAENC EQU	X'01'	DISP TO NEXT TEXT CHARACTER
		0001	3331	GRAEDC EQU	X'01'	DISP TO CYL IN DADDR
		135D	3332	GRABSE EQU	GRA310	BASE ADDRESS OF GRABIT
		0005	3333	GRAEDS EQU	X'05'	LNG OF DPL DADDR, SCTR-CT.
		0006	3334	GRAEW2 EQU	6	SECOND CYL OF WORK FILE
			3335	*		
			3336	*	ERROR ROUTINE	
			3337	*		
1411	3C 98 03CD		3338	GRAERR MVI	\$CAERR,@E551	SET BAD FILE ERROR CODE
			3339	*		THE ABOVE ERROR CODE IS INITIALLY SET FOR A SAVED FILE,
			3340	*		BUT IS MODIFIED TO THE WORK FILE IF DL4ICS IS USED
1415	3A 04 03D6		3341		SBN	SET INDR FOR HARD ERROR
1419	C0 87 0469		3342		B	GO TO ERRPGM INTERFACE

GRABIT -- RETRIEVE FILE STATEMENTS

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/06/21 PAGE 31
					3344	*	\$C2D5	
					3345+	*****		
					3346+	*	SERIALLY REUSABLE SUBROUTINE TO CONVERT A 2 BYTE BINARY VALUE TO	*
					3347+	*	A 5 BYTE POSITIVE DECIMAL NUMBER.	*
					3348+	*	ON ENTRY @XR POINTS TO THE LEFT BYTE OF THE BINARY VALUE.	*
					3349+	*	ON RETURN C2DVAL IS THE RIGHT BYTE OF THE 5 BYTES DECIMAL VALUE	*
					3350+	*	WITH LEADING ZEROS WHICH MAY BE MODIFIED BY THE USER IN ANY WAY	*
					3351+	*	IN IT'S LOCATION.	*
					3352+	*	THE 2 BYTES BINARY VALUE IS NOT ALTERED.	*
					3353+	*	@XR IS NOT ALTERED.	*
					3354+	*	@BR IS SAVED AND RESTORED AT EXIT.	*
					3355+	*****		
				141D	3357+C2DEC5	EQU	*	MODULE ENTRY POINT
				141D	3358+	USING	C2DEC5,@BR	BASE ADDRESS SPECIFICATION
141D	34	01	1451		3359+	ST	C2D050+@OP1,@BR	SAVE @BR
1421	C2	01	141D		3360+	LA	C2DEC5,@BR	LOAD BASE REGISTER
1425	74	08	38		3361+	ST	C2D052+@OP1(,@BR),@ARR	SAVE RETURN ADDRESS
					3362+	*	INITIALIZE DECIMAL INCREMENTER AND DECIMAL SUM TO 1 AND 0 RESP.	
1428	54	90	43 39		3363+	ZAZ	C2D903(C2D903-C2D901,@BR),C2D901(C2D902-C2D901,@BR)	
142C	7C	01	17		3364+	MVI	C2D030+@D1(,@BR),@B1	INITIALIZE DISP TO BYTE 1
142F	7C	01	16		3365+C2D020	MVI	C2D030+@Q(,@BR),@B1	INIT TEST TO BIT 7
					3366+	*		
1432	B8	00	00		3367+C2D030	TBN	*-*(,@XR),*-*	TEST IF THIS BIT IS OFF
1435	F2	90	04		3368+	JF	C2D040	* BR AROUND SUM INCREMENT
					3369+	*	INCREMENT DECIMAL SUM BY DECIMAL VALUE OF THIS TESTED BIT	
1438	56	04	3E 43		3370+	AZ	C2DVAL(C2D903-C2DVAL,@BR),C2D903(C2D903-C2DVAL,@BR)	
					3371+	*	DOUBLE DECIMAL VALUE OF INCREMENT TO VALUE OF NEXT BIT	
143C	56	04	43 43		3372+C2D040	AZ	C2D903(C2D903-C2DVAL,@BR),C2D903(C2D903-C2DVAL,@BR)	
1440	5E	00	16 16		3373+	ALC	C2D030+@Q(1,@BR),C2D030+@Q(,@BR)	SHIFT BIT MASK LEFT ONE
1444	D0	20	15		3374+	BNOL	C2D030(,@BR)	CONTINUE LOOP UNLESS ALL BITS
					3375+	*	* TESTED	
1447	5F	00	17 13		3376+	SLC	C2D030+@D1(1,@BR),C2D020+@Q(,@BR)	DECR DISP TO BYTE 0
144B	D0	81	12		3377+	BZ	C2D020(,@BR)	FALL THROUGH IF UNDERFLOW
144E	C2	01	0000		3378+C2D050	LA	*-*,@BR	RESTORE @BR
1452	C0	87	0000		3379+C2D052	B	*-*	RETURN TO CALLING PROGRAM
					3380+	*		
					3381+***		WORK AREA	
					3382+	*		
1456	F1			1456	3383+C2D901	DC	DL1'1'	INIT WORK AREA
				1457	3384+C2D902	EQU	*	FIST BYTE OF DECIMAL VALUE
1457				145B	3385+C2DVAL	DS	CL5	5 BYTES DECIMAL VALUE
145C				1460	3386+C2D903	DS	CL5	DECIMAL INCREMENTER
					3387+***		END OF C4DEC5	***

DLPRNT - LIST OUTPUT INTERFACE

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/06/21 PAGE 32
		3389		*****	
		3390	*	5703-XM1 COPYRIGHT IBM CORP. 1970	*
		3391	*	REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083	*
		3392	*		*
		3393		*****	
		3394	*	STATUS	*
		3395	*	VERSION 1 MODIFICATION 0	*
		3396	*		*
		3397	*	FUNCTION	*
		3398	*	* DLPRNT PROVIDES FOR DEVICE INDEPENDENCE FOR OUTPUT FROM	*
		3399	*	LIST ORIENTED PROGRAMS.	*
		3400	*	* FOR CRT OUTPUT, ROLL SPEED AND POP FEATURES ARE SUPPORTED.	*
		3401	*	IN ADDITION DLPRNT WILL FLASH COMMAND LIGHT 13 WHEN IN	*
		3402	*	STOP MODE.	*
		3403	*	* IF A 50LMP MATRIX PRINTER IS TO BE USED, ALL PRINTED LINES	*
		3404	*	ARE ANALYZED FOR LENGTH TO PROVIDE MAXIMUM LINE THROUGHPUT.	*
		3405	*	THIS IS DONE BY PRINTING RIGHT ONLY AS FAR AS REQUIRED TO	*
		3406	*	PRINT THE NEXT LINE FROM RIGHT TO LEFT. THE 50LMP I/O	*
		3407	*	INTERFACE IS SUPPLIED BY DLPRNT.	*
		3408	*	* OUTPUT MAY BE DIRECTED TO THE CRT, THE MATRIX PRINTER, OR	*
		3409	*	THE CURRENT SYSTEM OUTPUT DEVICE(S).	*
		3410	*		*
		3411	*	ENTRY POINTS	*
		3412	*	DLPRNT HAS ONE ENTRY POINT. THIS ENTRY POINT IS USED WHEN A	*
		3413	*	LINE IS TO BE PRINTED FOLLOWED BY A NORMAL CARRIER RETURN.	*
		3414	*	THE CALLING SEQUENCE IS:	*
		3415	*		*
		3416	*	B DLPRNT	*
		3417	*	DC AL2(PPLA)	*
		3418	*	WHERE PPLA IS A TWO BYTE ADDRESS OF THE LEFT BYTE OF A PRINT	*
		3419	*	PARAMETER LIST.	*
		3420	*		*
		3421	*	INPUT	*
		3422	*	* BEFORE USING DLPRNT THE ONE BYTE INDICATOR, DLPTYP, MUST	*
		3423	*	BE SET TO INDICATE WHICH DEVICE IS TO BE USED FOR OUTPUT.	*
		3424	*	THE CORRESPONDING VALUES AND THEIR FUNCTION FOLLOWS:	*
		3425	*	DLPMPR - MATRIX PRINTER IS TO BE USED FOR OUTPUT.	*
		3426	*	DLPCRT - THE DISPLAY STATION IS TO BE USED FOR OUTPUT.	*
		3427	*	ROLL SPEED AND POP FUNCTIONS WILL BE CONTROLLED.	*
		3428	*	DLPSPT - THE SYSTEM PRINTER(S) IS TO BE USED FOR OUTPUT.	*
		3429	*	THIS IS THE DEFAULT VALUE.	*
		3430	*	* A 244 BYTE BUFFER MUST BE ALLOCATED FOR DLPRNTS USE STARTING	*
		3431	*	AT LOCATION DLIBUF.	*
		3432	*	* A FOUR BYTE PRINT PARAMETER LIST (PPL) MUST BE PASSED VIA	*
		3433	*	A TWO BYTE COME ADDRESS FOLLOWING THE CALL. THIS PPL IS OF	*
		3434	*	THE SAME FORMAT AS THE PPL SENT TO DPRINT WITH THE FOLLOWING	*
		3435	*	RESTRICTIONS:	*
		3436	*	* ONLY 'PRINT AND RETURN' CONTROL CODES ARE ALLOWED FOR	*
		3437	*	PRINTING.	*
		3438	*	* WAIT FUNCTIONS SHOULD NOT BE USED EXCEPT AFTER THE LAST	*
		3439	*	LINE HAS BEEN PRINTED. IT IS THEN REQUIRED TO TERMINATE	*
		3440	*	DLPRNT'S FUNCTION.	*
		3441	*	OUTPUT	*
		3442	*	UPON COMPLETION THE GENERAL REGISTERS AND PPL WILL BE THE SAME	*
		3443	*	AS AT ENTRY, THE LINE TO BE PRINTED WILL BE PRINTED (OR BUFFERED	*
		3444	*	IN THE CASE OF THE LINE PRINTER). THE CALLING PROGRAM MAY	*

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		3445	*	MODIFY THE LINE UPON RETURN.			*
		3446	*				*
		3447	*	EXTERNAL REFERENCES			*
		3448	*	\$PRDEV - SYSTEM PRINTER INDICATOR.			*
		3449	*	DLIBUF - LOCATION OF BUFFER.			*
		3450	*	\$\$PLYN - ENTRY TO DSPLYN.			*
		3451	*	\$\$PRNT - ENTRY TO DPRINT.			*
		3452	*	\$CRTIN - ROLL INDICATORS.			*
		3453	*	\$IOIND - LINE PRINTER INDICATOR.			*
		3454	*	\$UNMSK - ENTRY TO UNMASK INQUIRY REQUEST.			*
		3455	*	\$\$PSIO - LOCATION OF CONTROL BYTE IN DPRINT SIG.			*
		3456	*	\$\$PCNT - LOCATION OF COUNT BYTE IN DPRINT I/O LIST.			*
		3457	*				*
		3458	*	EXITS, NORMAL			*
		3459	*	EXIT IS TO THE CALLING PROGRAM FOLLOWING THE PPL ADDRESS.			*
		3460	*				*
		3461	*	EXITS, ERROR			*
		3462	*	N/A			*
		3463	*				*
		3464	*	TABLES/WORK AREAS			*
		3465	*	N/A			*
		3466	*				*
		3467	*	ATTRIBUTES			*
		3468	*	RELOCATABLE			*
		3469	*	REUSABLE			*
		3470	*				*
		3471	*	CHARACTER CODE DEPENDENCY			*
		3472	*	N/A			*
		3473	*				*
		3474	*	NOTES			*
		3475	*	ERROR PROCEDURES			*
		3476	*	N/A			*
		3477	*				*
		3478	*	REGISTER USAGE			*
		3479	*	REGISTERS 1 AND 2 ARE USED FOR BASE ADDRESSING.			*
		3480	*				*
		3481	*	SAVED/RESTORED AREAS			*
		3482	*	N/A			*
		3483	*				*
		3484	*	MODIFICATION CONSIDERATIONS			*
		3485	*	DLPRNT DIRECTLY MODIFIES DPRINT WHEN USING THE LINE PRINTER			*
		3486	*	FUNCTION. CARE MUST BE TAKEN WHEN MODIFYING EITHER DLPRNT OR			*
		3487	*	DPRINT.			*
		3488	*				*
		3489	*	REQUIRED MODULES			*
		3490	*	@SYSEQ - GENERAL SYSTEM EQUATES			*
		3491	*	@FXDEQ - NUCLEUS LOCATION EQUATES			*
		3492	*	@HDWEQ - HARDWARE VALUE EQUATES			*
		3493	*	@CANEQ - TRANSCIENT LOCATION EQUATES			*
		3494	*				*
		3495	*	OTHER			*
		3496	*	N/A			*
		3497	*	*****			*

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				149A 3499	USING	DLPBSE,@BR	BASE SPECIFICATION
				1461 3500	DLPRNT EQU	*	ENTRY
1461	34	01	156B	3501	ST	DLP480+@OP1,@BR	SAVE BR
1465	C2	01	149A	3502	LA	DLPBSE,@BR	LOAD BASE REG
1469	74	02	D5	3503	ST	DLP500+@OP1(,@BR),@XR	SAVE XR
146C	76	08	ED	3504	A	DLPONE(,@BR),@ARR	CALCULATE PPL ADDR POINTER
146F	34	08	147C	3505	ST	DLP100+@OP1,@ARR	GET PARM ADDR
1473	76	08	ED	3506	A	DLPONE(,@BR),@ARR	CALCULATE RETURN ADDR
1476	74	08	DD	3507	ST	DLP520+@OP1(,@BR),@ARR	SAVE RETURN ADDR
1479	35	02	0000	3508	DLP100 L	*-*,@XR	XR POINTS TO PPL
147D	6C	03	EA 03	3509	MVC	DLPWK2+@PDATA(@PPLNG,@BR),@PDATA(,@XR)	MOVE IN PPL
1481	7C	20	0F	3510	MVI	DLPEXT-1(,@BR),X'20'	INITIALIZE DSPLYN ADDR *****
1484	4E	00	0F 043B	3511	ALC	DLPEXT-1(1,@BR),\$EXFTR	GET DSPLYN ADDR
1489	F2	87	00	3512	J	*-*	GO TO CORRECT INTERFACE
				148B 3513	DLPTYP EQU	*-1	I/O DEVICE INDR LOCATION
148B				3514	ORG	DLPTYP	SET INSTR CNTR
148B	00			148B 3515	DC	AL1(DLPSPPT)	SET DEFAULT TO SYSTEM PRINTER
				148C 3516	DLPBSD EQU	*	DISPLACEMENT BASE
				3517	**		
				148C 3518	DLPSPI EQU	*	SYSTEM PRINTER INTERFACE
148C	3D	07	044A	3519	CLI	\$PRDEV-1,X'07'	SYSPRINT = MATRIX PRINT *****
1490	F2	81	7E	3520	JE	DLPNPT	DO LINE PRINTER INTERFACE
1493	5C	01	00 10	3521	MVC	DLP120+@OP1(@CADDR,@BR),DLPEXT(,@BR)	GET DSPLYN ADDR
1497	C0	87	0000	3522	DLP120 B	*-*	GO TO DSPLYN
149B	1581			149C 3523	DC	AL2(DLPWK2)	PPL ADDRESS
149D	3D	00	044B	3524	CLI	\$PRDEV,X'00'	IS PRINTER REQUIRED TOO *****
14A1	F2	81	6D	3525	JE	DLPNPT	DO LINE PRINTER INTERFACE
14A4	F2	87	C1	3526	J	DLP480	EXIT INTERFACE
				149A 3527	DLPBSE EQU	DLP120+@OP1	BASE ADDRESS

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/06/21	PAGE 35
				14A7	3529	DLPTIF	EQU *			ENTRY
	14A7	C0 87 0000			3530	B	*-*			GO TO DSPLYN
	14A9				3531	ORG	*-2			INITIALIZE ADDR
	14A9	2004		14AA	3532	DLPEXT	DC AL2(\$\$PLYN)			DSPLYN ENTRY ADDR
N04	14AB	0000		14AC	3533	DC	AL2(DLPHK2)			PPL ADDRESS
	14AD	7D FF E7			3534	CLI	DLPWK2+@PCTRL(,@BR),@PWAIT			WAIT FUNCTION ?
	14B0	F2 81 57			3535	JE	DLP360			GO TURN OFF CMD LIGHTS
	14B3	71 11 E2			3536	DLP140 LIO	DLPK13(,@BR),@KEYBD+@CMLON			TURN ON CMD LITE 13
	14B6	38 08 03D3			3537	TBN	\$CRTIN,\$CRTSP			IN STOP MODE?
	14BA	F2 90 1D			3538	JF	DLP240			NO ? CONTINUE ROLL
	14BD	F2 80 09			3539	DLP160 JC	DLP180,@NOP			JUMP IF LIGHT ON
	14C0	71 10 E2			3540	LIO	DLPK13(,@BR),@KEYBD+@CMOFF			TURN POP LITE OFF
	14C3	7C 87 24			3541	MVI	DLP160+@Q(,@BR),@UCB			SET FOR TURN ON
	14C6	F2 87 03			3542	J	DLP200			GO DO TIME OUT
	14C9	7C 80 24			3543	DLP180 MVI	DLP160+@Q(,@BR),@NOP			SET TO TURN OFF
	14CC	5C 01 E0 E1			3544	DLP200 MVC	DLPLPC(2,@BR),DLPLIN(,@BR)			SET UP TIME COUNT
	14D0	5F 01 E0 ED			3545	DLP220 SLC	DLPLPC(2,@BR),DLPONE(,@BR)			DECREMENT TIME COUNT
	14D4	D0 84 36			3546	BH	DLP220(,@BR)			LOOP UNTIL TIME OUT
	14D7	D0 87 19			3547	B	DLP140(,@BR)			GO TEST STOP MODE
	14DA	38 04 03D3			3548	DLP240 TBN	\$CRTIN,\$CRTPU			POP UP INDR ON ?
	14DE	F2 90 07			3549	JF	DLP260			SKIP LINE CNT INITIALIZATION
	14E1	3B 04 03D3			3550	SBF	\$CRTIN,\$CRTPU			SET POP INDR OFF
	14E5	7C 00 DE			3551	MVI	DLPCNT(,@BR),@ZERO			ZERO LINES DISPLAYED CNT
	14E8	7D 0D DE			3552	DLP260 CLI	DLPCNT(,@BR),DLPMAX			HAVE MAX NO. OF LINES BEEN ?
					3553	*				* DISPLAYED ?
	14EB	F2 01 04			3554	JNE	DLP280			JUMP IF NOT
	14EE	3A 08 03D3			3555	SBN	\$CRTIN,\$CRTSP			SET ROLL STOP INDR
	14F2	F2 04 0E			3556	DLP280 JNH	DLP320			JUMP IF MAX LINES NOT DISPLAYED
N04	14F5	00 00 00 00			3557	MVC	DLPIPC(2,@BR),DLPLIN(,@BR)			SET UP TIMING LOOP
	14F9	5F 01 E0 ED			3558	DLP300 SLC	DLPLPC(2,@BR),DLPONE(,@BR)			DECREMENT COUNT
	14FD	D0 84 5F			3559	BH	DLP300(,@BR)			BRANCH IF TIME NOT UP
	1500	F2 87 04			3560	J	DLP340			GO EXIT
	1503	5E 00 DE ED			3561	DLP320 ALC	DLPCNT(1,@BR),DLPONE(,@BR)			BUMP LINE COUNT
	1507	F2 87 5E			3562	DLP340 J	DLP480			GO EXIT
	150A	C0 87 0B44			3563	DLP360 B	\$\$COFF			TURN OFF CMD LIGHTS
	150E	F2 87 57			3564	J	DLP480			GO EXIT

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				1511	3566	DLPNPT	EQU	*	ENTRY
	1511	38	80	03D2	3567		TBN	\$IOIND,\$LNPTR	LINE PRINTER AVAILABLE
	1515	F2	10	0F	3568		JT	DLP400	JUMP IF YES
	1518	C0	87	0707	3569	DLP380	B	\$\$PRNT	DO NORMAL PRINT IF NOT
	151C	1581			151D	3570	DC	AL2(DLPWK2)	PPL ADDR
	151E	C0	87	0707	3571		B	\$\$PRNT	WAIT FOR OP COMPLETION
	1522	057F			1523	3572	DC	AL2(\$WAITF)	WAIT PPL ADDRESS
	1524	F2	87	41	3573		J	DLP480	GO EXIT
	1527	7D	FF	E7	3574	DLP400	CLI	DLPWK2+@PCTRL(,@BR),@PWAIT	IS THIS A WAIT FUNCTION ?
	152A	F2	01	03	3575		JNE	DLP420	JUMP IF NO
	152D	7C	00	E8	3576		MVI	DLPWK2+@PRCNT(,@BR),@ZERO	ZERO NEXT LINE CNT
	1530	7D	FF	E3	3577	DLP420	CLI	DLPWK1(,@BR),@PWAIT	IS THERE A LINE TO PRINT ?
	1533	F2	01	59	3578		JNE	DLP400	JUMP IF YES
	1536	C0	87	0707	3579		B	\$\$PRNT	INSURE PRINT HEAD IS AT LEFT
	153A	158D			153B	3580	DC	AL2(DLPRTN)	* MARGIN
	153C	5C	01	E4 E8	3581	DLP440	MVC	DLPWK1+@PRCNT(2,@BR),DLPWK2+@PRCNT(,@BR)	SET NEXT PPL
N04	1540	00	00	00 00	3582		MVC	DLPWK2+@PRCNT(2,@BR),DLPRIN+@PRCNT(,@BR)	SET CARRIER RTN
	1544	7D	FF	E3	3583		CLI	DLPWK1(,@BR),@PWAIT	WAS THIS A WAIT FUNCTION ?
	1547	D0	81	7E	3584		BE	DLP380(,@BR)	DO CARRIER RETURN IF YES
N04	154A	00	00	0000	3585		LA	DLPBUF,@XR	POINT XR TO BUFFER
	154E	BC	40	F3	3586		MVI	DLPBLN-1(,@XR),@BLANK	SET BLANK FOR CLEAR BUF
	1551	AC	F2	F2 F3	3587		MVC	DLPBLN-2(DLPBLN-1,@XR),DLPBLN-1(,@XR)	CLEAR BUF TO OINKS
	1555	5C	00	CD E4	3588		MVC	DLP460+@DD2(1,@BR),DLPWK1+@PRCNT(,@BR)	SET DATA CNT
	1559	5F	00	CD ED	3589		SLC	DLP460+@DD2(1,@BR),DLPONE(,@BR)	GET TRUE DISPLACEMENT
	155D	5C	01	CC CD	3590		MVC	DLP460+@D1(2,@BR),DLP460+@DD2(,@BR)	SET 0 AND DI VALUES
	1561	75	01	EA	3591		L	DLPWK2+@PDATA(,@BR),@BR	BR POINTS TO DATA
	1564	9C	00	00 00	3592	DLP460	MVC	*-*(@VQ,@XR),*-*(,@BR)	MOVE DATA TO BUFFER
					3593	*			
	1568	C2	01	0000	3594	DLP480	LA	*-*,@BR	RESTORE BR
	156C	C2	02	0000	3595	DLP500	LA	*-*,@XR	RESTORE XR
	1570	C0	87	048D	3596		B	\$UNMSK	GO CHECK FOR INQUIRY REQUEST
	1574	C0	87	0000	3597	DLP520	B	*-*	RETURN

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/06/21 PAGE 37
		3599			*****	
		3600			* CONSTANTS, WORK AREAS AND EQUATES	
		3601			*****	
		3602			*	
		0085	3603	DLPMPR EQU	DLPNPT-DLPBSD	MATRIX PRINTER INDR VALUE
		0000	3604	DLPSPR EQU	DLPSPR-DLPBSD	SYSTEM PRINTER INDR VALUE
		001B	3605	DLPCRT EQU	DLPTIF-DLPBSD	CRT INOR VALUE
1578		1578	3606	DCRCNT DS	CL1	DISPLAYED LINE CNTR
		1578	3607	DLPCNT EQU	DCRCNT	COMMUNICATIONS LABEL
1578			3608	ORG	DLPCNT	SET INST CNTR
1578 01		1578	3609	DC	XL1'01'	INITIAL VALUE
1579		157A	3610	DLPLPC DS	CL2	TIMING LOOP CNTR
157B 3B		157B	3611	DLPLIN DC	XL1'3B'	INITIAL LOOP CNT
157C 0D		157C	3612	DLPK13 DC	AL1(@CKY13)	CMD LIGHT 13 CONTROL
		000D	3613	DLPMAX EQU	13	MAX LINES TO BE DSPLAYED
		157D	3614	DLPWK1 EQU	*	CURRENT PPL
157D FFFF		157E	3615	DC	2XL1'FF'	CTRL AND DATA CNT
157F 0EA4		1580	3616	DC	AL2(DLIBUF)	BUFFER ADDR
		1581	3617	DLPWK2 EQU	*	NEXT PPL
1581		1584	3618	DS	CL(@PPLNG)	
1585 01		1585	3619	DLPNDX DC	AL1(@INDEX)	INDEX PPL
1586 0001		1587	3620	DLPONE DC	XL2'0001'	CONSTANT OF ONE
1588		1588	3621	DLPRES DS	CL1	RESIDUAL CNT
1589 0000		158A	3622	DLPWTH DC	XL2'00'	WIDTH OF PRINT LINE
158B		158B	3623	DLPNXT DS	CL1	NEXT LINE CNT
158C		158C	3624	DLPREM DS	CL1	ADDITIONAL CNT FOR NEXT LINE
		158D	3625	DLPRTN EQU	*	ADDR OF RETURN PPL
158D 8080		158E	3626	DC	2AL1(@RETRN)	RETURN CARRIER PPL
		0001	3627	DLPPNT EQU	X'01'	LINE PRINTER CONTROL BYTE

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/06/21 PAGE 38
					3629		*****	
					3630		* THIS ROUTINE PRINTS THE CURRENT LINE IN THE CORRECT DIRECTION AND	
					3631		* SETS UP THE NEXT LINE CNT.	
					3632		*****	
				157D	3633		USING DLPBS2,@BR NEW BASE VALUE	
				158F	3634	DLPPRT	EQU * ENTRY TO PRINT	
158F	C2	01	157D		3635		LA DLPBS2,@BR LOAD BASE REGISTER	
1593	C0	87	0707		3636		B \$\$PRNT WAIT FOR PRINTER READY	
1597	057F			1598	3637		DC AL2(\$WAITF) WAIT PPL	
1599	3C	80	0476		3638		MVI \$CIMSK,@NOP MASK IR FOR THIS FUNCTION	
159D	4C	00	0D 03C0		3639		MVC DLPWTH(1,@BR),\$RMGRN SET RIGHT MARGIN VALUE	
15A2	4F	00	0D 03C1		3640		SLC DLPWTH(1,@BR),\$LMGRN CALCULATE WIDTH	
15A7	5C	00	0E 05		3641		MVC DLPNXT(1,@BR),DLPWK2+@PRCNT(,@BR) SET NEXT LINE CNT	
15AB	7C	00	0B		3642		MVI DLPRES(,@BR),@ZERO ZERO RESIDUAL CNT	
15AE	5D	00	01 0D		3643		CLC DLPWK1+@PRCNT(1,@BR),DLPWTH(,@BR) CNT > WIDTH ?	
15B2	F2	04	10		3644		JNH DLP540 JUMP IF NO	
15B5	5C	00	0B 01		3645		MVC DLPRES(1,@BR),DLPWK1+@PRCNT(,@BR) SAVE CNT	
15B9	5F	00	0B 0D		3646		SLC DLPRES(1,@BR),DLPWTH(,@BR) CALCULATE RESIDUAL CNT	
15BD	5C	00	01 0B		3647		MVC DLPWK1+@PRCNT(1,@BR),DLPRES(,@BR) SET CNT TO WIDTH	
15C1	5C	00	0E 0B		3648		MVC DLPNXT(1,@BR),DLPRES(,@BR) SET NEXT LINE CNT = RESIDUAL	
15C5	0D	00	03C1 03C2		3649	DLP540	CLC \$LMGRN(1),\$PRPOS ARE WE AT LEFT MARGIN ?	
15CB	F2	01	19		3650		JNE DLPPRL JUMP TO PRINT LEFT IF NOT	
					3651	*		
					3652	*	SET UP FOR PRINT RIGHT OPERATION	
					3653	*		
15CE	5D	00	01 0E		3654		CLC DLPWK1+@PRCNT(1,@BR),DLPNXT(,@BR) CNT > NEXT CNT ?	
15D2	F2	02	24		3655		JNL DLP560 JUMP IF CURRENT CNT > NEXT CNT	
					3656	*	* NEXT LINE	
15D5	5C	00	01 0D		3657		MVC DLPWK1+@PRCNT(1,@BR),DLPWTH(,@BR) SET CURRENT CNT TO MAX	
15D9	5D	00	0E 0D		3658		CLC DLPNXT(1,@BR),DLPWTH(,@BR) NEXT LINE LESS THAN WIDTH ?	
15DD	F2	02	19		3659		JNL DLP560 JUMP IF NOT	
15E0	5C	00	01 0E		3660		MVC DLPWK1+@PRCNT(1,@BR),DLPNXT(,@BR) SET CURRENT CNT TO	
					3661	*	* NEXT LINE CNT	
15E4	F2	87	12		3662		J DLP560 GO DO PRINTING	
					3663	*		
					3664	*	SET UP FOR PRINT LEFT OPERATION	
					3665	*		
				15E7	3666	DLPPRL	EQU * ENTRY TO PRINT LEFT	
15E7	3C	01	07CE		3667		MVI \$\$PSIO,DLPPNT SET DPRINT FOR LINE MODE	
15EB	4C	00	01 03C2		3668		MVC DLPWK1+@PRCNT(1,@BR),\$PRPOS SET CURRENT PRINT POSITION	
15F0	4F	00	01 03C1		3669		SLC DLPWK1+@PRCNT(1,@BR),\$LMGRN GET RETURN PRINT CNT	
15F5	5F	00	01 0A		3670		SLC DLPWK1+@PRCNT(1,@BR),DLPONE(,@BR) SET UP FOR HARDWARE	
					3671	*		
					3672	*	DO THE PRINT OPERATION	
					3673	*		
15F9	7C	40	00		3674	DLP560	MVI DLPWK1+@PCTRL(,@BR),@PRINT SET NO CARRIER RETURN	
					3675	*	* PRINT LENGTH = WIDTH	
15FC	C0	87	0707		3676		B \$\$PRNT GO PRINT THE LINE	
1600	157D			1601	3677		DC AL2(DLPWK1) PPL ADDR	
1602	3C	00	07CE		3678		MVI \$\$PSIO,@ZERO RESET SIO CTRL FOR NORMAL OPS	
1606	3C	00	07E9		3679		MVI \$\$PCNT,@ZERO SET DPRINT PPL CNT ZERO	
160A	C0	87	0707		3680		B \$\$PRNT INDEX A LINE	
P10 160E	0000			160F	3681		DC AL2(@DLPNDX) INDEX PPL ADDRESS	
				149A	3682		USING DLPBSE,@BR USE MAINLINE BASE VALUE	
1610	C2	01	149A		3683		LA DLPBSE,@BR RESTORE MAINLINE BR	
1614	7D	00	EE		3684		CLI DLPRES(,@BR),@ZERO ANY RESIDUAL DATA ?	

DLPRNT - LIST OUTPUT INTERFACE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/06/21	PAGE 39
	1617	D0	81	A2	3685	BE	DLP440(,@BR)			EXIT TO MAINLINE IF NOT
					3686	*				
				157D	3687	USING	DLPBS2,@BR			USE PRINT BASE ADDR
	161A	C2	01	157D	3688	LA	DLPBS2,@BR			SET BR
	161E	7C	F4	0F	3689	MVI	DLPREM(,@BR),DLPBLN			SET REMAINDER TO BUF LENGTH
	1621	5F	00	0F 0B	3690	SLC	DLPREM(1,@BR),DLPRES(,@BR)			GET REMAINDER FOR BLANK CNT
N04	1625	00	00	0000	3691	LA	DLPBUF,@XR			XR POINTS TO BUFFER
	1629	74	02	B7	3692	ST	DLP580+@DOP2(,@BR),@XR			SET MOVE INSTR TO BUF ADDR
	162C	5E	01	B7 0D	3693	ALC	DLP580+@DOP2(@CADDR,@BR),DLPWTH(,@BR)			POINT TO RESIDUAL
	1630	8C	00	00 0000	3694	DLP580 MVC	0(1,@XR),*-*			MOVE A BYTE OF RESIDUAL DATA
	1635	E2	02	01	3695	LA	1(,@XR),@XR			INCREMENT DATA POINTER
	1638	5E	01	B7 0A	3696	ALC	DLP580+@DOP2(@CADDR,@BR),DLPONE(,@BR)			INCREMENT DATA ADDR
	163C	5F	00	0B 0A	3697	SLC	DLPRES(1,@BR),DLPONE(,@BR)			DECREMENT RESIDUAL CNT
	1640	D0	84	B3	3698	BH	DLP580(,@BR)			DO IT AGAIN TIL DONE
	1643	BC	40	00	3699	DLP600 MVI	0(,@XR),@BLANK			SET REMAINING BLANKS
	1646	E2	02	01	3700	LA	1(,@XR),@XR			INCREMENT
	1649	5F	00	0F 0A	3701	SLC	DLPREM(1,@BR),DLPONE(,@BR)			REMAINDER ?
	164D	D0	84	C6	3702	BH	DLP600(,@BR)			SET ANOTHER BLANK
	1650	5C	00	01 0E	3703	MVC	DLPWK1+@PRCNT(1,@BR),DLPNXT(,@BR)			SET NEXT CNT
	1654	D0	87	12	3704	B	DLPPRT(,@BR)			GO FINISH LINE
				157D	3706	DLPBS2 EQU	DLPWK1			BASE VALUE FOR PRINT OP
				00F4	3707	DLPBLN EQU	244			LENGTH OF PRINT BUFFER

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/06/21	PAGE	40
				3709	*****				*
				3710	* 5703-XM1	COPYRIGHT IBM CORP. 1970			*
				3711	*	REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083			*
				3712	*				*
				3713	*****				*
				3714	*STATUS				*
				3715	* VERSION 1 MODIFICATION 0				*
				3716	*				*
				3717	*FUNCTION				*
				3718	* * SDLIST WILL CONVERT THE CONTENTS OF THE WORK FILE FROM				*
				3719	* INTERNAL FLOATING POINT REPRESENTATION TO THE 'SHORTEST'				*
				3720	* EXTERNAL REPRESENTATION. THIS ROUTINE IS USED TO CONVERT				*
				3721	* EITHER KEYBOARD OR PROGRAM GENERATED FILES FOR LISTING				*
				3722	* PURPOSES.				*
				3723	* * FOR LISTING PROGRAM GENERATED FILES, SDLIST ALSO WILL OUTPUT				*
				3724	* THE FILE TO THE SPECIFIED OUTPUT DEVICE.				*
				3725	* * CHARACTER STRINGS ARE ALSO OUTPUT VIA SDLIST.				*
				3726	*				*
				3727	*ENTRY POINTS				*
				3728	* SDLIST HAS TWO(2) ENTRY POINTS. ONE ENTRY POINT IS USED WHEN				*
				3729	* THE WORK FILE CONTAINS A KEYBOARD DATA FILE.				*
				3730	* B SDLIST	CONVERT KEYBOARD DATA FILE			*
				3731	*				*
				3732	* TO OUTPUT A PROGRAM GENERATED FILE, THE FOLLOWING ENTRY POINT				*
				3733	* IS USED.				*
				3734	* B SDLPGM	OUTPUT PGD FILE			*
				3735	*				*
				3736	* THE ENTIRE FILE WILL BE OUTPUT BY SDLIST				*
				3737	* FOR PROGRAM GENERATED FILES THE CONSTANT SDLWID SHOULD				*
				3738	* CONTAIN THE LOGICAL WIDTH				*
				3739	*				*
				3740	*INPUT				*
				3741	* * FOR KEYBOARD DATA FILES THE LINE TO SE CONVERTED MUST BE				*
				3742	* AT THE ADDRESS POINTED BY GTTEXT				*
				3743	* * FOR PROGRAM GENERATED FILES DL4ICS IS USED TO ACCESS EACH				*
				3744	* SECTOR OF THE WORK FILE.				*
				3745	*				*
				3746	*OUTPUT				*
				3747	* * EACH CONVERTED LINE IS PLACED IN THE LOCATION POINTED TO BY				*
				3748	* SDLBUF WHICH IS DEFINIED BY THE CALLING PROGRAM. FOR PGD'S				*
				3749	* THE PROPER OUTPUT DEVICE IS DETERMINED AND DLPRNT (PRINTER OR				*
				3750	* CRT) OR DCDOUT IS CALLED TO OUTPUT THE LINE.				*
				3751	* XR1 AND XR2 ARE SAVED AND RESTORED.				*
				3752	*				*
				3753	*EXTERNAL REFERENCES				*
				3754	* * \$INDR1 - CHECK PRECISION OF WORK FILE & PGD INDICATOR				*
				3755	* * \$XRSAV - REGISTER STORAGE AREA				*
				3756	*				*
				3757	*EXITS, NORMAL				*
				3758	* CONTROL IS RETURNED TO THE BYTE FOLLOWING THE CALL TO SDLIST				*
				3759	* IN THE CALLING PROGRAM				*
				3760	*				*
				3761	*EXITS, ERROR				*
				3762	* NONE				*
				3763	*				*
				3764	*TABLESIWORKAREAS				*

SDLIST -- LIST DATA FILES

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/06/21	PAGE	41
		3765	*	NONE				*
		3766	*					*
		3767	*	ATTRIBUTES				*
		3768	*	SDLIST IS REUSABLE				*
		3769	*					*
		3770	*	CHARACTER CODE DEPENDENCY				*
		3771	*	N/A				*
		3772	*					*
		3773	*	NOTES				*
		3774	*	ERROR PROCEDURES				*
		3775	*	NONE				*
		3776	*					*
		3777	*	REGISTER USAGE				*
		3778	*	XR1 IS USED AS A POINTER TO THE OUTPUT AREA				*
		3779	*	XR2 IS USED AS A POINTER TO THE INPUT AREA				*
		3780	*	- AS A BASE REGISTER				*
		3781	*					*
		3782	*	SAVED RESTORED AREA				*
		3783	*	NONE				*
		3784	*					*
		3785	*	MODIFICATION CONSIDERATIONS				*
		3786	*	NONE				*
		3787	*					*
		3788	*	REQUIRED MODULES				*
		3789	*	@SYSEQ - COMMON SYSTEM EQUATES				*
		3790	*	@FXDEQ - LOCATION OF INDICATORS WITHIN THE NUCLEUS				*
		3791	*	DCDOUT - CARD PUNCH IOCR				*
		3792	*	DLPRNT - CRT/PRINTER INTERFACE ROUTINE				*
		3793	*	C2DEC5 - BINARY TO DECIMAL CONVERSION ROUTINE				*
		3794	*					*
		3795	*	OTHER				*
		3796	*	N/A				*
		3797	*					*
		3798	*	*****				*

SDLIST -- LIST DATA FILES

ERR LOC		OBJECT CODE		ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00		04/06/21	PAGE	42
				1657	3800	SDLIST	EQU *					
	1657	34	02	180D	3801		ST SDL089+@OP1,@XR			SAVE @XR		
	165B	34	01	1811	3802		ST SDL090+@OP1,@BR			SAVE BASE RESISTER		
	165F	34	08	1815	3803		ST SDL091+@OP1,@ARR			SAVE RETURN ADDRESS		
				1663	3804	SDL001	EQU *					
P02					3805		MVI SDLBUF,6DLEND,@BLANK			SET LAST FIELD TO BLANKS		
N04	1663	00	00	0000	3806		MVC SDLBUF+SDLED1(SDLMAX),SDLBLF+SDLEND			SET FIELD TO BLANKS		
	1669	C2	02	1190	3807		LA GRLINE-1,@XR			BINARY LINE %UNSER		
	166D	C0	87	141D	3808		B C2DEC5			CONVERT STATEMENT NUMBER		
N04	1671	00	00	0000	3809		MVC SDLBUF+3(SDLFOR),C2DVAL			NOVE STATEMENT NUMBER		
N04	1677	00	00	0000	3810		LA SDLBUF+SDLLNG,@BR			POINTER TO OUTPUT AREA		
	167B	C2	02	0C07	3811		LA SDLBF@,@XR			SET-UP INPUT ADRESS		

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/06/21	PAGE	43
				167F	3813	SDL005	EQU *		CHECK ALPHA OR FLOATING POINT		
	167F	3C	00	19E5	3814		MVI SDLSMN,@ZERO		INIT MINUS SIGN IND OFF	1-5	
	1683	B8	40	00	3815		TBN @ZERO(,@XR),SDLTYP		ALPHA DATA ?	1-5	
	1686	C0	10	18C5	3816		BT SDL250		GO TO ALPHA OUTPUT	1-5	
	168A	B8	10	00	3817		TBN @ZERO(,@XR),SDLMIN		MINUS SIGN ?		
	168D	F2	90	0A	3818		JF SDL010		NO		
	1690	3C	60	19E5	3819		MVI SDLSMN,@MINUS		SET ON MINUS SIGN INDICATOR		
	1694	7C	60	00	3820		MVI @ZERO(,@BR),@MINUS		MOVE MINUS SIGN		
	1697	D2	01	01	3821		LA @B1(,@BR),@BR		BUMP POINTER TO NEXT SPACE		
	169A	38	02	03D4	3822	SDL010	TBN \$INDR1,\$PRESN		SHORT PRECISION ?		
	169E	3C	03	189D	3823		MVI SDLCTR,SDLSRT-1		SET SHORT PREC CTR	1-3	
	16A2	F2	90	04	3824		JF SDL025		IF SHORT, JUMP OVER LONG	1-3	
	16A5	3C	07	189D	3825		MVI SDLCTR,SDLONG-1		SET LONG PREC CTR	1-3	

SDLIST -- LIST DATA FILES

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/06/21 PAGE 44
				16A9	3827	SDL025	EQU *	
					3828		ST SDLSAV,@BR	SAVE BEGINNING ADDRESS
N04	16AD	00 00 00 00			3829		MVX 0(SDLNLM,@BR),0(,@XR)	MOVE FIRST DIGIT
	16B1	7A F0 00			3830		SBN 0(,@BR),SDLEBC	SET ZONE MASK
	16B4	D2 01 01			3831		LA @B1(,@BR),@BR	ADVANCE OUTPUT PRINTER
	16B7	3C 87 16CA			3832		MVI SDL035+@Q,@UCB	SET SW -- VALUE = ZERO
	16BB	B9 0F 00			3833		TBF 0(,@XR),SDLDZR	LEADING ZERO ?
	16BE	F2 10 04			3834		JT SDL030	JUMP IF YES
	16C1	3C 80 16CA			3835		MVI SDL035+@Q,@NOP	ELSE, SET -- VALUE = NOT ZERO
	16C5	C0 87 1816			3836	SDL030	B SDL100	GET NEXT CHARACTER
	16C9	F2 00 0D			3837	SDL035	JC SDL037,*-*	JUMP IF VALUE = ZERO
P01	16CC	68 02 00 00			3838		MVX @ZERO(SDLZON,@BR),@ZERO(,@XR)	MOVE FIRST DIGIT
					3839		MVX @B1(SDLNUM,@BR,@ZERO(,@XR)	MOVE SECOND DIGIT
	16D0	7A F0 00			3840		SBN @ZERO(,@BR),SDLEBC	
	16D3	7A F0 01			3841		SBN @B1(,@BR),SDLEBC	TURN ON ZONE FOR DIGIT
	16D6	D2 01 02			3842		LA SDLTWO(,@BR),@BR	BUMP POINTER
	16D9	0F 00 189D 189B			3843	SDL037	SLC SDLCTR(@B1),SDLPL1	DECREMENT PRECISION COUNTER
	16DF	C0 01 16C5			3844		BNZ SDL030	NOT ZERO -- CONTINUE
	16E3	C0 87 1816			3845		B SDL100	BUMP @XR PAST EXPONENT
	16E7	3D 87 16CA			3846		CLI SDL035+@Q,@UCB	WAS VALUE OF THIS ITEM = ZERO ?
	16EB	F2 81 E6			3847		JE SDL066	YES -- EXIT
P01					3848		MVC SDLEXP(1)0(,@XR)	MOVE EXPONENT
N04	16EE	00 00 0000			3849	SDL040	A SDLMN1,@BR	REDUCE POINTER BY ONE
	16F2	7D F0 00			3850		CLI @ZERO(,@BR),SDLZRO	CHARACTER ZERO ?
	16F5	F2 01 07			3851		JNE SDL050	NO -- EXIT
N04	16F8	00 00 00			3852		MVI @ZERO(,@BR),@BLANK	BLANK OUT ZERO
	16FB	C0 87 16EE			3853		B SDL040	CONTINUE CHECKING

SDLIST -- LIST DATA FILES

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/06/21 PAGE 45
				16FF	3855	SDL050	EQU *	
	16FF	34 02	17D3		3856		ST SDL065+@OP1,@XR	SAVE INPUT POINTER
				17A4	3857		USING SDL060,@XR	INFORM ASSEMBLER
N04	1703	00 00	0000		3858		LA SDL060,@XRR	SET UP BASE
	1707	D2 01	01		3859		LA @B1(,@BR),@BR	BUMP INPUT POINTER
	170A	B4 01	EB		3860		ST SDLLST(,@XR),@BR	SAVE ENDING ADDRESS
	170D	BC 87	0E		3861		MVI SDL062+@Q(,@XR),@UCB	ASSUME VALUE > 1
	1710	B4 01	03		3862		ST SDL060+@OP1(,@XR),@BR	ONE POSITION TO THE RIGHT
	1713	B4 01	05		3863		ST SDL060+@OP2(,@XR),@BR	SET UP SHIFT FROM POSITION
N04	1716	00 00	00 00		3864		SLC SDL060+@OP2(1,@XR),SDLPI(,@XR)	REDUCE FOR MOVE
	171A	AC 01	09 F2		3865		MVC SDL061+@OP1(@CADDR,@XR),SDLSAV(,@XR)	SET POINT POSITION
	171E	AF 01	EB F2		3866		SLC SDLLST(@CADDR,@XR),SDLSAV(,@XR)	COMPUTE SIGNIFICANCE
	1722	AC 00	01 EB		3867		MVC SDL060+@Q(1,@XR),SDLLST(,@XR)	* OF DIGITS TO SHIFT
	1726	AF 00	01 F7		3868		SLC SDL060+@Q(1,@XR),SDLPL1(,@XR)	MANTISSE LENGTH
	172A	3D 80	1899		3869		CLI SDLEXP,SDLC80	CHECK EXPONENT
	172E	F2 84	17		3870		JH SDL053	INTEGER AND FRANCTION

SDLIST -- LIST DATA FILES

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/06/21	PAGE 46
					3872	*	THIS CODE HANDLES FRACTIONS	7F 123000	.0123	
				1731	3873	SDL052	EQU *	VARIABLE LABEL		
	1731	3C	80	189D	3874		MVI SDLCTR,SDLC80			
	1735	AF	00	F9 F5	3875		SLC SDLCTR(, @XR), SDLEXP(, @XR) COMPOTE EXCESS 10**0			
	1739	AE	00	03 F9	3876		ALC SDL060+@OP1(1, @XR), SDLCTR(, @XR) INCREASE SHIFT			
	173D	BC	80	0E	3877		MVI SDL062+@Q(, @XR), @NOP SET SWITCH			
	1740	AC	00	F5 F9	3878		MVC SDLEXP(@B1, @XR), SDLCTR(, @XR) MOVE EXPONENT			
	1744	C0	87	18AE	3879		B SDL200 GO CHECK PRECISION EXPONENT			
					1748	3880	SDL053 EQU *			
	1748	AF	00	F5 F8	3881		SLC SDLEXP(, @XR), SDLMOD(, @XR) COMPUTE EXPONENT MODULO 80			
N04	174C	00	00	00 00	3882		ALC \$DL061+@OP1(1, @XR), SDLEXP(, @XR) * POSTION OF POINT			
					1750	3883	SDL054 EQU *			
	1750	AF	00	01 F5	3884		SLC SDL060+@Q(1, @XR), SDLEXP(, @XR) * RIGHT FOR POINT			
	1754	AD	00	EB F5	3885		CLC SDLLST(1, @XR), SDLEXP(, @XR) CHECK SIGNIFICANCE EXPONENT			
	1758	F2	84	49	3886		JH SDL060 FIXED POINT			
N04	175B	00	00	00	3887		JE SDL069 INTEGER -- EYIT			
	175E	AE	01	EB EE	3889		ALC SDLLST(@CADDR, @XR), SDLPL2(, @XR) COMPUTE CHOICE POINT			
	1762	0D	00	188F 1899	3890		CLC SDLLST(@B1), SDLEXP			
	1768	F2	04	09	3891		JNH SDL055			
N04	176B	00	00	00	3892		MVI @ZERO(, @BR), SPLZRO SET LOW ORDER ZERO			
	176E	D2	01	01	3893		LA 1(, @BR), @BR ADJUST OUTPUT POINTER			
	1771	F2	87	5C	3894		J SDL065 EXIT			
	1774	7C	C5	00	3896	SDL055	MVI @ZERO(, @BR), SDLEXE MOVE E VALUE			
	1777	AF	00	F5 EB	3897		SLC SDLEXP(, @XR), SDLLST(, @XR) COMPUTE EXPONENT			
	177B	AE	00	F5 EE	3898		ALC SDLEXP(, @XR), SDLPL2(, @XR) ADJUST			
	177F	C2	02	1898	3899	SDL056	LA SDLCON, @XR SET UP INPUT			
	1783	C0	87	141D	3900		B C2DEC5 CONVERT TO EBCDIC			
	1787	3D	F0	145A	3901		CLI C2DVAL-1, SDLZRO ZERO ?			
	178B	F2	81	0B	3902		JE SDL057			
	178E	4C	01	02 145B	3903		MVC SDLTWO(@CADDR, @BR), C2DVAL MOVE 2 DIGITS			
	1793	D2	01	03	3904		LA SDLTHR(, @BR), @BR BUMP TO LAST ENTRY			
	1796	F2	87	37	3905		J SDL065 EXIT			
	1799	4C	00	01 145B	3907	SDL057	MVC @B1(@B1, @BR), C2DVAL MOVE 1 DIGIT			
	179E	D2	01	02	3908		LA SDLTWO(, @BR), @BR BUMP TO LAST ENTRY			
	17A1	F2	87	2C	3909		J SDL065 EXIT			

SDLIST -- LIST DATA FILES

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/06/21	PAGE 47
	17A4	0C	00 0000 0000		3911	SDL060	MVC *-*(@VQ), *-*			SHIFT RIGHT
	17AA	3C	4B 0000		3912	SDL061	MVI *-*,SDLPNT			SET DECIMAL POINT
	17AE	D2	01 01		3913		LA 1(,@BR),@BR			INCREMENT POINTER
	17B1	F2	00 1C		3914	SDL062	JC SDL065, *-*			GREATER THAN ONE -- JUMP
	17B4	B5	01 09		3915		L SDL061+@OP1(,@XR),@BR			PICK UP BEGIN ADDRESS
	17B7	D2	01 01		3916	SDL063	LA @B1(,@BR),@BR			BUMP TO NEXT POSITION
	17BA	BD	00 F5		3917		CLI SDLEXP(,@XR),@ZERO			HAVE ENOUGH 0 BEEN INSERTED ?
	17BD	F2	81 0A		3918		JE SDL064			YES -- EXIT
	17C0	7C	F0 00		3919		MVI 0(,@BR),SDLZRO			SET ZERO
	17C3	AF	00 F5 F7		3920		SLC SDLEXP(,@XR),SDLPL1(,@XR)			REDUCE EXPONENT
	17C7	E0	87 13		3921		B SDL063(,@XR)			CONTINUE
	17CA	B5	01 03		3922	SDL064	L SDL060+@OP1(,@XR),@BR			GET TO END OF DATA
	17CD	D2	01 01		3923		LA 1(,@BR),@BR			BUMP TO BLANK
	17D0	C2	02 0000		3924	SDL065	LA *-*,@XR			RESTORE INPUT POINTER
				17D4	3925	SDL066	EQU *			
	17D4	38	20 03D4		3926		TBN \$INDR1,\$PGMDT			PROGRAM GENERATED ?
	17D8	C0	10 1949		3927		BT SDL300			YES -- GO OUTPUT
	17DC	34	02 03C7		3928		ST \$XRSAB,@XR			SAVE POINTER FOR TEST
	17E0	0D	00 03C7 13B5		3929		CLC \$XRSAB,GRTEND			END OF LINE ?
	17E6	F2	82 08		3930		JL SDL075			CONTINUE EXECUTION
	17E9	34	01 1896		3931		ST SDLSAB,@BR			CURRENT POINTER
	17ED	C0	87 180A		3932		B SDL089			EXIT
				17F1	3933	SDL075	EQU *			
	17F1	7C	6B 00		3934		MVI @ZERO(,@BR),@COMMA			MOVE COMMA TO OUTPUT FIELD
	17F4	D2	01 01		3935		LA @B1(,@BR),@BR			BUMP OUTPUT POINTER
	17F7	34	01 1896		3936		ST SDLSAB,@BR			SAVE ADDRESS
	17FB	C0	87 1816		3937		B SDL100			GET NEXT CHARACTER
	17FF	C0	87 167F		3938		B SDL005			CHECK TYPE OF DATA
	1803	7C	F0 00		3939	SDL080	MVI @ZERO(,@BR),SDLZRO			SET TO ZERO
	1806	C0	87 17D4		3940		B SDL066			CONTINUE OUTPUT
	180A	C2	02 0000		3942	SDL089	LA *-*,@XR			RESTORE @XR
	180E	C2	01 0000		3943	SDL090	LA *-*,@BR			RESTORE BASE REGISTER
	1812	C0	87 0000		3944	SDL091	B *-*			RETURN

SDLIST -- LIST DATA FILES

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/06/21	PAGE 48
				1816	3946	SDL100	EQU *			GET NEXT CHARACTER
	1816	34 08	185B		3947		ST SDL105+@OP1,@ARR			SAVE RETURN ADDRESS
	181A	E2 02	01		3948		LA @B1(,@XR),@XR			INCREMENT POINTER
	181D	34 02	03C7		3949		ST \$XRSAB,@XR			SAVE CURRENT POINTER
	1821	0F 01	03C7 189F		3950		SLC \$XRSAB,SDLED@(@CADDR)			COMPUTE CURRENT BUFFER LENGTH
	1827	F2 01	2E		3951		JNZ SDL105			END OF BUFFER ?
	182A	C0 87	1200		3952		B DL4ICS			RETRIEVE DISK BLOCK
	182E	18A6		182F	3953		DC AL2(SDLDPL)			ADDRESS OF DPL
	1830	C0 87	0025		3954		B \$DISKN			SO ISSUE WAIT
	1834	057F		1835	3955		DC AL2(\$WAITF)			WAIT FUNCTION
	1836	C2 02	1B00		3956		LA GFIBF1,@XR			INPUT POINTER
	183A	0E 00	18A8 189B		3957		ALC SDLDPL+@DSAD(1),SDLPL1			BUMP SECTOR COUNT
	1840	38 20	03D4		3958	SDL102	TBN \$INDR1,\$PGMDT			PROGRAM GENERATED ? 1-2
	1844	F2 90	11		3959		JF SDL105			IF NOT, JUMP OVER EOS CHECK 1-2
	1847	BD 1C	00		3960		CLI 0(,@XR),@EOF			IS FIRST BYTE EOF ? 1-2
	184A	F2 01	0B		3961		JNE SDL105			IF NOT, JUMP TO CONTINUE 1-2
N04	184D	00 00	0000		3962		A SDLMN1,@BR			DECR POINTER OVER COMMA 1-2
	1851	BC 1C	01		3963		MVI 1(,@XR),@EOF			SET NEXT BYTE TO EOF ALSO 1-2
	1854	C0 00	1949		3964	SDL104	BC SDL300,*-*			GO OUTPUT -- FINISHED 1-3
	1855				3965		ORG SDL104+@Q			INIT 1-3
	1855	80		1855	3966		DC AL1(@NOP)			* TO NOP 1-3
	1858				3967		ORG *+2			1-3
	1858	C0 87	0000		3968	SDL105	B *-*			RETURN

SDLIST -- LIST DATA FILES

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/06/21	PAGE 49
				185C	3970	SDL150	EQU *			SDLIST OUTPUT INTERFACE
	185C	34 08	188D		3971		ST SDL180+@OP1,@ARR			SAVE RETURN ADDRESS
	1860	3D 02	0D57		3972		CLI KLIDVT,KLIMK1			CARD OUTPUT ONLY ?
	1864	F2 81	0D		3973		JE SDL170			YES, GO PUNCH CARDS
	1867	C0 87	1461		3974		B DLPRNT			PRINTER -- CRT INTERFACE
	186B	18A2		186C	3975		DC AL2(SDLPPL)			PRINTER PARAMETER LIST
	186D	38 02	0D57		3976	SDL160	TBN KLIDVT,KLIMK1			CARD OUTPUT ?
N04	1871	00 00	00		3977		JF SDLI80			NO -- CONTINUE
N04	1874	00 00	0000		3978	SDL170	B DCDOUT			GO OUTPUT CARD
	1878	18A2		1879	3979		DC AL2(SDLPPL)			PRINT PARAMETER LIST
N04	187A	00 00	0000		3980		B DCDOUT			ISSUE WAIT FUNCTION
	187E	057F		187F	3981		DC AL(@CADDR)(\$WAITF)			WAIT FUNCTION ADDRESS
N04	1880	00 00	0000		3982		MVI SDLBUF+KLICWD-1,@BLANK			SET BUFFER TO BLANKS - ONLY IF
N04	1884	00 00	0000 0000		3983		MVC SDLBUF+KLICWD-2,SDLBLF+KLICWD-1(KLICWD-2) *			PUNCHING
	188A	C0 87	0000		3984	SDL180	B *-*			RETURN

SDLIST -- LIST DATA FILES

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/06/21 PAGE 50
	188E		188F	3986	SDLLST DS	CL2	SAVE AREA FOR LENGTH
	1890		1890	3987	SDLACT DS	CL1	COUNT OF ALPHA CHARACTERS
	1891	0002	1892	3988	SDLPL2 DC	IL2'2'	PLUS 2
	1893	FFFF	1894	3989	SDLMNI DC	IL2'-1'	MINUS ONE
	1895		1896	3990	SDLSAV DS	CL2	BEGINNING OF DATA
	1897	0000	1898	3991	SDLCON DC	IL2'0'	HEADER FOR EXPONENT
	1899		1899	3992	SDLEXP DS	CL1	EXPONENT
	189A	0001	189B	3993	SDLPL1 DC	IL2'1'	PLUS ONE
	189C	80	189C	3994	SDLMOD DC	XL1'80'	MODULO FOR EXPONENT
	189D		189D	3995	SDLCTR DS	CL1	PRECISION INDICATOR
	189E	1C00	189F	3996	SDLED@ DC	AL(@CADDR)(GFIBF1+256)	END OF BUFFER (PGD)
N04	18A0	0000	18A1	3997	SDLOT@ DC	AL2(SDLBUF)	ADDRESS OF OUTPUT BUFFER
			00FD	3998	SDLED1 EQU	253	
			00FE	3999	SDLEND EQU	254	
			0012	4000	SDLC18 EQU	18	MAXIMUM COUNT
			007D	4001	SDLQUO EQU	X'7D'	QUOTE
			0C07	4002	SDLBF@ EQU	GRTEXT	LINE BUFFER ADDRESS
			0004	4003	SDLSRT EQU	4	SHORT PRECISION LENGN
			0010	4004	SDLMIN EQU	X'10'	STATUS BYTE MINUS SIGN
			0002	4005	SDLZON EQU	02	ZONE TO NUMERIC
			0006	4006	SDLBEG EQU	6	LENGTH OF SDF INFO
			0003	4007	SDLNUM EQU	03	NUMERIC TO NUMERIC
			00F0	4008	SDLEBC EQU	X'F0'	ZONED DECIMAL REPRESENTATION
			0002	4009	SDLTWO EQU	2	INCREMENT
			0008	4010	SDLONG EQU	8	LONG PRECISION
			000F	4011	SDLDZR EQU	X'0F'	MASK FOR LEADING ZERO
			00F0	4012	SDLZRO EQU	X'F0'	BITS OFF INDICATE ZERO DIGIT
			004B	4013	SDLPNT EQU	C'.'	DECIMAL POINT
			00C5	4014	SDLEXE EQU	C'E'	EXPONENT
			0003	4015	SDLTHR EQU	3	DISPLACEMENT OF THREE
			0080	4016	SDLC80 EQU	X'80'	10**0
			0004	4017	SDLFOR EQU	4	DISPLACEMENT OF FOUR
			00FF	4018	SDLMAX EQU	255	MAXIMUM LINE SIZE
			0032	4019	SDLLNG EQU	50	LENGTH OF SDF INFO
			0040	4020	SDLTYP EQU	X'40'	ALPHA INDICATOR
			0007	4021	SDLLNE EQU	7	BYPASS SDF INFO ET AL
			4022	*			
			4023	*DLPPL \$PPL	FUNC-@PRETR,CADDR-SDLBUF		
	18A2	C0	18A2	4024+	SDLPPL EQU	*	PRINTER PARAMETER LIST
	18A3	00	18A3	4025+	DC	AL1(@PRETR)	REQUESTED FUNCTION
	18A4	0000	18A4	4026+	DC	AL1(*-*)	SECTOR COUNT
N04	18A5	0000	18A5	4027+	DC	AL2(SDLBUF)	DATA ADDRESS
			4028+	***	END OF EXPANSION ***		
			4029	*			
			4030	*DLDPL \$DPL	FUNC-@DGET,DADDR-@WSTBL,CNT-SDLONE,CADDR-GFIBF1		
	18A6	01	18A6	4031+	SDLDPL EQU	*	DISK PARAMETER LIST
	18A7	0503	18A8	4032+	DC	AL1(@DGET)	REQUESTED FUNCTION
	18A9	01	18A9	4033+	DC	AL2(@WSTBL)	DISK ADDRESS
	18AA	1B00	18AB	4034+	DC	AL1(SDLONE)	SECTOR COUNT
			18AB	4035+	DC	AL2(GFIBF1)	BUFFER ADDRESS
			4036+	***	END OF EXPANSION ***		
			4037	*			
	18AC		0001	4038	SDLONE EQU	1	ONE
	18AC		18AD	4039	SDLWID DS	CL2	LOGICAL WIDTH
	18AC			4040	ORG	*-2	RESET LOCATION COUNTER
	18AC	0040	18AD	4041	DC	IL2'64'	INITIALIZE

SDLIST -- LIST DATA FILES

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/06/21	PAGE	51
		18AE	BD 02 F5	4043	SDL200	CLI	SDLEXP(,@XR),SDLTWO				EXP > TWO(2) = FLOATING
		18B1	E0 04 00	4044		BNH	SDL060(,@XR)				CHOOSE FIXED
		18B4	7C C5 00	4045		MVI	0(,@BR),SDLEXE				SET EXPONENT
N04	18B7	00 00 00		4046		MVI	I(,@BR),C'-'				SET MINUS SIGN
	18BA	AE 00 F5 EB		4047		ALC	SDLEXP(,@XR),SDLLST(,@XR)				VALUE FOR PRINTING
	18BE	D2 01 01		4048		LA	1(,@BR),@BR				PTR = PTR + 1;
	18C1	C0 87 177F		4049		B	SDL056				CONTINUE --

SDLIST -- LIST DATA FILES

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/06/21	PAGE 52
	18C5	3C	12	1890	18C5	4051	SDL250 EQU *			OUTPUT ALPHA STRINIS
						4052	MVI SDLACT,SDLC18			SET MAXIMUM LIMIT
						4053	* @BR - POINTS TO OUTPUT AREA			
						4054	* @XR - POINTS TO INPUT LINE BUFFER			
						4055	*			
N04	18C9	00	00	00		4056	MVI @ZERO(,@BR),SDLQUO			MOVE BEGINNING QUOTE
	18CC	D2	01	01		4057	LA @B1(,@BR),@BR			POINTER + 1 --> POINTER
	18CF	34	01	1915		4058	ST SDL270+@OP1,@BR			SAVE CURRENT LOCATION
	18D3	C0	87	1816		4059	SDL251 B SDL100			GET NEXT CHARACTER
	18D7	BD	40	00		4060	CLI @ZERO(,@XR),@BLANK			CHARACTER BLANK ?
	18DA	F2	01	3C		4061	JNE SDL280			NO
	18DD	BC	40	00		4062	MVI @ZERO(,@XR),@BLANK			MOVE A BLANK TO BUFFER
	18E0	D2	01	01		4063	LA @B1(,@BR),@BR			POINTER + 1 --> POINTER
	18E3	0F	00	1890 189B		4064	SLC SDLACT(@B1),SDLPL1			DECREMENT COUNT
	18E9	F2	81	26		4065	JZ SDL270			EXIT
N04	18EC	00	00	0000		4066	B SDL291			CONTINUE
	18F0	C0	87	1816		4067	SDL255 B SDL100			AT NEXT CHARACTER
P01						4068	CLI @ZERO(,@XR),@BLANK			CHARACTER BLANK
	18F4	F2	01	22		4069	JNE SDL280			LEAVE SWITCH ON
	18F7	F2	00	08		4070	SDL256 JC SDL257,*-*			SWITCH
	18FA	34	01	1915		4071	ST SDL270+@OP1,@BR			SAVE CURRENT ADDRESS
	18FE	3C	87	18F8		4072	MVI SDL256+@Q,@UCB			SET SWITCH ON
	1902	7C	40	00		4073	SDL257 MVI @ZERO(,@BR),@BLANK			MOVE A BLANK TO BUFFER
	1905	D2	01	01		4074	LA @B1(,@BR),@BR			POINTER + 1 --> POINTER
	1908	0F	00	1890 189B		4075	SLC SDLACT(@B1),SDLPL1			DECREMENT COUNT
	190E	C0	01	18F0		4076	BNZ SDL255			CONTINUE
	1912	C2	01	0000		4077	SDL270 LA *-*,@BR			RESTORE POINTER
	1916	F2	87	25		4078	J SDL285			GO TO WINDUP
					1919	4079	SDL280 EQU *			
	1919	3C	80	18F8		4080	MVI SDL256+@Q,@NOP			TURN SWITCH FOR OFR
	191D	6C	00	00 00		4081	MVC @ZERO(@B1,@BR),@ZERO(,@XR)			MOVE CHARACTER TO OUTPUT
	1921	D2	01	01		4082	LA @B1(,@BR),@BR			BUMP POINTER
	1924	0F	00	1890 189B		4083	SLC SDLACT(@B1),SDLPL1			DECREMENT COUNT
	192A	BD	7D	00		4084	CLI @ZERO(,@XR),SDLQUO			CHARACTER QUOTE ?
	192D	F2	01	06		4085	JNE SDL281			NO --
	1930	7C	7D	00		4086	MVI @ZERO(,@B1),SDLQUO			MOVE QUOTE
	1933	D2	01	01		4087	LA @B1(,@BR),@BR			BUMP POINTER
	1936	3D	00	1890		4088	SDL281 CLI SDLACT,@ZERO			COUNT EQUAL ZERO ?
	193A	C0	01	18F0		4089	BNE SDL255			NO -- CONTINUE
	193E	7C	7D	00		4090	SDL285 MVI @ZERO(,@BR),SDLQUO			MOVE ENDING QUOTE
	1941	D2	01	01		4091	LA @B1(,@BR),@BR			BUMP COUNTER
	1944	C0	87	17D4		4092	B SDL066			GO CHECK FILE TYPE

SDLIST -- LIST DATA FILES

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/06/21 PAGE 53
				4094	*			
				4095	*		PROGRAM GENERATED FILES	
				4096	*			
	1948			1948	4097	DS	CL1	EOS FOR SLLINE
				1949	4098	SDL300 EQU	*	HANDLE OUT PGM GENERATED LINE
P01	1949	34	01	19E7	4099	ST	SDLWRK,@BR	SAVE CURRENT POSITION
	194D	0D	01	19E7	4100	SLC	SDLWRK(@CADDR)SDLOT@	COMPUTE CURRENT LENGTH
	1953	F2	04	4A	4101	CLC	SDLWRK(@CADDR),SDLWID	GREATER THAN LOGICAL WIDTH ?
	1956	34	01	19E7	4102	JNH	SDL340	CONTINUE -- CONVERSION
	195A	3D	00	19E5	4103	ST	SDLWRK,@BR	COMPUTE CURRENT POSITION
	195E	F2	81	06	4104	CLI	SDLSMN,@ZERO	MINUS SIGN INDICATOR ON ?
	1961	0E	00	19E7	4105	JE	SDL305	NO -- GO COMPUTE LENGTH
	1967	0F	01	19E7	4106	ALC	SDLWRK(1),SDLPL1	INCR NUMBER OF PLACES BY ONE
	196D	0C	00	1980	4107	SDL305 SLC	SDLWRK(@CADDR),SDLSAV	COMPUTE LENGTH
	1973	0C	00	199C	4108	MVC	SDL310+@Q(1),SDLWRK	SET-UP LENGTH
	1979	0C	00	198C	4109	MVC	SDL330+@Q(1),SDLWRK	*
	197F	1C	00	12B1	4110	MVC	SDL320+@Q(1),SDLWRK	SET UP LENGTH
N04	1984	00	00	0000	4111	SDL310 MVC	SDLHLD(1),0(,@BR)	MOVE OVERFLOW
	1988	7C	40	01	4112	A	SDLMN1,@BR	DECREMENT POINTER
	198B	5C	00	00	4113	MVI	1(,@BR),@BLANK	SET BLANK
	198F	C0	87	185C	4114	SDL320 MVC	0(@VQ,@BR),1(,@BR)	SET FIELD TO BLANKS
N04	1993	00	00	0000	4115	B	SDL150	OUTPUT LINE
	1997	36	01	19E7	4116	LA	SDLBUF,@BR	BEGINNING OF BUFFER
	199B	4C	00	00	4117	A	SDLWRK,@BR	INDEX INTO BUFFER
	19A0	BD	1C	01	4118	SDL330 MVC	0(@VQ,@BR),SDLHLD	MOVE FIELD TO BUFFER
	19A3	C0	01	17F1	4119	SDL340 CLI	1(,@XR),@EOF	END OF FILE ?
	19A7	0C	00	18A3	4120	BNE	SDL075	NO -- CONTINUE
	19AD	C0	87	185C	4121	MVC	SDLPPL+@PRCNT,SDLWRK	SET PPL LENGTH
	19B1	C0	87	180A	4122	B	SDL150	OUTPUT DATA
				19B5	4123	B	SDL089	EXIT --
	19B5	34	08	1815	4124	SDLPGM EQU	*	PGM DATA FILE ENTRY POINT
	19B9	C2	02	1BFF	4125	ST	SDL091+@OP1,@ARR	SAVE RETURN ADDRESS
	19BD	C0	87	1816	4126	LA	GFIBF1+255,@XR	INITIALIZATION VALUE
	19C1	3C	87	1855	4127	B	SDL100	INITIALIZE BUFFER
	19C5	3C	00	1C00	4128	MVI	SDL104+@Q,@UCB	SET BC AFTER FIRST TIME 1-3
	19C9	BD	1C	00	4129	MVI	GFIBF1+@SCTS@ZERO	SET BUFFER END + 1 = 0 1-3
	19CC	F2	01	08	4130	CLI	@ZERO(,@XR),@EOF	TEST FOR AN EMPTY FILE ?
N04	19CF	00	00	0000	4131	JNE	SDL345	BR IF NOT EMPTY FILE
	19D3	C0	87	0469	4132	MVI	SCAERR,@E226	SET EMPTY FILE ERROR MSG #
N04	19D7	00	00	0000	4133	B	\$CAERK	BR TO ERROR ROUTINE
	19DB	0C	00	18A3	4134	SDL345 LA	SDLBUF,@BR	SET-UP OUTPUT ADDRESS
	19E1	C0	87	167F	4135	MVC	SDLPPL+@PRCNT,SDLWID	SET FINAL WIDTH
					4136	B	SDL005	GO -- CONTINUE
				12B1	4138	SDLHLD EQU	GRABIT+50	LINE OVERFLOW AREA
	19E5			19E5	4139	SDLSMN DS	XL1	IND FOR MINUS SIGN, X'60' --> ON
	19E6			19E7	4140	SDLWRK DS	CL2	COMPUTED LINE LENGTH

SDLIST -- LIST DATA FILES

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/06/21	PAGE 54
4142				*****			
4143	*	5703-XM1		COPYRIGHT IBM CORP. 1970			*
4144	*			REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083			*
4145	*						*
4146				*****			
4147	*			*STATUS			*
4148	*			VERSION 1 MODIFICATION 0			*
4149	*						*
4150	*			*FUNCTION			*
4151	*			SCKOUT, ENTERED AT SCKOUT, WILL CHECK THE NEXT PARAMETER FOR THE			*
4152	*			'CRT' OR 'PRINTER' PARAMETER AND SET THE APPROPRIATE INDICATORS			*
4153	*			FOR DLPRNT. SCKOUT, ENTERED AT SCKDEV, WILL TEST THE NUCLEUS			*
4154	*			INDICATORS FOR THE SPECIFIED OUTPUT DEVICE AND, IF NO ERRORS ARE			*
4155	*			FOUND, WILL RETURN TO THE USER WITH THE APPROPRIATE OUTPUT DEVICE			*
4156	*			READY.			*
4157	*						*
4158	*			*ENTRY POINTS			*
4159	*			SCKOUT HAS THE FOLLOWING TWO ENTRY POINTS:			*
4160	*			* SCKOUT - ENTRY TO CHECK THE NEXT PARAMETER FOR THE 'CRT' OR			*
4161	*			'PRINTER' SPECIFICATION			*
4162	*			* SCKDEV - ENTRY TO CHECK AND MAKE READY THE SPECIFIED OUTPUT			*
4163	*			DEVICE.			*
4164	*						*
4165	*			*INPUT			*
4166	*			INPUT TO SCKOUT (ENTRY POINT SCKOUT) IS THE INPUT LINE BUFF WITH			*
4167	*			@XR POINTING TO THE FIRST CHARACTER TO BE TESTED. THERE IS NO			*
4168	*			INPUT TO SCKOUT AT ENTRY POINT SCKDEV.			*
4169	*						*
4170	*			*OUTPUT			*
4171	*			THERE IS NO OUTPUT FROM SCKOUT.			*
4172	*						*
4173	*			*EXTERNAL REFERENCES			*
4174	*			* SCANIT - ENTRY TO DELIMITER SCAN ROUTINE			*
4175	*			* SCAMMA - SCANIT INDICATOR SET TO ALLOW A COMMA			*
4176	*			* \$CAERR - ERROR CODE SAVE AREA			*
4177	*			* \$CAERK - EXIT TO LOAD #ERRPG, THE ERROR PROGRAM			*
4178	*			* DLPTYP - DLPRNT INDICATOR FOR OUTPUT DEVICE			*
4179	*			* \$IOIND - NUCLEUS INDICATOR WHICH TELLS WHETHER OR NOT THE			*
4180	*			PRINTER IS DOWN (\$MPDWN) AND WHETHER OR NOT THE CRT IS PRESENT			*
4181	*			ON THE SYSTEM (\$CRTAV), AND CONTAINS THE COMMAND KEYS ONLY IND			*
4182	*			* \$KEYCD - NUCLEUS INDICATOR TO GIVE INPUT MODE			*
4183	*			* \$CRTIN - NUCLEUS INDICATOR CONCERNING CRT			*
4184	*			* \$EXFTR - CORE EXPANSION FACTOR			*
4185	*			* \$\$PYCD - ENTRY TO CLEAR CRT AND LIGHT COMMAND INDICATORS			*
4186	*			* \$\$PRES - ENTRY TO ENABLE KEYBOARD TO DEPRESS			*
4187	*						*
4188	*			*EXIT, NORMAL			*
4189	*			NORMAL EXIT FROM SCKOUT (AT BOTH ENTRY POINTS) IS TO THE BYTE			*
4190	*			FOLLOWING THE BRANCH TO SCKOUT OR SCKDEV. UPON EXIT FROM SCKOUT,			*
4191	*			THE PSR WILL BE SET HIGH TO INDICATE A VALID PARAMETER AND ZERO			*
4192	*			TO INDICATE THAT NEITHER 'CRT' NOR 'PRINTER' WAS FOUND. IF			*
4193	*			SCKDEV RETURNS TO THE BYTE FOLLOWING THE BRANCH, THIS INDICATES			*
4194	*			THAT NO ERRORS ARE ENCOUNTERED.			*
4195	*						*
4196	*			*EXIT, ERROR			*
4197	*			ERROR EXIT FROM SCKOUT (ENTRY POINT SCKOUT) IS TO THE BYTE			*

SDLIST -- LIST DATA FILES

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/06/21 PAGE 55
4198	*			FOLLOWING THE BRANCH TO SCKOUT, WITH THE ERR CODE SET IN \$CAERR,	*
4199	*			THE PSR SET LOW, AND QXR POINTING TO THE FIRST INVALID CHARACTER.	*
4200	*			ERROR EXIT FROM SCKOUT (ENTRY PT SCKDEV) IS TO THE USER-DEFINED	*
4201	*			LABEL, SCKERR, WITH THE ERROR CODE SET IN \$CAERR AND @XR POINTS	*
4202	*			OUTSIDE THE INPUT LINE BUFFER (USER VALUE DESTROYED).	*
4203	*				*
4204	*			*TABLES/WORKAREAS	*
4205	*			NONE	*
4206	*				*
4207	*			*ATTRIBUTES	*
4208	*			RELOCATABLE AND RE-ENTERABLE	*
4209	*				*
4210	*			*CHARACTER CODE DEPENDENCY	*
4211	*			NONE	*
4212	*				*
4213	*			*NOTES	*
4214	*			ERROR PROCEDURES	*
4215	*			UPON DETECTING AN ERROR, SCKOUT SETS THE APPROPRIATE ERR CODE	*
4216	*			IN \$CAERR AND RETURNS EITHER TO THE BYTE FOLLOWING THE BRANCH	*
4217	*			TO SCKOUT OR TO THE USER-DEFINED LABEL, SCKERR.	*
4218	*				*
4219	*			REGISTER USAGE	*
4220	*			REGISTER 2 (@XR) IS USED TO SCAN ACROSS THE INPUT LINE BUFFER.	*
4221	*			REGISTER 4 (@PSR) IS SET TO INDICATE THE CONDITION FOUND IN	*
4222	*			SCKOUT (ENTRY POINT SCKOUT).	*
4223	*				*
4224	*			SAVED/RESTORED AREAS	*
4225	*			NONE	*
4226	*				*
4227	*			MODIFICATION CONSIDERATIONS	*
4228	*			NONE	*
4229	*				*
4230	*			REQUIRED MODULES	*
4231	*			* @SYSEQ - COMMON SYSTEM EQUATES	*
4232	*			* @FXDEQ - FIXED CORE LOCATIONS INSIDE NUCLEUS	*
4233	*			* @ERMEQ - ERROR MESSAGE EQUATES (SELECTED ERROR CODES)	*
4234	*			* @CANEQ - FIXED CORE LOCATIONS OUTSIDE NUCLEUS	*
4235	*			* \$SCANIT - DELIMITER SCAN ROUTINE	*
4236	*			* DLPRNT - ROUTINE TO PRINT THE CURRENT LINE	*
4237	*				*
4238	*			OTHER	*
4239	*			NONE	*
4240	*				*
4241	*			*****	*

SDLIST -- LIST DATA FILES

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/06/21 PAGE 56
				19E8	4243	SCKOUT	EQU *	BEGINNING OF SCKOUT SUBROUTINE
N04	19E8	00 00 0000			4244	ST	SCK46+@OP1,@ARR	SAVE RETURN ADDRESS
N04	19EC	00 00 0000			4245	ST	SCK44+@OP1,@XRR	SAVE XR POINTER
	19F0	3C 01 1C57			4246	MVI	SCAMMA,SCACOM	SET SCANIT INDR TO ALLOW COMMA
					4247	*		
					4248	*	TEST FOR 'CRT' OR 'PRINTER'	
					4249	*		
N04	19F4	00 00 00 0000			4250	CLC	SCK001-1(SCK001,@XR),SCKCCR	IS 'CRT' SPECIFIED ?
	19F9	F2 81 0F			4251	JE	SCK100	YES, PROCESS CRT PARAMETER
					4252	*		
	19FC	8D 06 06 1A7D			4253	CLC	SCK002-1(SCK002,@XR),SCKCMP	IS 'PRINTER' SPECIFIED ?
	1A01	F2 81 11			4254	JE	SCK150	YES, PROCESS 'PRINTER' PARAM
					4255	*		
					4256	*	NEITHER CRT NOR PRINTER SPECIFIED	
					4257	*		
	1A04	35 04 1A7F			4258	L	SCK003,@PSR	SET PSR TO BRANCH ZERO
	1A08	F2 87 61			4259	J	SCK450	BRANCH TO RETURN
					4260	*		
					4261	*	CALL SCANIT AND CHECK DELIMITER AFTER PARAM	
					4262	*		
	1A0B	3C 87 1A2A			4263	SCK100 MVI	SCK300+@Q,@UCB	SET SW TO PROCESS 'CRT'
	1A0F	E2 02 03			4264	LA	SCK001(,@XR),@XR	INDR XR PAST 'CRT'
	1A12	F2 87 03			4265	J	SCK200	JUMP TO CALL SCANIT
					4266	*		
	1A15	E2 02 07			4267	SCK150 LA	SCK002(,@XR),@XR	INCR XR PAST 'PRINTER'
					4268	*		
	1A18	C0 87 1C3A			4269	SCK200 B	SCANIT	BYPASS BLANKS AND A COMMA
	1A1C	C0 82 0469			4270	BL	\$CAERK	CALL ERR PROG IF DANGLING COMMA
	1A20	F2 84 06			4271	JH	SCK300	IF CHARS SCANNED, SET DLPRNT SW
					4272	*		
	1A23	BD 1E 00			4273	CLI	@ZERO(,@XR),@EOS	ELSE, IS PARAM FOLLOWED BY EOS ?
	1A26	F2 01 29			4274	JNE	SCK410	NO, SET 'INV PARAM' ERROR
					4275	*		
	1A29	F2 80 0D			4276	SCK300 JC	SCK350,@NOP	NOP IF PRINTER -- UCB IF CRT
					4277	*		
					4278	*	PRINTER SPECIFIED	
					4279	*		
P02					4280	CLI	DLPTYP DLPCRT	WAS CRT SPECIFIED BEFORE ?
	1A2C	F2 81 2A			4281	JE	SCK420	YES, SET 'CONFLICTING PARAM' ERR
					4282	*		
P02					4283	CLI	DLPTYP DLPMPR	WAS PRINTER SPECIFIED BEFORE ?
	1A2F	F2 81 2E			4284	JE	SCK430	YES, SET 'DUPLICATING PARAM' ERR
					4285	*		
	1A32	3C 85 148B			4286	MVI	DLPTYP,DLPMPR	SET SW FOR MATRIX PRINTER
	1A36	F2 87 12			4287	J	SCK400	RETURN TO CALLING PROS
					4288	*		
					4289	*	CRT SPECIFIED	
					4290	*		
	1A39	3D 1B 148B			4291	SCK350 CLI	DLPTYP,DLPCRT	WAS CRT SPECIFIED BEFORE
	1A3D	F2 81 20			4292	JE	SCK430	YES SET 'DUPLICATE PARAM' ERR
					4293	*		
	1A40	3D 85 148B			4294	CLI	DLPTYP,DLPMPR	WAS PRINTER SPECIFIED BEFORE ?
	1A44	F2 81 12			4295	JE	SCK420	YES, SET 'CONFLICTING PARAM' ERR
					4296	*		
	1A47	3C 1B 148B			4297	MVI	DLPTYP,DLPCRT	SET SW FOR CRT
N04	1A4B	00 00 0000			4298	SCK400 L	SCK304,@PSR	SET SW FOR BRANCH HIGH

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/06/21 PAGE 57
	1A4F	F2	87	1A	4299	J	SCK450	RETURN TO CALLING PROGRAM
					4300	*		
					4301	*	SET ERROR CODES	
					4302	*		
N04	1A52	00	00	0000	4303	SCK410 MVI	SCAERQ,@@E131	SET 'INV PARAM' ERROR CODE
	1A56	F2	87	0B	4304	J	SCK440	RETURN
					4305	*		
N04	1A59	00	00	0000	4306	SCK420 MVI	ICAERR,@@E136	SET 'CONFLICTING PARAM' ERR CODE
	1A5D	F2	87	04	4307	J	SCK440	RETURN
					4308	*		
N04	1A60	00	00	0000	4309	SCK430 MVI	ICAERR,@@E134	SET 'DUPLICATE PARAM' ERR CODE
					4310	*		
	1A64	C2	02	0000	4311	SCK440 LA	*-*,@XR	RESTORE XR VALUE
	1A68	35	04	1A83	4312	L	SCK005,@PSR	SET PSR TO BL TO IND ERROR
					4313	*		
					4314	*	EXIT	
					4315	*		
	1A6C	3C	80	1A2A	4316	SCK450 MVI	SCK300+@Q,@NOP	SET CRT OR POINTER INDR OFF
	1A70	C0	87	0000	4317	SCK460 B	*-*	RETURN TO CALLING PROGRAM
					4318	*		
					4319	*	EQUATES USED IN SCKOUT	
					4320	*		
				0003	4321	SCK001 EQU	3	LENGTH OF 'CRT' PARAMETER
				0007	4322	SCK002 EQU	7	LENGTH OF 'PRINTER' PARAMETER
					4323	*		
					4324	*	CONSTANTS USED IN SCOUT	
					4325	*		
	1A74	C3D9E3		1A76	4326	SCKCFR DC	CL(SCK001)'CRT'	CRT PARAMETER IMAGE
	1A77	D7D9C9D5E3C5D9		1A7D	4327	SCKCMP DC	CL(SCK002)'PRINTER'	PRINTER PARAMETER IMAGE
	1A7E	0081		1A7F	4328	SCK003 DC	XL2'81'	PRINTER CODE FOR BRANCN ON ZERO
	1A80	0084		1A81	4329	SCK004 DC	XL2'84'	PSR CODE FOR BRANCH HIGH
	1A82	0082		1A83	4330	SCK005 DC	XL2'82'	PSR CODE FOR BRANCH LOW
					4331	*		
				1A84	4332	SCKDEV EQU	*	PORTION OF SCKOUT TO READY CRT
	1A84	34	08	1ADA	4333	ST	SCK650+@OP1,@ARR	SAVE RETURN ADDRESS
	1A88	3C	01	03D3	4334	MVI	\$CRTIN,\$CRTUP	SET CRT IN ROLL-UP MODE
					4335	*		
	1A8C	3D	1B	148B	4336	CLI	DLPTYP,DLPCRT	WAS CRT THE SPECIFIED PARAMETER
	1A90	F2	81	15	4337	JE	SCK475	YES, CHECK FOR ITS EXISTENCE
					4338	*		
	1A93	3D	85	148B	4339	CLI	DLPTYP,DLPMPR	ELSE, WAS PRINTER SPECIFIED
	1A97	F2	01	3D	4340	JNE	SCK650	NO, RETURN TO USER
					4341	*		
	1A9A	38	01	03D2	4342	TBN	\$IOIND,\$MPDWN	ELSE, IS PRINTER DOWN?
	1A9E	F2	90	36	4343	JF	SCK650	NO, RETURN TO USER
					4344	*		
	1AA1	3C	96	03CD	4345	MVI	\$CAERR,@@E549	SET ERR CODE FOR PRINTER DOWN
	1AA5	F2	87	15	4346	J	SCK550	DESTROY YR AND EXIT
					4347	*		
	1AA8	38	02	03D2	4348	SCK475 TBN	\$IOIND,\$CRTAV	IS CRT ON THE SYSTEM ?
	1AAC	F2	90	0A	4349	JF	SCK500	NO, SET ERROR CODE
					4350	*		
	1AAF	38	01	03C3	4351	TBN	\$KEYCD,\$CARDI	IS CRT SPECIFIED FROM CARDS?
	1AB3	F2	90	0F	4352	JF	SCK600	IF NOT, SKIP ERROR ROUTINE
					4353	*		
P02					4354	MVI	SCAERRODOE248	SET ERROR CODE - 'CRT SPECIFIED

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/06/21	PAGE 58
		1AB6	F2 87 04		4355	*	* WHEN I/O IS FROM CARD READER'			
					4356	J	SCK550			SET PSR AND EAT
					4357	*				
		1AB9	3C 38 03CD		4358	SCK500 MVI	\$CAERR,@E241			SET ERR CODE-CRT NOT ON SYSTEM
					4359	*				
		1ABD	C2 02 1A84		4360	SCK550 LA	SCKDEV,@XR			INCR XR TO AVOID SYNTAX ERROR
N04		1AC1	00 00 0000		4361	B	SCKERR			RETURN TO CALLING PROGRAM
					4362	*				
					4363	*	READY CRT			
					4364	*				
		1AC5	3A 08 03D2		4365	SCK600 SBN	\$IOIND,\$CMDKY			SET CMND KEYS ONLY INDR ON
					4366	*				SCKCL LITE
P01					4367	SCKCL0 ALC	SCKCLI4ODI(IA,1EVFTR			CALCULATE ENTRY ADDRESS
N04		1AC9	00 00 0000		4368	SCKCL1 B	ISPYCD			CLEAR CRT / LIGHT CMND INDRS
N04		1ACD	00 00 0000 0000		4369	SLC	SCKCLI+001(1),SEYFTR			INITIALIZE ENTRY ADDRESS
		1AD3	C0 87 0890		4371	B	\$\$PRES			ENABLE KEYBOARD ENTRY TO DEDRES
					4372	*				
		1AD7	C0 87 0000		4373	SCK650 B	*-*			RETURN TO CALLING PROGRAM
				1ADB	4374	SCKEND EQU	*			END OF ROUTINE
					4375	*				
N04					4376	ORG	\$CKOUT			OVERLAY UNUSED PORTION
					4377	*****				
					4378	* 5703-XM1	COPYRIGHT IBM CORP. 1970			*
					4379	*	REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083			*
					4380	*				*
					4381	*****				
					4382	*STATUS				*
					4383	* VERSION 1 MODIFICATION 0				*
					4384	*				*
					4385	*FUNCTION				*
					4386	* GFINDN IS DESIGNED FOR USE WITH GRABIT IN ACCESSING A GIVEN LINE				*
					4387	* IN THE WORK FILE. THE LINE NUMBER SUPPLIED TO GFILNO IS SEARCHED				*
					4388	* ON THROUGH THE FIT. THE DB CONTAINING THIS NUMBER ALONG WITH				*
					4389	* THE NEXT LOGICAL DB ARE READ INTO CORE, AND GRABIT IS INITIALIZED				*
					4390	* AU CALLED. CONTROL IS THEN RETURNED TO THE CALLING PROGRAM.				*
					4391	*				*
					4392	*ENTRY POINTS				*
					4393	* GFINDN - ENTERED VIA A BRANCH. GFILNO MUST BE PRIMED WITH THE				*
					4394	* LINE NUMBER TO BE SEARCHED FOR.				*
					4395	*				*
					4396	*INPUT				*
					4397	* INPUT TO GFINDN IS THE LINE NUMBER SUPPLIED INTO GEILNO FOR THE				*
					4398	* SEARCH TO BE MADE.				*
					4399	*				*
					4400	*OUTPUT				*
					4401	* OUTPUT IS THE PRIMED BUFFERS FOR GRABIT, WHICH CONTAIN THE DB				*
					4402	* WHICH CONTAINS THE SPECIFIED LINE NUMBER AND THE NEXT LOGICAL				*
					4403	* DB. (DATA BLOCK)				*
					4404	*				*
					4405	*EXTERNAL REFERENCES				*
					4406	* \$\$FITS - CORE ADDRESS OF THE FILE INDEX TABLE (FIT)				*
					4407	* DL4ICS - FOUR TRACK LOGICAL DISK IOCS				*
					4408	* GRABIT - DISK FILE LINE RETRIEVER				*
					4409	* GRSRDA - DADDR SAVE AREA PRIMED FOR GRABIT				*
					4410	* GRWHAT - GRABIT INDR				*

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/06/21	PAGE 59
		4411	*	GRAFRA - BUFFER ADDR FOR GRABIT			*
		4412	*				*
		4413	*	*EXITS, NORMAL			*
		4414	*	NEXT SEQUENTIAL INSTRUCTION AFTER CALL FROM USING PROGRAM.			*
		4415	*				*
		4416	*	*EXITS, ERROR			*
		4417	*	N/A			*
		4418	*				*
		4419	*	*TABLES/WORK AREAS			*
		4420	*	WORK AREAS AND DPL'S ARE LOCATED AT END OF MODULE.			*
		4421	*				*
		4422	*	*ATTRIBUTES			*
		4423	*	REUSABLE			*
		4424	*				*
		4425	*	*CHARACTER CODE DEPMENCY			*
		4426	*	CHARACTER CODE DEPENDENCY CLASS - A			*
		4427	*	THE OPERATION OF THIS MOMLE DOES NOT DEPEND UPON A PAATICULAO			*
		4428	*	INTERNAL REPRESENTATION OR THE EXTERNAL CNANATTEN SET.			*
		4429	*				*
		4430	*	*NOTES			*
		4431	*	ERROR PROCEDURES			*
		4432	*	N/A			*
		4433	*				*
		4434	*	REGISTER USAGE			*
		4435	*	INDEX REGISTER 1 (@BR) IS SAVED AND RESTORED AND USED AS A			*
		4436	*	BASE REGISTER DURING EXECUTION. INDEX REGISTER 2 (@XR) IS			*
		4437	*	NOT SAVED OR RESTORED BUT IT IS USED TO INDEX THROUGH FIT			*
		4438	*	IT SEARCHING FOR LINE NUMBER.			*
		4439	*				*
		4440	*	SAVED/RESTORED AREAS			*
		4441	*	N/A			*
		4442	*				*
		4443	*	MODIFICATION CONSIDERATIONS			*
		4444	*	\$FINDN IS INTERDEPENDENT WITH GRABIT (IE. WHEN PRIMING			*
		4445	*	SPECIFIC FIELDS IN GRABIT). ALSO, NOTE 'OTHER'.			*
		4446	*				*
		4447	*	REQUIRED MODULES			*
		4448	*	@SYSEQ - COMMON SYSTEM SOFTWARE EQUATES			*
		4449	*	@CANEQ - COMMON CORE LOCATION EQUATES OUTSIDE NUCLEUS			*
		4450	*	DL4ICS - FOUR TRACK LOGICAL DISK IOCS			*
		4451	*	GRABIT - FILE LINE RETRIEVER			*
		4452	*				*
		4453	*	OTHER			*
		4454	*	GFINDN CAN BE FORCED TO DETECT THAT FIT DB'S ARE NEVER CON-			*
		4455	*	TIGUOUS BY MOVING A @NOP TO LABEL GFI200 PLUS @Q.			*
		4456	*				*
		4457	*	*****			*

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/06/21	PAGE 60
		4459		*****			
		4460		*			*
		4461		* GFINON MODULE EQUATES			*
		4462		*			*
		4463		*****			
		0001	4465	GFICT1 EQU 1		COUNT CODE 1	
		0002	4466	GFICT2 EQU 2		COUNT CODE 2	
			4467	*			
		0000	4468	GFIDS0 EQU 0		DISPLACEMENT OF 0	
		0001	4469	GFIDS1 EQU 1		DISPLACEMENT OF 1	
		0002	4470	GFIDS2 EQU 2		DISPLACEMENT OF 2	
		0003	4471	GFIDS3 EQU 3		DISPLACEMENT OF 3	
		0004	4472	GFIDS4 EQU 4		DISPLACEMENT OF 4	
		0005	4473	GFIDS5 EQU 5		DISPLACEMENT OF 5	
		0008	4474	GFIDS8 EQU 8		DISPLACEMENT OF 8	
			4475	*			
		0001	4476	GFILN1 EQU 1		LENGTH CODE 1	
		0002	4477	GFILN2 EQU 2		LENGTH OF 2	
			4478	*			
		1B00	4479	GFIFR1 EQU GFIBF1		ADDR OF FIRST CORE BUFFER	
			4480	*			
		1D00	4481	GFITAD EQU \$\$FITS		ADDR OF FIT IN CORE	
			4482	*			
		1D08	4483	GFINTY EQU GFITAD+GFIDS8		ADDR FIRST ENTRY IN FIT	
			4484	*			
		0003	4485	GFIDTA EQU 3		ADDR FIRST FIT DATA SECTOR	
			4486	*			
		4487		*****			

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/06/21	PAGE 61
					4489	*****	*****			
					4490	*				*
					4491	*	INIT REGS FOR GCLEAR AND SAVE REGS FOR CALLING ROUTINE			*
					4492	*				*
					4493	*****	*****			
					4494	*				
					4495	*GFINDN ENTER BASE=GFIBSE,EXIT=GFIND,@BR,@ARR				
				1AE6	4496	USING GFIBSE,@BR	BASE ADDRESS SPECIFICATION			
				1ADB	4497	GFINDN EQU *	MODULE ENTRY POINT			
					4498	ST GFIND0+@OP1,@BR	SAVE @BR			
					4499	LA GFIBSE,@BR	LOAD BASE REGISTER			
N04	1AE3	00	00	00	4500	ST GFIND2+@OP(,@BR),@ARR	SAVE RETURN ADDRESS			
					4502	*				
					4503	*	SEARCH FILE INDEX TABLE FOR NUMBER IN GFLINO			
					4504	*				
				1AE6	4505	GFIBSE EQU *				
	1AE6	C2	02	1D08	4506	LA GFINTY,@XR	LOAD XR WITH ADDR OF FIRST			
					4507	*	* ENTRY IN FIT			
	1AEA	E2	02	04	4508	GFI100 LA GFIDS4(,@XR),@XR	INDEX TO NEXT FIT ENTRY			
					4509	*				
	1AED	9D	01	02	51	4510	GFI150 CLC GFIDS2(GFILN2,@XR),GFILNO(,@BR) THIS DB CONTAIN NUMBER			
					4511	*	* IN GFILNO ?			
	1AF1	D0	82	04	4512	BL GFI100(,@BR)	NO, CHECK NEXT FIT ENTRY			
					4514	*****	*****			
					4515	*				*
					4516	*	READ DATA BLOCKS INTO CORE BUFFERS			*
					4517	*				*
					4518	*****	*****			
					4519	*				
	1AF4	7C	03	55	4520	MVI GFIREDD+@DSAD(,@BR),GFIDTA	INIT DPL FOR 1ST DATA SECTOR			
P01					4521	ALC GFIREDD+@DSAD(GFILN1,@BR)OIZERN,OXR)	DIP FROM 1ST SECTOR			
	1AF7	7C	02	56	4522	MVI GFIREDD+@DCNT(,@BR),GFICT2	INIT DPL SECTOR COUNT			
					4523	*				
					4524	*	CHECK IF DB'S ARE CONTINUOUS			
					4525	*				
N04	1AFA	00	00	00	00	4526	MVC GFIWRK(GFILNI,@BR),GFIDS4(,@XR) COMPUTE IF DB'S ARE CON-			
P02					4527	SLC GFIWRK(GFILNI,@BR),VER0(0,XR)	* TIGUOUS ON DISK			
	1AFE	7D	01	52	4528	CLI GFIWRK(,@BR),GFICT1	ARE DB'S CONTIGUOUS FOR READ ?			
	1B01	F2	81	0D	4529	GFI200 JC GFI500,@BE	YES, DB'S ARE CONTIGUOUS			
					4530	*				
					4531	*****	*****			

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/06/21	PAGE 62
					4533	*****				
					4534	*				*
					4535	*	PROCESSING OF NON-CONTIGUOUS DATA BLOCKS			*
					4536	*				*
					4537	*****				
					4538	*				
P02					4539	MVI	GFIRAD+@DSAD(@BR),GFIDTA	MODIFY	SECTOR	ADDR
	1B04	6E	00	5B	04	4540	ALC	GFIRAD+@DSAD(GFILN1,@BR),GFIDS4(,@XR)		
					4542	*	DSKL4 GFIRAD	READ	SECOND	DB
	1B08	C0	87	1200	4543	B	DL4ICS	PERFORM	RELATIVE	DISK OP
	1B0C	1B3F			1B0D 4544	DC	AL2(GFIRAD)	DPL	ADDRESS	
					4545	***	END OF EXPANSION	***		
					4546	*				
	1B0E	7C	01	56	4547	MVI	GFIRED+@DCNT(,@BR),GFICT1	MODIFY	DPL	SECTOR COUNT
					4549	*GFI500	DSKL4 WIRED	READ	DB(S)	
	1B11	C0	87	1200	4550	GFI500 B	DL4ICS	PERFORM	RELATIVE	DISK OD
	1B15	1B39			1B16 4551	DC	AL2(GFIRED)	DPL	ADDRESS	
					4552	***	END OF EXPANSION	***		
					4554	*****				
					4555	*				*
					4556	*	INITIALIZATION FOR GRABIT			*
					4557	*				*
					4558	*****				
					4559	*				
	1B17	1C	01	13FA	55	4560	MVC	GRSRDA(@CADDR),GFIRED+@DSAD(,@BR)	PRIME	GRABIT DISK ADDR
	1B1C	3C	00	1404	4561	MVI	GRWHAT,@ZERO	PRIME	GRWHAT	FOR GRABIT
	1B20	0C	01	13FD	1B3E	4562	MVC	GRBFRA(@CADDR),GFIBR1	PRIME	GRABIT
					4563	*				
	1B26	C0	87	127F	4564	B	GRABIT	GET	NEXT	STATEMENT
					4565	*				
	1B2A	3C	01	1404	4566	MVI	GRWHAT,GFICT1	SET	GRABIT	FUNCTION CODE
					4568	*****				
					4569	*				*
					4570	*	END OF ROUTINE PROCESSING			*
					4571	*				*
					4572	*****				
					4573	*				
					4574	*GFIND	EXIT @BR,,RETURN			
	1B2E	C2	01	0000	4575	GFIND0	LA *-*,@BR	RESTORE	@BR	
	1B32	C0	87	0000	4576	GFIND2	B *-*	RETURN	TO	CALING PROGRAM
					4577	***	END OF EXPANSION	***		

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/06/21 PAGE 63
		4579		*****	
		4580	*		*
		4581	*	DATA CONSTANTS, BUFFERS, AND WORK AREAS	*
		4582	*		*
		4583		*****	
		4584	*		
1B36		1B37	4585	GFILNO DS CL2	INPUT AREA FOR LINE NUMBER TO
		4586	*		* BE SEARCHED FOR
1B38		1B38	4587	GFIWRK DS CL1	USED TO COMPUTE IF DB'S ARE
		4588	*		* CONTIGUOUS IN CORE
		4589	*	DPL MODIFIED FOR READING OF DATA BLOCKS	
		4590	*		
		4591		*GFIREDDPL FUNC=@DGET,DADDR=@WSFIT,CADDR=GFIBF1	
		1B39	4592	GFIREDEQU *	DISK PARAMETER LIST
1B39 01		1B39	4593	DC AL1(@DGET)	REQUESTED FUNCTION
1B3A 0500		1B3B	4594	DC AL2(@WSFIT)	DISK ADDRESS
1B3C 00		1B3C	4595	DC AL1(*-*)	SECTOR COUNT
1B3D 1B00		1B3E	4596	DC AL2(GFIBF1)	BUFFER ADDRESS
		4597		*** END OF EXPANSION ***	
		1B3E	4599	GFIBR1 EQU GFIREDD+@DBFR2	ADDR OF FIRST BUFFER
		4600	*		
		4601		*GFIRAD DPL FUNC=@DGET,DADDR=@WSFIT,CNT=@B1,CADDR=GFIBF2	
		1B3F	4602	GFIRADEQU *	DISK PARAMETER LIST
1B3F 01		1B3F	4603	DC AL1(@DGET)	REQUESTED FUNCTION
1B40 0500		1B41	4604	DC AL2(@WSFIT)	DISK ADDRESS
1B42 01		1B42	4605	DC AL1(@B1)	SECTOR COUNT
1B43 1C00		1B44	4606	DC AL2(GFIBF2)	BUFFER ADDRESS
		4607		*** END OF EXPANSION ***	
		1B44	4609	GFIBR2 EQU GFIRAD+@DBFR2	ADDR OF SECOND BUFFER
		4610	*		
1ADB		4611		ORG SCKEND	SET COUNTER BEHIND SCKDEV
		1948	4612	SLLINE EQU SDL300-1	LINE NUMBER LIST OVERLAY
		4613	*		
		4614	*	\$C4BD	

C4BIN2 -- CONVERT DECIMAL TO BINARY SUBROUTINE

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4616+*
4617+*
4618+*
1ADB 4619+C4BIN2 EQU * ENTRY POINT
1ADB 4620+ USING C4BIN2,@BR BASE VALUE
4621+*
1ADB 34 01 1B3D 4622+ ST C4B800+@OP1,@BR SAVE CALLERS BASE REGISTER
1ADF C2 01 1ADB 4623+ LA C4BIN2,@BR LOAD BASE VALUE
4624+*
1AE3 74 08 66 4625+ ST C4B850+@OP1(,@BR),@ARR SAVE RETURN ADDRESS
4626+*
1AE6 74 02 6E 4627+ ST C4BSAV(,@BR),@XR SAVE VALUE OF POINTER
1AE9 3C 0C 03CD 4628+ MVI $CAERR,@E122 SET ERROR CODE IN CASE
1AED 5C 01 6A 6B 4629+ MVC C4BVAL(C4BLVL,@BR),C4BINI(,@BR) INIT VALUE TO ZERO
1AF1 3C 04 1B4A 4630+C4B100 MVI C4B900,4 INITLZ CHAR. COUNT
4631+*
4632+*** DETERMINE IF CHAR NUMERIC AND DECR CHAR COUNT
4633+*
1AF5 F2 80 32 4634+C4B200 JC C4B600,@NOP SET TO UCB IF IMBEDDED BLANKS
4635+* * ALLOWED
1AF8 BD F0 00 4636+C4B300 CLI 0(,@XR),C4BLOW THIS CHAR NUMERIC ?
1AFB F2 82 35 4637+ JL C4B700 NO, GOTO RETURN
4638+*
1AFE 5F 00 6F 4E 4639+ SLC C4B900(1,@BR),C4B590+@D1(,@BR) DECR CHAR COUNT
1B02 F2 82 35 4640+ JL C4B800 BR TO ERROR EXIT IF TOO MANY
4641+*
4642+*** MULTIPLY PREVIOUS VALUE BY TEN
4643+*
1B05 5E 01 6A 6A 4644+ ALC C4BVAL(C4BLVL,@BR),C4BVAL(,@BR) DOUBLE PREVIOUS VALUE
1B09 5C 01 68 6A 4645+ MVC C4BWRK(C4BLVL,@BR),C4BVAL(,@BR) SAVE DOUBLE VALUE
1B0D 5E 01 6A 6A 4646+ ALC C4BVAL(C4BLVL,@BR),C4BVAL(,@BR) QUADRUPLE PREVIOUS VALUE
1B11 5E 01 6A 6A 4647+ ALC C4BVAL(C4BLVL,@BR),C4BVAL(,@BR) OCTUPLE PREVIOUS VALUE
1B15 5E 01 6A 68 4648+ ALC C4BVAL(C4BLVL,@BR),C4BWRK(,@BR) ADD IN SAVED DOUBLE
4649+*
4650+*** ADD IN VALUE OF THIS CHAR AND INCR POINTER
4651+*
1B19 68 03 6C 00 4652+ MNN C4BCHR(,@BR),0(,@XR) FETCH NEMERIC VALUE OF NEW CHAR
1B1D 5E 01 6A 6C 4653+ ALC C4BVAL(C4BLVL,@BR),C4BCHR(,@BR) INCR VALU BY THIS CHAR
4654+*
1B21 E2 02 01 4655+ LA @B1(,@XR),@XR INCR POINTER TO NEXT CHAR
1B24 D0 87 1A 4656+ B C4B200(,@BR) GOTO DO IT AGAIN
4657+*
4658+* ROUTINE TO SCAN BLANKS
4659+*
1B27 E2 02 01 4660+C4B590 LA @B1(,@XR),@XR INCR POINTER TO NEXT CHAR
1B2A BD 40 00 4661+C4B600 CLI 0(,@XR),@BLANK IS THIS CHAR A BLANK ?
1B2D D0 01 1D 4662+ BNE C4B300(,@BR) RETURN IF NOT
1B30 D0 87 4C 4663+ B C4B590(,@BR) GET NEXT CHAR IF YES

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C4BIN2 -- CONVERT DECIMAL TO BINARY SUBROUTINE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/06/21	PAGE 65
					4665+*					
					4666+***	ENDING ROUTINE				
					4667+*					
1B33	74	02	68		4668+C4B700	ST	C4BLEN(,@BR),@XR		PLACE VALUE OF POINTER	
1B36	5F	01	68 6E		4669+	SLC	C4BLEN(2,@BR),C4BSAV(,@BR)		SUBTRACT ENTERING VALUE	
					4670+*					
1B3A	C2	01	0000		4671+C4B800	LA	*-*,@BR		RESTORE CALLERS BR	
					4672+*					
1B3E	C0	87	0000		4673+C4B850	B	*-*		RETURN TO CALLING ROUTINE	
					4674+*				*	
					4675+*		WORK AREA AND CONSTANT		*	
					4676+*				*	
1B42				1B43	4677+C4BWRK	DS	CL2		SAVE AREA FOR DOUBLED VALUE	
					4678+*					
				1B44	4679+C4BYT1	EQU	*		FIRST BYTE OF BINARY VALUE	
1B44				1B45	4680+C4BVAL	DS	CL2		SAVE AREA FOR BINARY VALUE	
					4681+*					
1B46	00			1B46	4682+C4BINI	DC	XL1'00'		INITIALIZE WA TO ZERO	
					4683+*					
1B47				1B47	4684+C4BCHR	DS	CL1		SAVE AREA FOR EACH NEW CHAR	
1B47					4685+	ORG	*-1		INITIALIZE	
1B47	00			1B47	4686+	DC	XL1'00'		* TO ZERO	
					4687+*					
1B48				1B49	4688+C4BSAV	DS	CL2		SAVE AREA FOR XR	
					4689+*					
1B4A				1B4A	4690+C4B900	DS	CL1		SAVE AREA FOR CHAR COUNTER	
					4691+*				*	
					4692+*		EQUATES FOR C4BIN2		*	
					4693+*				*	
				1B43	4694+C4BLEN	EQU	C4BWRK		ON RETURN WILL CONTAIN COUNT	
					4695+*				* @XR INCREMENTED BY	
				0004	4696+C4BCHC	EQU	4		NUMBER OF CHAR TO CONVERT	
					4697+*					
				00F0	4698+C4BLOW	EQU	C'0'		LOWEST NUMERIC CHARACTER	
					4699+*					
				0002	4700+C4BLVL	EQU	C4BVAL-C4BWRK		LENGTH OF BINARY VALUE	
					4701+*					
				1AF6	4702+C4BLNK	EQU	C4B200+@Q		LOCATION OF IMBEDDED BLANK IND	
					4703+*					
				0087	4704+C4BSPC	EQU	@UCB		MOVED TO C4BLNK TO ALLOW BLANKS	
					4705+*					
				1AF2	4706+C4BNMC	EQU	C4B100+@Q		LOCATION OF CONVERSION COUNT	
					4707+*					
				0080	4708+C4BNOP	EQU	@NOP		CHANGED IF IMBEDDED BLANK OK	
				1B4B	4709+C4END	EQU	*		DEFINE END OF CODE	
					4710+***		END OF C4BIN2		***	

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/06/21	PAGE 66
		4712		*****			
		4713	*	5703-XM1 COPYRIGHT IBM CORP. 1970			*
		4714	*	REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE 120-2083			*
		4715	*				*
		4716		*****			*
		4717	*	STATUS			*
		4718	*	VERSION 1 MODIFICATION 0			*
		4719	*				*
		4720	*	FUNCTION			*
		4721	*	SLLIST SCANS ACROSS A LINE NUMBER LIST, CHECKING THE SYNTAX OF			*
		4722	*	THE LIST AND CONVERTING THE DECIMAL LINE NUMBERS TO BINARY.			*
		4723	*	THESE CONVERTED LINE NUMBERS ARE SAVED IN A BUFFER, SLLINE WHICH			*
		4724	*	CONTAINS A TWO-BYTE ENTRY FOR EACH LINE NUMBER AND A ONE-BYTE			*
		4725	*	LINE NUMBER RANGE INDICATOR (THE EBCDIC CODE FOR A DASH) BETWEEN			*
		4726	*	LINE NUMBERS OF A RANGE. A CARRIAGE RETURN CODE TERMINATES			*
		4727	*	SLLINE.			*
		4728	*				*
		4729	*	ENTRY POINTS			*
		4730	*	* THE ENTRY POINT IS SLLIST. THE BASE REGISTER IS SAVED ON ENTRY			*
		4731	*	AND RESTORED BEFORE EXIT TO THE CALLING ROUTINE.			*
		4732	*	* THE CALLING SEQUENCE IS AS FOLLOWS:			*
		4733	*	B SLLIST			*
		4734	*				*
		4735	*	INPUT			*
		4736	*	THE INPUT TO SLLIST IS A LINE NUMBER LIST WHICH WILL BE SYNTAX			*
		4737	*	CHECKED AND CONVERTED. SLLIST EXPECTS @XR TO POINT TO THE FIRST			*
		4738	*	CHARACTER TO BE TESTED.			*
		4739	*				*
		4740	*	OUTPUT			*
		4741	*	THE OUTPUT FROM SLLIST IS THE BUFFER, SLLINE, WHICH CONTAINS THE			*
		4742	*	CONVERTED LINE NUMBER LIST TERMINATED BY A CARRIAGE-RETURN CODE.			*
		4743	*				*
		4744	*	EXTERNAL REFERENCES			*
		4745	*	* \$CAERR - NUCLEUS LOCATION FOR ERROR CODE.			*
		4746	*	* SCANIT - ENTRY TO DELIMITER SCAN ROUTINE.			*
		4747	*	* C4BIN2 - ENTRY TO ROUTINE TO CONVERT DECIMAL TO BINARY.			*
		4748	*				*
		4749	*	EXITS, NORMAL			*
		4750	*	NORMAL EXIT IS TO THE FIRST INSTRUCTION FOLLOWING THE BRANCH TO			*
		4751	*	SLLIST. THE @PSR WILL BE SET TO THE 'BRANCH NOT LOW' CONDITION			*
		4752	*	TO INDICATE A GOOD RETURN.			*
		4753	*				*
		4754	*	EXITS, ERROR			*
		4755	*	ERROR EXIT IS ALSO MADE TO THE FIRST INSTRUCTION FOLLOWING THE			*
		4756	*	BRANCH TO SLLIST. IN THIS CASE @PSR IS SET TO 'BRANCH LOW' AND			*
		4757	*	\$CAERR CONTAINS THE APPROPRIATE ERROR CODE.			*
		4758	*				*
		4759	*	TABLES/WORKAREAS			*
		4760	*	SLLIST CREATES A BUFFER, SLLINE, WHICH HAS A MAXIMUM LENGTH OF			*
		4761	*	210 BYTES, IS DEFINED BY THE USER, AND CONTAINS THE BINARY			*
		4762	*	REPRESENTATION OF THE NUMBERS IN THE LINE-NUMBER LIST. SINGLE			*
		4763	*	LINE NUMBERS REQUIRE A TWO-BYTE ENTRY AND LINE NUMBER RANGES			*
		4764	*	EACH REQUIRE FIVE BYTES (TWO BYTES FOR THE LOW LIMIT LINE NUMBER,			*
		4765	*	ONE BYTE FOR THE EBCDIC CODE FOR A DASH, AND TWO BYTES FOR THE			*
		4766	*	HIGH LIMIT LINE NUMBER). AN EOS CODE TERMINATES SLLINE			*
		4767	*				*

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/06/21	PAGE 67
		4768	*	*ATTRIBUTES			*
		4769	*	* SLLIST IS RELOCATABLE			*
		4770	*				*
		4771	*	*CHARACTER CODE DEPENDENCY			*
		4772	*	* THE OPERATION OF THIS MODULE DOES NOT DEPEND ON ANY PARTICULAR			*
		4773	*	* INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.			*
		4774	*				*
		4775	*	*NOTES			*
		4776	*	* ERROR PROCEDURES			*
		4777	*	* SLLIST RETURNS TO THE CALLING ROUTINE WITH THE @PSR SET TO			*
		4778	*	* 'BRANCH LOW' IF AN ERROR CONDITION IS ENCOUNTERED.			*
		4779	*	* THE APPROPRIATE ERROR CODE WILL BE SET IN \$CAERR.			*
		4780	*				*
		4781	*	* REGISTER USAGE			*
		4782	*	* * UPON ENTRY TO SLLIST, REGISTER 2 (@XR) MUST BE POINTING TO			*
		4783	*	* THE 1ST LINE NUMBER TO BE CHECKED. UPON RETURN FROM SLLIST			*
		4784	*	* @XR WILL BE POINTING TO THE INVALID CHARACTER IF AN ERROR IS			*
		4785	*	* DETECTED. TO THE CARRIAGE RETURN CHARACTER IF THE LIST IS			*
		4786	*	* GOOD, OR TO THE NEXT CHARACTER FOLLOWING A VALID LIST IF			*
		4787	*	* SLLIND IS SET TO RETURN (SLLRET MOVED TO SLLIND).			*
		4788	*	* * REGISTER 1 (@BR) IS SAVED UPON ENTRY TO SLLIST AND IS USED			*
		4789	*	* BY SLLIST TO CONTAIN THE CURRENT ADDRESS BEING REFERENCED IN			*
		4790	*	* SLLINE.			*
		4791	*	* * UPON ENTRY TO SLLIST, REGISTER 8 (@ARR) IS STORED AS THE			*
		4792	*	* RETURN ADDRESS TO THE CALLING ROUTING AFTER CHECKING IS			*
		4793	*	* COMPLETED.			*
		4794	*				*
		4795	*	* SAVE RESTORED AREAS			*
		4796	*	* NONE			*
		4797	*				*
		4798	*	* MODIFICATION CONSIDERATIONS			*
		4799	*	* NONE			*
		4800	*				*
		4801	*	* REQUIRED MODULES			*
		4802	*	* * THE FOLLOWING EQUATE MODULES ARE USED IN SLLIST:			*
		4803	*	* * @SYSEQ - COMMON S(STEM ELVES			*
		4804	*	* * @FXDEQ - NUCLEUS FIXED ADDRESS EQUATES			*
		4805	*	* * @ERMEQ - ERROR MESSAGE EQUATES (SELECTED ERROR CODES)			*
		4806	*	* * THE FOLLOWING SOURCE MODULES ARE ALSO USED IN SLLIST:			*
		4807	*	* * SCANIT - DELIMITER SCAN ROUTINE			*
		4808	*	* * C4BIN2 - ROUTINE TO CONVERT DECIMAL TO BINARY			*
		4809	*				*
		4810	*	* OTHER			*
		4811	*	* IF THE CALLING ROUTINE DESIRES THAT A LINE-NUMBER LIST BE			*
		4812	*	* CONSIDERED VALID IF IT IS FOLLOWED BY ANOTHER PARAMETER,			*
		4813	*	* SLLRET SHOULD BE MOVED TO SLLRET BEFORE CALLING SLLIST.			*
		4814	*				*
		4815	*	*****			*

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/06/21 PAGE 68
				1B4B	4817	SLLIST EQU *	ENTRY POINT TO THIS SUBROUTINE	
					4818	*		
	1B4B	34	01	1C33	4819	ST	SLL220+@OP1,@BR	SAVE BASE REGISTER
	1B4F	34	08	1C37	4820	ST	SLL230+@OP1,@ARR	SAVE RETURN ADDRESS
	1B53	C2	01	1946	4821	LA	SLLINE-SLLLN2,@BR	INITIALIZE SLLINE POINTER
					4822	*		
	1B57	C0	87	1ADB	4823	SLL100 B	C4BIN2	CONVERT LINE NO. TO BINARY
	1B5B	F2	82	CA	4824	JL	SLL210	IF ERROR IN C4BIN2,
					4825	*		* CALL ERROR PROG.
	1B5E	F2	81	AC	4826	JZ	SLL180	CHECK FOR EOS IF NO NUMBER FOUND
					4827	*		
					4828	*	INTEGER WAS FOUND	
					4829	*		
	1B61	4C	01	03 1B45	4830	MVC	SLL003(,@BR),C4BVAL(SLLLN2)	MOVE INTEGER TO BFR
	1B66	F2	80	07	4831	SLL110 JC	SLL115,@NOP+*-*	UCB EXCEPT FOR FIRST LINE NO.
	1B69	3C	87	1B67	4832	MVI	SLL110+@Q,@UCB	SET OFF 'FIRST' INDR
	1B6D	F2	87	11	4833	J	SLL120	GO CHECK FOR DELIMITERS
	1B70	5D	01	01 03	4834	SLL115 CLC	SLL001(,@BR),SLL003(SLLLN2,@BR)	THIS INTG > LAST INTG ?
	1B74	F2	82	0A	4835	JL	SLL120	YES, GO CHECK FOR DELIMITERS
	1B77	3C	87	1C07	4836	MVI	SLL165+@Q,@UCB	SET SW TO TAKE ERR IF VALID INTG
	1B7B	0C	01	1C20 1B49	4837	MVC	SLL200+@OP1(SLLLN2),C4BSAV	SET PTR TO THIS NUMBER
	1B81	D2	01	02	4838	SLL120 LA	SLL002(,@BR),@BR	POINT BR PTR TO THIS ENTRY
	1B84	C0	87	1C3A	4839	B	SCANIT	BYPASS BLANKS
	1B88	BD	60	00	4840	CLI	0(,@XR),SLLDSH	CHAR AFTER INTG = '-' ?
	1B8B	F2	01	55	4841	JNE	SLL150	NO. CHECK FOR COMMA
					4842	*		
					4843	*	LINE NUMBER FOLLOWED BY A DASH	
					4844	*		
	1B8E	E2	02	01	4845	LA	1(,@XR),@XR	POINT XR PAST DASH
	1B91	0C	01	1BB4 1B49	4846	MVC	SLL125+@OP1,C4BSAV(@REGL)	SAVE PTR TO FIRST NO. IN RANGE
	1B97	C0	87	1C3A	4847	B	SCANIT	BYPASS BLANKS
	1B9B	C0	87	1ADB	4848	B	C4BIN2	CONVERT NO. TO BINARY
	1B9F	F2	82	86	4849	JL	SLL210	ERR IF MORE THAN 4 DIGITS FOUND
	1BA2	F2	01	17	4850	JNZ	SLL130	JUMP IF INTG FOUND AFTER DASH
					4851	*		
	1BA5	BD	1E	00	4852	CLI	0(,@XR),@EOS	IS THIS AN OPEN RANGE ?
	1BA8	F2	81	06	4853	JE	SLL125	YES, SET OPEN RANGE ERR CODE
	1BAB	BD	6B	00	4854	CLI	0(,@XR),@COMMA	IS THIS AN OPEN RANGE ?
	1BAE	F2	01	65	4855	JNE	SLL195	NO, INV CHAR IN LINE NO. ERROR
					4856	*		
	1BB1	C2	02	0000	4857	SLL125 LA	*-*,@XR	RESTORE XR TO FIRST NO. IN RANGE
	1BB5	3C	0D	03CD	4858	MVI	\$CAERR,@E123	ERR, UNBALANCED LINE NO. SERIES
	1BB9	F2	87	70	4859	J	SLL215	ERROR EXIT
					4860	*		
					4861	*	MOVE DASH AND HIGH LIMIT TO SLLINE	
					4862	*		
N04	1BBC	00	00	00	4863	SLL130 MVI	SLL002(,@BR),SLLDSH	SET DASH IN SLLINE
	1BBF	4C	01	04 1B45	4864	MVC	SLL003+1(,@BR),C4BVAL(SLLLN2)	MOVE IN HIGH LIMIT OF RANGE
	1BC4	5D	01	01 04	4865	CLC	SLL001(,@BR),SLL003+1(SLLLN2,@BR)	HIGH LIMIT > LOW LIMIT ?
	1BC8	F2	82	11	4866	JL	SLL140	YES, GO INCR POINTER
N04	1BCB	00	00	0000	4867	CLI	SLL169+@Q,@UCB	OUT OF ORDER PAIR FOUND ALRDY ?
	1BCF	F2	81	0A	4868	JE	SLL140	YES, DON'T SET SWITCH AGAIN
	1BD2	3C	87	1C07	4869	MVI	SLL165+@Q,@UCB	ELSE, SET SW TO TAKE ERR EXIT
	1BD6	0C	01	1C20 1B49	4870	MVC	SLL200+@OP1(SLLLN2),C4BSAV	SET PTR TO SECOND NO. IN RANGE
	1BDC	D2	01	03	4871	SLL140 LA	SLL003(,@BR),@BR	INCR PTR TO NEXT ENTRY
	1BDF	C0	87	1C3A	4872	B	SCANIT	BYPASS BLANKS

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1BE3	BD	6B	00	4873	SLL150	CLI	0(,@XR),@COMMA	INTG FOLLOWED BY COMMA ?
1BE6	F2	01	10	4874		JNE	SLL160	NO, TEST FOR A BLANK
				4875	*			
				4876	*		LINE NUMBER FOLLOWED BY COMMA	
				4877	*			
1BE9	E2	02	01	4878		LA	1(,@XR),@XR	PT XR PAST COMMA
1BEC	C0	87	1C3A	4879		B	SCANIT	BYPASS BLANKS
1BF0	BD	1E	00	4880		CLI	0(,@XR),@EOS	COMMA FOLLOWED BY EOS ?
1BF3	F2	81	36	4881		JE	SLL215	YES ERR - DANGLING COMMA
1BF6	F2	87	0D	4882		J	SLL165	ELSE, GO CHECK INTG ASCENDING
				4883	*			
1BF9	3D	00	1C7A	4884	SLL160	CLI	SCACNT,@ZERO	WERE ANY DELIMITERS FOUND ?
1BFD	F2	01	06	4885		JNZ	SLL165	YES, GO CHECK FOR PROPER ORDER
1C00	BD	1E	00	4886		CLI	0(,@XR),@EOS	ELSE, IS XR REF AN EOS
1C03	F2	01	10	4887		JNE	SLL195	NO, ERR - INV CHAR IN LINE NO.
1C06	F2	80	14	4888	SLL165	JC	SLL200,@NOP+*-*	UCB IF THIS INTG < LAST INTG
1C09	C0	87	1B57	4889		B	SLL100	CHECK NEXT INTG
				4890	*			
				4891	*		INTEGER NOT FOUND BY C4BIN2	
				4892	*			
1C0D	7C	FF	02	4893	SLL180	MVI	SLL002(,@BR),@SCTS-1	MOVE AN 'EOS' TO SLLINE
1C10	BD	1E	00	4894		CLI	SLL000(,@XR),@EOS	IS NEXT CHAR IN INP LINE EOS ?
1C13	F2	81	1A	4895	SLL190	JC	SLL220,@BE+*-*	IF YES OR SLLIND IS ON, RETURN
				4896	*			
1C16	3C	0B	03CD	4897	SLL195	MVI	\$CAERR,@@E120	SET ERR CODE FOR 'NON-NUMERIC
				4898	*			* CHAR IN LINE NO. OR INTG'
1C1A	F2	87	0B	4899		J	SLL210	RESTORE XR, SET PSR AND RETURN
				4900	*			
				4901	*		ERROR EXIT	
				4902	*			
1C1D	C2	02	0000	4903	SLL200	LA	*-*,@XR	PT XR TO CORRECT LINE NUMBER
1C21	3C	0E	03CD	4904		MVI	\$CAERR,@@E124	SET ERROR CODE FOR PARAMS NOT
1C25	F2	87	04	4905		J	SLL215	* IN ASCENDING ORDER
1C28	35	02	1B49	4906	SLL210	L	C4BSAV,@XR	RETURN POINTER TO FIRST OF NO
1C2C	35	04	1C39	4907	SLL215	L	SLLBLW,@PSR	SET PSR TO BRANCH LOW
				4908	*			
				4909	*		RETURN TO CALLING PROGRAM	
				4910	*			
1C30	C2	01	0000	4911	SLL220	LA	*-*,@BR	RESTORE CALLERS BASE REGISTER
1C34	C0	87	0000	4912	SLL230	B	*-*	RETLRN

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ERR LOC	OBJECT CODE	ADDR STMT	SOURCE STATEMENT	VER 15,	MOD 00	04/06/21	PAGE	70
		0000 4914	SLL000 EQU 0					
		0001 4915	SLL001 EQU 1					
		0002 4916	SLL002 EQU 2					
		0003 4917	SLL003 EQU 3					
		0002 4918	SLLL2N EQU 2					
		0060 4919	SLLDSH EQU C'-'					
		4920 *						
		1C14 4921	SLLIND EQU SLL190+@Q					
		0087 4922	SLLRET EQU X'87'					
		4923 *						
		4924 *						
		4925 *						
1C38 0082		1C39 4926	SLLBLW DC XL2'82'					
		4927 *						
		4928 *	\$CANI					

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/06/21	PAGE	70
				0000	4914	SLL000	EQU 0		DISP OF '0' FOR XR OR PTR		
				0001	4915	SLL001	EQU 1		DISP OF '1' FOR XR OR PTR		
				0002	4916	SLL002	EQU 2		DISP OF '2' FOR XR OR PTR		
				0003	4917	SLL003	EQU 3		DISP OF '3' FOR PTR TO SLLINE		
				0002	4918	SLLLN2	EQU 2		BINARY LENGTH OF TWO BYTES		
				0060	4919	SLLDSH	EQU C'-'		HYPHEN SEPARATING RANGES		
					4920	*					
				1C14	4921	SLLIND	EQU SLL190+@Q		LOC FOR SETTING SLLRET		
				0087	4922	SLLRET	EQU X'87'		CODE FOR RETURN IF NOT EOS		
					4923	*					
					4924	*		CONSTANTS AND SAVE AREAS			
					4925	*					
1C38	0082			1C39	4926	SLLBLW	DC XL2'82'		PSR CODE TO BRANCH LOW		
					4927	*					
					4928	*	\$CANI				

SCANIT - DELIMETER SCAN MODULE

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/06/21	PAGE 71
4930+				*****			*
4931+	*	5703-XM1		COPYRIGHT IBM CORP. 1970			*
4932+	*			REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083			*
4933+	*						*
4934+	*			*****			*
4935+	*			STATUS			*
4936+	*			VERSION 1 MODIFICATION 0			*
4937+	*						*
4938+	*			FUNCTION			*
4939+	*			THE FUNCTION OF SCANIT IS TO SCAN PAST VALID DELIMITERS AND			*
4940+	*			RETURN A POINTER TO THE FIRST CHARACTER THAT'S NOT A DELIMITER.			*
4941+	*						*
4942+	*			ENTRY POINTS			*
4943+	*			* THE ENTRY POINT IS SCANIT.			*
4944+	*			* THE CALLING SEQUENCE IS AS FOLLOWS:			*
4945+	*			B SCANIT			*
4946+	*			WITH REGISTER 2 (@XR) POINTING TO THE FIRST CHARACTER TO BE			*
4947+	*			EXAMINED.			*
4948+	*						*
4949+	*			INPUT			*
4950+	*			NONE			*
4951+	*						*
4952+	*			OUTPUT			*
4953+	*			NONE			*
4954+	*						*
4955+	*			EXTERNAL REFERENCES			*
4956+	*			\$CAERR - ERROR CODE SAVE AREA			*
4957+	*						*
4958+	*			EXITS, NORMAL			*
4959+	*			NORMAL EXIT FROM SCANIT IS TO THE BYTE FOLLOWING THE BRANCH TO			*
4960+	*			SCANIT IN THE CALLING ROUTINE. THE PSR (REGISTER 4) WILL CONTAIN			*
4961+	*			A ZERO IF NO DELIMITERS WERE FOUND OR A HIGH CONDITION IF ONE OR			*
4962+	*			MORE DELIMITERS WERE SCANNED.			*
4963+	*						*
4964+	*			EXITS, ERROR			*
4965+	*			ERROR EXIT FROM SCANIT IS TO THE BYTE FOLLOWING THE BRANCH TO			*
4966+	*			SCANIT IN THE CALLING ROUTINE. THE PSR WILL CONTAIN A LOW			*
4967+	*			CONDITION.			*
4968+	*						*
4969+	*			TABLES/WORKAREAS			*
4970+	*			* SCACNT - AREA CONTAINING NUMBERS OF DELIMITERS SCANNED			*
4971+	*			* SCAMMA - LOCATION WHERE SCACOM MAY BE MOVED IF ONE COMMA IS ALSO			*
4972+	*			TO BE CONSIDERED A DELIMITER. MOVING SCACOF BACK INTO SCAMMA			*
4973+	*			INDICATES THAT ONLY BLANKS SHOULD BE CONSIDERED DELIMITERS.			*
4974+	*						*
4975+	*			ATTRIBUTES			*
4976+	*			RELOCATABLE AND RE-USABLE			*
4977+	*						*
4978+	*			CHARACTER CODE DEPENDENCY			*
4979+	*			THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR			*
4980+	*			INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.			*
4981+	*						*
4982+	*			NOTES			*
4983+	*			ERROR PROCEDURES			*
4984+	*			THE ONLY ERROR CONDITION DETECTED BY SCANIT IS THE CASE WHERE			*
4985+	*			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 04/06/21 PAGE 72

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4986+*      CALLING ROUTINE, @PSR WILL BE SET TO A LOW CONDITION, THE      *
4987+*      ERROR CODE IS SET IN $CAERR, AND MG WU BE POINTING TO THE      *
4988+*      CARRIAGE-RETURN CHARACTER.                                     *
4989+*                                                                 *
4990+*      REGISTER USAGE                                                 *
4991+*      REGISTER 2 (@XR) IS USED AS A POINTER ACROSS THE AREA BEING    *
4992+*      SCANNED FOR DELIMITERS.                                         *
4993+*                                                                 *
4994+*      SAVED/RESTORED AREAS                                           *
4995+*      UPON ENTRY TO SCANIT, REGISTER 8 (@ARR) IS SAVED AND USED AS    *
4996+*      THE RETURN ADDRESS.                                             *
4997+*                                                                 *
4998+*      MODIFICATION CONSIDERATIONS                                     *
4999+*      NONE                                                             *
5000+*                                                                 *
5001+*      REQUIRED MODULES                                                 *
5002+*      * @SYSEQ - COMMON SYSTEM EQUATES                                *
5003+*      * @FXDEQ - FIXED NUCLEUS ADDRESSES EQUATES                      *
5004+*                                                                 *
5005+*      OTHER                                                             *
5006+*      SCANIT IS INITIALIZED TO BYPASS BLANKS ONLY. IF SCACOM IS        *
5007+*      MOVED TO SCAMMA, ONE COMMA WILL BE SCANNED ALONG WITH BLANKS.    *
5008+*      THE INSTRUCTION TO DO THIS IS AS FOLLOWS:                       *
5009+*      MVI    SCAMMA,SCACOM                                             *
5010+*                                                                 *
5011+*      TO DROP THE COMMA FROM ITS DELIMITER STATUS, SCACOF SHOULD BE    *
5012+*      MOVED TO SCAMMA, USING THE FOLLOWING INSTRUCTION:               *
5013+*      MVI    SCAMMA,SCACOF                                             *
5014+*****
5016+*
5017+*      EQUATES USED IN THIS SUBROUTINE
5018+*
0001 5019+SCAINC EQU    1      TO INCREMENT POINTER
0001 5020+SCACOM EQU    @BNE   SWITCH TO ALLOW SCANNING COMMA
0087 5021+SCACOF EQU    @UCB   SWITCH TO SET OFF THE INDICATON
5022+*      * FOR SCANNING A COMMA
1C3A 5023+SCANIT EQU    *      ENTRY POINT TO THIS SUBROUTINE
1C3A 34 08 1C76 5024+      ST    SCA500+@OP1,@ARR   SAVE RETURN ADDRESS
1C3E 34 02 1C78 5025+      ST    SCASVE,@XR         SAVE POINTER VALUE
1C42 3C 04 03CD 5026+      MVI    $CAERR,@E110      SET ERROR CODE
1C46 F2 87 03   5027+      J      SCA200            GO TO PROCESS
1C49 E2 02 01   5028+SCA100 LA    SCAINC(,@XR),@XR   INCREMENT POINTER TO NEXT CHAR
1C4C BD 40 00   5029+SCA200 CLI    0(,@XR),@BLANK    IS THIS CHAR BLANK ?
1C4F C0 81 1C49 5030+      BE     SCA100            YES, FETCH NEXT ONE
1C53 BD 6B 00   5031+      CLI    0(,@XR),@COMMA     IS IT A COMMA ?
1C56 F2 87 10   5032+SCA250 JC    SCA400,@UCB       UCS TO RETURN -- OR NOP IF
5033+*      * SCAMMA IS ACTIVE AND CHAR
1C59 E2 02 01   5034+SCA300 LA    SCAINC(,@XR),@XR   INCREMENT POINTER TO NEXT CHAR
1C5C BD 40 00   5035+      CLI    0(,@XR),@BLANK    IS THIS CHAR A BLANK ?
1C5F C0 81 1C59 5036+      BE     SCA300            YES, FETCH NEXT ONE
1C63 BD 1F 00   5037+      CLI    0(,@XR),@EOS+1     IS THIS EOS ?
1C66 F2 82 0A   5038+      JL     SCA500            IF NOT, SKIP ERROR ROUTINE
1C69 34 02 1C7A 5039+SCA400 ST    SCACNT,@XR         SAVE NEW POINTER VALUE
1C6D 0F 01 1C7A 1C78 5040+      SLC    SCACNT(2),SCASVE  SET PSR TO EQUAL IF POINTER

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SCANIT - DELIMETER SCAN MODULE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/06/21	PAGE 73
1C73	C0	87	0000		5041+	*	* NOT ADVANCED			
					5042+	SCA500 B	*-*			
				1C57	5043+	SCAMMA EQU	SCA250+@Q			
					5044+	*	YES, RETURN			
					5045+	*	TO SET SCAN COMMA INDICATOR			
					5046+	*				
							SAVE AREA			
1C77				1C77	5047+	SCASV1 EQU	*			
1C79				1C78	5048+	SCASVE DS	CL2			
				1C7A	5049+	SCACNT DS	CL2			
					5050+	***	END OF SCANIT			***
					5051	*				
					5052	*****				
					5053	* PATCH AREA 2				
					5054	*****				
					5055	*				
					5056	* CALCULATE AREA LEFT IN THIS SECTOR				
					5057	*				
1D00				1C7B	5058	\$\$\$L2 EQU	*			
					5059	ORG	*,256,0			
1C7B				1D00	5060	\$\$\$T2 EQU	*			
					5061	ORG	\$\$\$L2			
					5062	*				
1C7B				1CFF	5063	\$\$\$\$\$2 DS	CL(\$\$\$T2-\$\$\$L2)			
					5064	*****				
				FFFF	5065		END			

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STMT	ERROR CODE	MESSAGE
2378	N04	REFERENCE TO UNDEFINED SYMBOL
2434	N04	REFERENCE TO UNDEFINED SYMBOL
2460	N04	REFERENCE TO UNDEFINED SYMBOL
2461	N04	REFERENCE TO UNDEFINED SYMBOL
2545	N04	REFERENCE TO UNDEFINED SYMBOL
2549	N04	REFERENCE TO UNDEFINED SYMBOL
2552	N04	REFERENCE TO UNDEFINED SYMBOL
2571	N04	REFERENCE TO UNDEFINED SYMBOL
2604	N04	REFERENCE TO UNDEFINED SYMBOL
2606	N04	REFERENCE TO UNDEFINED SYMBOL
2621	N04	REFERENCE TO UNDEFINED SYMBOL
2628	N04	REFERENCE TO UNDEFINED SYMBOL
2635	N04	REFERENCE TO UNDEFINED SYMBOL
2649	N04	REFERENCE TO UNDEFINED SYMBOL
2651	N04	REFERENCE TO UNDEFINED SYMBOL
2652	N04	REFERENCE TO UNDEFINED SYMBOL
2654	N04	REFERENCE TO UNDEFINED SYMBOL
2672	N04	REFERENCE TO UNDEFINED SYMBOL
2675	N04	REFERENCE TO UNDEFINED SYMBOL
2679	N04	REFERENCE TO UNDEFINED SYMBOL
2684	N04	REFERENCE TO UNDEFINED SYMBOL
2696	N04	REFERENCE TO UNDEFINED SYMBOL
2771	N04	REFERENCE TO UNDEFINED SYMBOL
2773	N04	REFERENCE TO UNDEFINED SYMBOL
2780	N04	REFERENCE TO UNDEFINED SYMBOL
2782	N04	REFERENCE TO UNDEFINED SYMBOL
2784	N04	REFERENCE TO UNDEFINED SYMBOL
2814	N04	REFERENCE TO UNDEFINED SYMBOL
2817	N04	REFERENCE TO UNDEFINED SYMBOL
2819	N04	REFERENCE TO UNDEFINED SYMBOL
2831	N04	REFERENCE TO UNDEFINED SYMBOL
2832	N04	REFERENCE TO UNDEFINED SYMBOL
2836	N04	REFERENCE TO UNDEFINED SYMBOL
2839	N04	REFERENCE TO UNDEFINED SYMBOL
2847	N04	REFERENCE TO UNDEFINED SYMBOL
2858	N04	REFERENCE TO UNDEFINED SYMBOL
2870	N04	REFERENCE TO UNDEFINED SYMBOL
2876	N04	REFERENCE TO UNDEFINED SYMBOL
2880	N04	REFERENCE TO UNDEFINED SYMBOL
2907	N04	REFERENCE TO UNDEFINED SYMBOL
2908	N04	REFERENCE TO UNDEFINED SYMBOL
2911	N04	REFERENCE TO UNDEFINED SYMBOL
2947	N04	REFERENCE TO UNDEFINED SYMBOL
3186	N04	REFERENCE TO UNDEFINED SYMBOL
3192	N04	REFERENCE TO UNDEFINED SYMBOL
3204	N04	REFERENCE TO UNDEFINED SYMBOL
3259	N04	REFERENCE TO UNDEFINED SYMBOL
3267	N04	REFERENCE TO UNDEFINED SYMBOL
3287	N04	REFERENCE TO UNDEFINED SYMBOL
3287	P10	INVALID CONSTANT
3319	N04	REFERENCE TO UNDEFINED SYMBOL
3533	N04	REFERENCE TO UNDEFINED SYMBOL
3533	P10	INVALID CONSTANT
3557	N04	REFERENCE TO UNDEFINED SYMBOL
3582	N04	REFERENCE TO UNDEFINED SYMBOL
3585	N04	REFERENCE TO UNDEFINED SYMBOL

DIAGNOSTICS

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STMT	ERROR CODE	MESSAGE
3681	P10	INVALID CONSTANT
3681	P17	INVALID SYMBOL
3691	N04	REFERENCE TO UNDEFINED SYMBOL
3805	P02	INVALID OPERAND FORMAT
3806	N04	REFERENCE TO UNDEFINED SYMBOL
3809	N04	REFERENCE TO UNDEFINED SYMBOL
3810	N04	REFERENCE TO UNDEFINED SYMBOL
3829	N04	REFERENCE TO UNDEFINED SYMBOL
3839	P01	INVALID OPERAND DELIMITER
3848	P01	INVALID OPERAND DELIMITER
3849	N04	REFERENCE TO UNDEFINED SYMBOL
3852	N04	REFERENCE TO UNDEFINED SYMBOL
3858	N04	REFERENCE TO UNDEFINED SYMBOL
3864	N04	REFERENCE TO UNDEFINED SYMBOL
3882	N04	REFERENCE TO UNDEFINED SYMBOL
3887	N04	REFERENCE TO UNDEFINED SYMBOL
3892	N04	REFERENCE TO UNDEFINED SYMBOL
3962	N04	REFERENCE TO UNDEFINED SYMBOL
3977	N04	REFERENCE TO UNDEFINED SYMBOL
3978	N04	REFERENCE TO UNDEFINED SYMBOL
3980	N04	REFERENCE TO UNDEFINED SYMBOL
3982	N04	REFERENCE TO UNDEFINED SYMBOL
3983	N04	REFERENCE TO UNDEFINED SYMBOL
3997	N04	REFERENCE TO UNDEFINED SYMBOL
3997	P10	INVALID CONSTANT
4027	N04	REFERENCE TO UNDEFINED SYMBOL
4027	P10	INVALID CONSTANT
4046	N04	REFERENCE TO UNDEFINED SYMBOL
4056	N04	REFERENCE TO UNDEFINED SYMBOL
4066	N04	REFERENCE TO UNDEFINED SYMBOL
4068	P01	INVALID OPERAND DELIMITER
4100	P01	INVALID OPERAND DELIMITER
4112	N04	REFERENCE TO UNDEFINED SYMBOL
4116	N04	REFERENCE TO UNDEFINED SYMBOL
4132	N04	REFERENCE TO UNDEFINED SYMBOL
4134	N04	REFERENCE TO UNDEFINED SYMBOL
4244	N04	REFERENCE TO UNDEFINED SYMBOL
4245	N04	REFERENCE TO UNDEFINED SYMBOL
4250	N04	REFERENCE TO UNDEFINED SYMBOL
4280	P02	INVALID OPERAND FORMAT
4283	P02	INVALID OPERAND FORMAT
4298	N04	REFERENCE TO UNDEFINED SYMBOL
4303	N04	REFERENCE TO UNDEFINED SYMBOL
4306	N04	REFERENCE TO UNDEFINED SYMBOL
4309	N04	REFERENCE TO UNDEFINED SYMBOL
4354	P02	INVALID OPERAND FORMAT
4361	N04	REFERENCE TO UNDEFINED SYMBOL
4367	P01	INVALID OPERAND DELIMITER
4368	N04	REFERENCE TO UNDEFINED SYMBOL
4369	N04	REFERENCE TO UNDEFINED SYMBOL
4376	N04	REFERENCE TO UNDEFINED SYMBOL
4500	N04	REFERENCE TO UNDEFINED SYMBOL
4521	P01	INVALID OPERAND DELIMITER
4526	N04	REFERENCE TO UNDEFINED SYMBOL
4527	P02	INVALID OPERAND FORMAT
4539	P02	INVALID OPERAND FORMAT

DIAGNOSTICS

STMT	ERROR CODE	MESSAGE
4863	N04	REFERENCE TO UNDEFINED SYMBOL
4867	N04	REFERENCE TO UNDEFINED SYMBOL

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY = 109

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$\$\$\$\$	001	0C00	2359	
\$\$\$\$\$1	059	11FF	2970	
\$\$\$\$\$2	133	1CFF	5063	
\$\$\$\$L1	001	11C5	2965	2968 2970
\$\$\$\$L2	001	1C7B	5058	5061 5063
\$\$\$\$T1	001	1200	2967	2970
\$\$\$\$T2	001	1D00	5060	5063
\$\$\$CMD	001	0020	1403	
\$\$\$DAT	001	0040	1402	
\$\$\$EPL	001	0091	1399	
\$\$\$ERN	001	0080	1453	
\$\$\$FUN	001	0010	1404	
\$\$\$NLN	001	00A0	1449	2590 2593
\$\$\$STD	001	0081	1398	
\$\$BNLN	001	0605	1379	1381
\$\$CDBS	001	08C0	1429	
\$\$CDND	001	0666	1388	
\$\$CDRD	001	0890	1427	1429
\$\$CKEY	001	0603	1377	
\$\$CKFF	001	0B3D	1409	
\$\$COFF	001	0B44	1408	3563
\$\$CSNS	001	209C	1438	
\$\$DATB	001	0BBF	1410	
\$\$EOSA	001	0AFE	1407	
\$\$ERSK	001	1C00	1448	2568*
\$\$FITS	001	1D00	1456	2954 4481
\$\$FLIB	001	06FF	1455	
\$\$ILEN	001	0601	1373	1375 1379
\$\$ILHD	001	0600	1371	1373
\$\$INLN	001	0607	1386	1388 1390 2957
\$\$INND	001	06FA	1390	
\$\$KBDT	001	09E1	1397	1401
\$\$KBSN	001	09E2	1401	1406
\$\$KLD1	001	0600	1461	
\$\$KLD2	001	0700	1463	
\$\$KLD3	001	0C00	1465	
\$\$LPOS	001	09EB	1406	
\$\$PCNT	001	07E9	1422	3679*
\$\$PLYN	001	2004	1436	3532
\$\$PRES	001	0890	1395	1397 1407 1408 1409 1410 1427 2511 4371
\$\$PRFL	001	2143	1440	
\$\$PRNT	001	0707	1416	1417 1421 1422 3569 3571 3579 3636 3676 3680
\$\$PRTN	001	0782	1417	
\$\$PSIO	001	07CE	1421	3667* 3678*
\$\$PYCD	001	2200	1442	
\$\$PYMP	001	2000	1434	1436 1438 1440 1442
\$\$SLIB	001	1C00	1451	
\$\$TPCD	001	0606	1381	1386
\$\$UPAR	001	0602	1375	1377
\$\$WSPB	001	1E00	1454	
\$\$XIND	001	06FF	1452	1455
\$\$ZERO	001	0000	0967	0968 0970 0971 0972 0976 1434
\$#TALT	001	0075	1481	
\$#TBIS	001	00FC	1493	
\$#TCET	001	0069	1480	
\$#TCYL	001	005C	1479	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$#THAD	001	00F2	1485	
\$#THEL	001	0004	1505	
\$#THVT	001	00F0	1484	
\$#TIDR	001	00FF	1495	
\$#TLAD	001	00FE	1494	
\$#TLBL	001	0008	1476	
\$#TLIB	001	00F8	1490	
\$#TLIF	001	0010	1503	
\$#TLSZ	001	00F7	1489	
\$#TOID	001	005B	1478	
\$#TPAD	001	00F6	1488	
\$#TPFL	001	0008	1504	
\$#TPSZ	001	00F4	1487	
\$#TPTF	001	00F3	1486	
\$#TRES	001	00D7	1497	
\$#TSUS	001	00EF	1483	
\$#TSYM	001	0080	1500	
\$#TSYS	001	00FA	1492	
\$#TUSE	001	00A8	1482	
\$#TVOL	001	0002	1475	
\$#TVTC	001	000A	1477	
\$#TWAL	001	00D7	1496	
\$#TWF1	001	0020	1502	
\$#TWRK	001	00F9	1491	
\$#TWR1	001	0040	1501	
\$ABORT	001	0010	1080	
\$BASIC	001	0080	1138	3237
\$BIGCD	001	0080	1214	2430 2768
\$BLDPL	001	0579	1347	1349
\$BLNOE	001	0569	1337	
\$BLOAD	001	0522	1328	1330 1333 1346 1347
\$BLRTN	001	0550	1336	1337
\$BRSAV	001	03C5	1025	1026
\$BSADR	001	0587	1352	1354
\$BUFPT	001	03E3	1233	1234
\$CABLD	001	04B4	1306	1307
\$CAERK	001	0469	1283	1286 2469 3342 4133 4270
\$CAERR	001	03CD	1031	1033 2372* 2401* 2408* 2424* 2457* 2467* 2543* 3338* 4345* 4358* 4628* 4858* 4897* 4904* 5026*
\$CAIPL	001	049D	1302	1304
\$CALLI	001	0008	1223	2437
\$CARDI	001	0001	0994	2435 4351
\$CARPL	001	04A1	1304	1306 2577
\$CIENT	001	0483	1293	1294
\$CIEXT	001	0480	1292	1293
\$CIMSK	001	0476	1289	1292 3638*
\$CISUS	001	0496	1297	1302
\$CKFRR	004	0D51	2582	
\$CLBFR	001	0010	1181	
\$CMDKY	001	0008	1093	4365
\$CMODE	001	0002	1143	
\$CONFIG	001	03DD	1206	1216 2430 2768
\$CRPOS	001	03E2	1232	1233
\$CRTAD	001	044D	1271	1272
\$CRTAV	001	0002	1087	4348
\$CRTDN	001	0002	1111	2663 2851

CROSS REFERENCE

SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 04/06/21 PAGE 79

\$CRTIN	001	03D3	1108	1115 2659 2661 2676 2794* 2795 2798 2801* 3537 3548 3550* 3555* 4334*	
\$CRTNO	001	0004	1090		
\$CRTPU	001	0004	1112	2619 2678 2798 2801 3548 3550	
\$CRTSP	001	0008	1113	2661 2794 2795 3537 3555	
\$CRTUP	001	0001	1110	2824 4334	
\$CRUSH	001	0080	1219		
\$CSDPL	001	050E	1318	1319	
\$C0001	001	0464	1275	1281	
\$DATE	001	043A	1256	1257	
\$DBGUF	001	03E0	1218	1227 2437	
\$DBLOK	001	0001	1168		
\$DFDET	001	03E8	1239	1240	
\$DISKN	001	0025	0970	3084 3163 3260 3954	
\$DKERR	001	0008	1149		
\$DKSIZ	001	03D7	1193	1201 1242	
\$DK100	001	0001	1195		
\$DK200	001	0002	1196		
\$DK400	001	0004	1197		
\$DK600	001	0008	1198		
\$DK800	001	0010	1199		
\$DLWID	UNDEFINED	SYMBOL		2460* 2461*	
\$DL061	UNDEFINED	SYMBOL		3882*	
\$DPLSV	001	0449	1267	1269	
\$DTNMB	001	0040	1014		
\$DTRDR	001	0040	1102		
\$ENDNU	001	0600	1361	1371 1395 1416 1452 1461 1463 1465	
\$ERDPL	001	046F	1286	1288	
\$ERFIL	001	0040	1041		
\$ERHRD	001	0004	1173	3341	
\$ERKEY	001	0080	1045		
\$ERLOG	001	0345	0975		
\$ERMAD	001	0472	1288	1289	
\$ERPND	001	0004	1146		
\$ERRCT	001	03CF	1047	2569*	
\$ERRPG	001	03CE	1035	2570*	
\$ERSFL	001	0035	1040		
\$ERSTK	001	0030	1038	2570	
\$ER050	001	0363	0976		
\$ER1N2	001	0050	1043		
\$EXADR	001	0517	1321	1323	
\$EXCMD	001	0001	1075		
\$EXFTR	001	043B	1257	1262 3511	
\$FCIND	001	0010	1153		
\$FDIND	001	0040	1160		
\$FEARR	001	0004	0968		
\$FEMAP	001	0588	1354	1355	
\$FILIB	001	03DA	1204	1205	
\$FITIN	001	0010	1129		
\$FUIND	001	0020	1158		
\$GUFIO	001	0583	1351	1352	
\$GUFIR	001	0008	1003		
\$HISTE	001	042E	1254	1255	
\$HIST1	001	0435	1255	1256	
\$HRDER	001	0020	1099		
\$INDR1	001	03D4	1115	1141 2451 2453 2462 2528 2544 2610 2859 2861 3237 3822 3926	

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				3958					
\$INDR2	001	03D5	1141	1166					
\$INDR3	001	03D6	1166	1193	2530*	3341*			
\$INLNO	001	03CF	1033	1035	1047	1054			
\$INRPT	001	0020	1011						
\$IOIND	001	03D2	1082	1108	3567	4342	4348	4365*	
\$IOPGS	001	0010	1222						
\$IOYES	001	0002	0997	2446					
\$IPLDV	001	05FF	1358	1361					
\$IRKEY	001	0020	1221						
\$KEYBD	001	03E1	1227	1232					
\$KEYCD	001	03C3	0991	1025	2435	2446*	4351		
\$KEYDT	001	0040	1135	2451	2861				
\$KE090	001	00DE	0971						
\$KE130	001	01D5	0972						
\$KYBSY	001	0010	1008						
\$LDRTN	001	0571	1346						
\$LEVEL	001	03DF	1216	1218					
\$LIST	001	0002	1170	2530					
\$LMRGN	001	03C1	0986	0988	2461	3640	3649	3669	
\$LNPTR	001	0080	1105	3567					
\$LOADB	001	054A	1330						
\$LOADR	001	051A	1323	1326	2447				
\$LPRIO	001	03EA	1240						
\$LPROS	001	03E5	1235	1237					
\$LPRP3	001	03E4	1234	1235					
\$MOUNT	001	0020	1184						
\$MPDWN	001	0001	1084	4342					
\$NEXTB	001	03E6	1237	1238					
\$NEXTL	001	03E7	1238	1239					
\$NOENB	001	0008	1176						
\$NOLST	001	0004	1000						
\$NUCBS	001	03C0	0983	0984					
\$NWRKF	001	0080	1189						
\$NWRKR	001	0040	1186						
\$PASWD	001	042D	1253	1254					
\$PAUSD	001	04BA	1307	1309					
\$PAUSE	001	0002	1077						
\$PGMDT	001	0020	1132	2462	2528	2544	2610	3926	3958
\$PGMST	001	0010	1096						
\$PKERT	001	0419	1251	1253					
\$PLST1	001	0454	1272	1273					
\$PLST2	001	045B	1273	1274					
\$PLST3	001	0462	1274	1275					
\$PRDEV	001	044B	1269	1271	3519	3524			
\$PRESN	001	0002	1120	3822					
\$PROCI	001	0001	1117	2453	2859				
\$PRPOS	001	03C2	0988	0991	3649	3668			
\$PSDBR	001	04FA	1312						
\$PSDXR	001	04F2	1311	1312					
\$PSTEP	001	0004	1078						
\$PSTMT	001	0008	1079						
\$PTCH1	001	03F5	1242	1246					
\$READY	001	0080	1162						
\$REORD	001	0040	1220						
\$RLOAD	001	051E	1326	1328					

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$RMGRN	001	03C0	0984	0986 2460 3639
\$RSTR	001	04D6	1309	1311 1313 1318
\$RUNIT	001	0001	1056	
\$SFAID	001	050D	1314	
\$SPRNT	001	0465	1281	1283
\$SRTRN	001	04FE	1313	1314
\$STEPT	001	0002	1057	
\$SWPCR	001	0511	1319	1321
\$TABLN	001	03CB	1028	1031
\$TFLOW	001	0008	1063	
\$TRACE	001	0004	1058	
\$TRALL	001	0010	1064	
\$TROVR	001	054E	1333	1336
\$TRUNK	001	0080	1016	
\$TRVAR	001	0020	1065	
\$UNMSK	001	048D	1294	1297 3596
\$USRDR	001	03DC	1205	1206
\$VMDEF	001	0080	1069	
\$VOLF1	001	03FE	1248	1249
\$VOLF2	001	040E	1250	
\$VOLID	001	03F6	1246	1247 1251
\$VOLR1	001	03F6	1247	1248
\$VOLR2	001	0406	1249	1250
\$WAITF	001	057F	1349	1351 2576 2785 3164 3261 3572 3637 3955 3981
\$WFDEF	001	0040	1263	
\$WFLOK	001	0008	1126	
\$WFNME	001	0443	1262	1267
\$WSIND	001	0004	1123	
\$XIND1	001	03D0	1054	1073
\$XIND2	001	03D1	1073	1082
\$XIND3	001	03D8	1201	1204
\$XPREC	001	0040	1066	
\$XRSAB	001	03C7	1026	1028 2365 2383* 2468 3928* 3929 3949* 3950*
\$ZTRAD	001	05A2	1355	
\$12K	001	0004	1210	
\$16CKY	001	0008	1212	
\$16K	001	0002	1209	
\$22IMP	001	0001	1207	
###BL	001	0000	2018	
###CK	001	0000	2146	
###CN	001	0000	2114	
###CO	001	0000	1906	
###CS	001	0000	1966	
###DR	001	0000	1710	
###ER	001	0000	1910	
###FS	001	0000	2006	
###IN	001	0000	2150	
###PW	001	0000	2154	
###RS	001	0000	1986	
###SA	001	0000	1974	
###SS	001	0000	1970	
###VU	001	0600	1930	
###0T	001	0700	1702	
###1T	001	0000	1706	
###BCO	001	0600	1718	
###BOV	001	0800	1990	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$\$\$DPR	001	0700	1726	
\$\$\$DRE	001	0889	1742	
\$\$\$DSP	001	2800	1762	
\$\$\$ECM	001	0C00	2022	
\$\$\$EFK	001	0C00	2042	
\$\$\$ERR	001	0C00	2014	
\$\$\$EXM	001	0C00	1902	
\$\$\$FIL	001	0E00	1982	
\$\$\$FIS	001	0E00	1978	
\$\$\$FML	001	0200	2110	
\$\$\$FMS	001	0200	1950	
\$\$\$GRA	001	0889	1874	
\$\$\$GUF	001	0C00	2010	
\$\$\$INL	001	0600	2090	
\$\$\$INS	001	0600	1714	
\$\$\$KAL	001	0C00	1878	
\$\$\$KCA	001	0C00	2094	
\$\$\$KCH	001	0C00	1846	
\$\$\$KCN	001	0C00	1962	
\$\$\$KCT	001	0C00	1814	
\$\$\$KDE	001	0C00	1810	
\$\$\$KDI	001	0D00	1890	
\$\$\$KDN	001	0C00	1798	
\$\$\$KDO	001	0E00	1894	
\$\$\$KED	001	0C00	1734	
\$\$\$KEN	001	0C00	1738	
\$\$\$KEX	001	0C00	1758	
\$\$\$KGO	001	0C00	1730	
\$\$\$KHE	001	0C00	1914	
\$\$\$KKE	001	0C00	2142	
\$\$\$KLI	001	0C00	1818	2358
\$\$\$KLL	001	0920	2118	
\$\$\$KLO	001	0C00	1822	
\$\$\$KME	001	0D00	1802	
\$\$\$KMO	001	0C00	1746	
\$\$\$KNA	001	0C00	1858	
\$\$\$KOV	001	0E00	1778	
\$\$\$KPA	001	0C00	1754	
\$\$\$KPO	001	0C00	1842	
\$\$\$KPR	001	0C00	1866	
\$\$\$KRE	001	0C00	1786	
\$\$\$KRL	001	0700	1882	
\$\$\$KRM	001	0C00	1750	
\$\$\$KRN	001	0700	1770	
\$\$\$KRO	001	0D00	1774	
\$\$\$KRS	001	0C00	2098	
\$\$\$KRU	001	0C00	1794	
\$\$\$KRV	001	0800	1886	
\$\$\$KSA	001	0C00	1830	
\$\$\$KSE	001	0E00	1870	
\$\$\$KSO	001	0C20	1922	
\$\$\$KSS	001	0C00	1854	
\$\$\$KSV	001	0980	1850	
\$\$\$KSY	001	0C00	1862	
\$\$\$KWI	001	0C00	1790	
\$\$\$KWR	001	0C00	1782	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$\$\$LOA	001	0600	1722	
\$\$\$MIP	001	0C00	1918	
\$\$\$SDS	001	0C00	2030	
\$\$\$SFF	001	0E00	2034	
\$\$\$SFL	001	0F00	2026	
\$\$\$SFO	001	1500	1998	
\$\$\$SFS	001	0C00	1994	
\$\$\$SPA	001	0C00	1834	
\$\$\$SPO	001	0806	1838	
\$\$\$SPS	001	0C00	1826	
\$\$\$STR	001	1600	2002	
\$\$\$TDC	001	1000	1806	
\$\$\$TSY	001	1000	1766	
\$\$\$TVK	001	0FC0	1942	
\$\$\$UAL	001	0C00	1958	
\$\$\$UAT	001	0900	2054	
\$\$\$UCD	001	0900	2062	
\$\$\$UCN	001	0C00	2046	
\$\$\$UCP	001	0700	2050	
\$\$\$UDE	001	0C00	2066	
\$\$\$UDI	001	0C00	2070	
\$\$\$UEX	001	0C00	1954	
\$\$\$UIN	001	0C00	2058	
\$\$\$UPA	001	0C00	2038	
\$\$\$UPO	001	0C00	2106	
\$\$\$UPT	001	0C00	2102	
\$\$\$VCR	001	2000	1898	
\$\$\$VLO	001	0600	1934	
\$\$\$VOD	001	0600	1938	
\$\$\$VVM	001	0000	1946	
\$\$\$VXI	001	0600	1926	
\$\$\$ZDU	001	1100	2078	
\$\$\$ZLB	001	1100	2122	
\$\$\$ZLO	001	1100	2082	
\$\$\$ZLV	001	0F00	2138	
\$\$\$ZL1	001	0F00	2126	
\$\$\$ZL2	001	0F00	2130	
\$\$\$ZL3	001	0C00	2134	
\$\$\$ZTR	001	1000	2074	
\$\$\$ZUT	001	0C00	2086	
\$\$#BLN	001	18D4	2017	
\$\$#CKT	001	2118	2145	
\$\$#CNF	001	2000	2113	
\$\$#COR	001	0800	1905	
\$\$#CSA	001	1000	1965	
\$\$#DRT	001	0000	1709	
\$\$#ERM	001	0928	1909	
\$\$#FSP	001	1880	2005	
\$\$#INV	001	212C	2149	
\$\$#PWR	001	2300	2153	
\$\$#RSP	001	1780	1985	
\$\$#SAV	001	1180	1973	
\$\$#SSA	001	1128	1969	
\$\$#VUF	001	0B08	1929	
\$\$#0TR	001	0000	1701	
\$\$#1TR	001	0080	1705	

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##\$@#BL	001	0001	2019	
##\$@#CK	001	0004	2147	
##\$@#CN	001	0001	2115	
##\$@#CO	001	003A	1907	
##\$@#CS	001	003A	1967	
##\$@#DR	001	0008	1711	
##\$@#ER	001	0032	1911	
##\$@#FS	001	0030	2007	
##\$@#IN	001	003A	2151	
##\$@#PW	001	00C0	2155	
##\$@#RS	001	0030	1987	
##\$@#SA	001	0108	1975	
##\$@#SS	001	0001	1971	
##\$@#VU	001	0002	1931	
##\$@#0T	001	0018	1703	
##\$@#1T	001	0018	1707	
##\$@BCO	001	0018	1719	
##\$@BOV	001	0018	1991	
##\$@DPR	001	0005	1727	
##\$@DRE	001	0001	1743	
##\$@DSP	001	0004	1763	
##\$@ECM	001	0006	2023	
##\$@EFK	001	0002	2043	
##\$@ERR	001	0003	2015	
##\$@EXM	001	0003	1903	
##\$@FIL	001	0009	1983	
##\$@FIS	001	0009	1979	
##\$@FML	001	0052	2111	
##\$@FMS	001	0052	1951	
##\$@GRA	001	0003	1875	
##\$@GUF	001	0010	2011	
##\$@INL	001	0010	2091	
##\$@INS	001	0010	1715	
##\$@KAL	001	000F	1879	
##\$@KCA	001	000C	2095	
##\$@KCH	001	000C	1847	
##\$@KCN	001	0010	1963	
##\$@KCT	001	0009	1815	
##\$@KDE	001	0010	1811	
##\$@KDI	001	0005	1891	
##\$@KDN	001	0010	1799	
##\$@KDO	001	000C	1895	
##\$@KED	001	000E	1735	
##\$@KEN	001	0006	1739	
##\$@KEX	001	0003	1759	
##\$@KGO	001	0002	1731	
##\$@KHE	001	000C	1915	
##\$@KKE	001	0006	2143	
##\$@KLI	001	0011	1819	
##\$@KLL	001	0001	2119	
##\$@KLO	001	0008	1823	
##\$@KME	001	0003	1803	
##\$@KMO	001	0004	1747	
##\$@KNA	001	0008	1859	
##\$@KOV	001	0009	1779	
##\$@KPA	001	0005	1755	

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#\$@KPO	001	000D	1843
#\$@KPR	001	0009	1867
#\$@KRE	001	0002	1787
#\$@KRL	001	0004	1883
#\$@KRM	001	0003	1751
#\$@KRN	001	0003	1771
#\$@KRO	001	000A	1775
#\$@KRS	001	000A	2099
#\$@KRU	001	0003	1795
#\$@KRV	001	000D	1887
#\$@KSA	001	0011	1831
#\$@KSE	001	0004	1871
#\$@KSO	001	000D	1923
#\$@KSS	001	000B	1855
#\$@KSV	001	0002	1851
#\$@KSY	001	000F	1863
#\$@KWI	001	0002	1791
#\$@KWR	001	0002	1783
#\$@LOA	001	0013	1723
#\$@MIP	001	000D	1919
#\$@SDS	001	0004	2031
#\$@SFF	001	0008	2035
#\$@SFL	001	0005	2027
#\$@SFO	001	0003	1999
#\$@SFS	001	0011	1995
#\$@SPA	001	0004	1835
#\$@SPO	001	0003	1839
#\$@SPS	001	0001	1827
#\$@STR	001	0002	2003
#\$@TDC	001	0003	1807
#\$@TSY	001	0003	1767
#\$@TVK	001	0001	1943
#\$@UAL	001	0011	1959
#\$@UAT	001	000C	2055
#\$@UCD	001	000B	2063
#\$@UCN	001	0009	2047
#\$@UCP	001	000F	2051
#\$@UDE	001	000E	2067
#\$@UDI	001	0008	2071
#\$@UEX	001	000E	1955
#\$@UIN	001	000F	2059
#\$@UPA	001	0004	2039
#\$@UPO	001	0005	2107
#\$@UPT	001	0012	2103
#\$@VCR	001	0008	1899
#\$@VLO	001	0002	1935
#\$@VOD	001	0016	1939
#\$@VVM	001	0030	1947
#\$@VXI	001	0002	1927
#\$@ZDU	001	0008	2079
#\$@ZLB	001	0002	2123
#\$@ZLO	001	000C	2083
#\$@ZLV	001	0006	2139
#\$@ZL1	001	0007	2127
#\$@ZL2	001	000D	2131
#\$@ZL3	001	000A	2135

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
#\$@ZTR	001	0001	2075	
#\$@ZUT	001	0014	2087	
#\$BCOM	001	0080	1717	
#\$BOLV	001	1780	1989	
#\$DPRI	001	014C	1725	
#\$DREA	001	0200	1741	
#\$DSPL	001	0240	1761	
#\$ECMA	001	1900	2021	
#\$EFKE	001	1990	2041	
#\$ERRP	001	18C0	2013	
#\$EXMS	001	07D4	1901	
#\$FILN	001	1724	1981	
#\$FIST	001	1700	1977	
#\$FMLN	001	1E00	2109	
#\$FMST	001	0D00	1949	
#\$GRAP	001	0690	1873	
#\$GUFU	001	1880	2009	
#\$INLN	001	1C84	2089	
#\$INST	001	0020	1713	
#\$KALL	001	06A4	1877	
#\$KCAL	001	1CC4	2093	
#\$KCHA	001	053C	1845	
#\$KCND	001	0F80	1961	
#\$KCTL	001	03BC	1813	
#\$KDEL	001	035C	1809	
#\$KDIS	001	0744	1889	
#\$KDNT	001	0300	1797	
#\$KDOV	001	0780	1893	
#\$KEDI	001	0188	1733	
#\$KENA	001	01C4	1737	
#\$KEXT	001	0234	1757	
#\$KGOS	001	0180	1729	
#\$KHEL	001	0A30	1913	
#\$KKEY	001	2100	2141	
#\$KLIS	001	0400	1817	
#\$KLLA	001	2004	2117	
#\$KLOG	001	0444	1821	
#\$KMER	001	030C	1801	
#\$KMOU	001	0204	1745	
#\$KNAM	001	05C0	1857	
#\$KOVN	001	0290	1777	
#\$KPAS	001	0220	1753	
#\$KPOO	001	0508	1841	
#\$KPRT	001	063C	1865	
#\$KREA	001	02BC	1785	
#\$KRLA	001	0700	1881	
#\$KRMO	001	0214	1749	
#\$KRNU	001	0280	1769	
#\$KROV	001	028C	1773	
#\$KRSU	001	1D24	2097	
#\$KRUN	001	02CC	1793	
#\$KRVL	001	0710	1885	
#\$KSAV	001	0488	1829	
#\$KSET	001	0680	1869	
#\$KSOV	001	0AC8	1921	
#\$KSSP	001	0594	1853	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
#\$KSVL	001	058C	1849	
#\$KSYM	001	0600	1861	
#\$KWID	001	02C4	1789	
#\$KWRI	001	02B4	1781	
#\$LOAD	001	0100	1721	
#\$MIPP	001	0A80	1917	
#\$SDSY	001	192C	2029	
#\$SFFI	001	193C	2033	
#\$SFLO	001	1918	2025	
#\$SFOV	001	1844	1997	
#\$SFSY	001	1800	1993	
#\$SPAC	001	04CC	1833	
#\$SPOV	001	04DC	1837	
#\$SPSY	001	0484	1825	
#\$STRO	001	1850	2001	
#\$TDCK	001	0350	1805	
#\$TSYK	001	0250	1765	
#\$TVKB	001	0BAC	1941	
#\$UALL	001	0F00	1957	
#\$UATR	001	1A38	2053	
#\$UCDI	001	1AD8	2061	
#\$UCNF	001	19B8	2045	
#\$UCPL	001	19DC	2049	
#\$UDEL	001	1B24	2065	
#\$UDIS	001	1B5C	2069	
#\$UEXL	001	0EA8	1953	
#\$UINI	001	1A88	2057	
#\$UPAC	001	1980	2037	
#\$UPOV	001	1D24	2105	
#\$UPTF	001	1D5C	2101	
#\$VCRT	001	07B4	1897	
#\$VLOA	001	0B80	1933	
#\$VODK	001	0B88	1937	
#\$VVMR	001	0C00	1945	
#\$VXIT	001	0B00	1925	
#\$ZDUM	001	1BA4	2077	
#\$ZLBM	001	2008	2121	
#\$ZLOA	001	1BC4	2081	
#\$ZLVR	001	20B0	2137	
#\$ZL1M	001	2010	2125	
#\$ZL2M	001	2030	2129	
#\$ZL3M	001	2088	2133	
#\$ZTRA	001	1B9C	2073	
#\$ZUTM	001	1C14	2085	
##DNEA	001	0001	0888	
##DNEF	001	0003	0889	
##DNER	001	0005	0890	
##DNE1	001	0004	0887	
##DNHC	001	0000	0884	
##DNHR	001	0003	0886	
##DNHY	001	0001	0885	
##DPEA	001	0009	0862	
##DPEN	001	0007	0861	
##DPER	001	000B	0863	
##DPE1	001	0004	0860	
##DPHC	001	0000	0858	

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SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 04/06/21 PAGE 88

##DPHR	001	0003	0859	
##DUEA	001	0009	0873	
##DUED	001	0012	0878	
##DUEF	001	000B	0874	
##DUEH	001	002B	0879	
##DUEI	001	000C	0875	
##DUEL	001	000F	0877	
##DUEN	001	0007	0872	
##DUER	001	0031	0880	
##DUES	001	000D	0876	
##DUE1	001	000C	0871	
##DUHA	001	0001	0867	
##DUHB	001	0003	0868	
##DUHC	001	0004	0869	
##DUHR	001	000B	0870	
##LAAA	001	0002	0899	
##LAHC	001	0001	0898	
##LN	001	0001	0927	
##LNE	001	0006	0933	
##LNEF	001	0002	0931	
##LNEZ	001	0002	0932	
##LNH	001	0004	0930	
##LNHY	001	0001	0928	
##LNHZ	001	0002	0929	
##LP	001	0004	0903	
##LPE	001	000C	0908	
##LPEN	001	0008	0905	
##LPEZ	001	0002	0906	
##LPH	001	0004	0907	
##LPHZ	001	0003	0904	
##LU	001	0002	0912	
##LUE	001	0032	0923	
##LUED	001	0003	0920	
##LUEF	001	0002	0916	
##LUEH	001	0019	0921	
##LUEI	001	0001	0917	
##LUEL	001	0002	0919	
##LUEN	001	0008	0915	
##LUES	001	0001	0918	
##LUEZ	001	0006	0922	
##LUH	001	000C	0914	
##LUHZ	001	0007	0913	
##MNHM	001	002A	0956	
##MPHM	001	0055	0941	
##MUEG	001	0020	0948	
##MUEK	001	0040	0947	
##MUEP	001	0080	0946	
##MUER	001	0008	0950	
##MUEV	001	0002	0952	
##MUEX	001	0010	0949	
##MUE0	001	0004	0951	
##MUHM	001	000A	0945	
##RN	001	0000	0847	
##RP	001	0001	0848	
##R1	001	0007	0850	
##R2	001	0005	0849	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
#KLIS	001	0C07	2362	
#KLIST	001	0000	0001	
@@E001	001	0000	0749	0751
@@E003	001	0001	0751	0753
@@E004	001	0002	0753	0755
@@E005	001	0003	0755	0757
@@E006	001	0004	0757	0759
@@E007	001	0005	0759	0761
@@E008	001	0006	0761	0763
@@E009	001	0007	0763	0765
@@E010	001	0008	0765	0767
@@E011	001	0009	0767	0769
@@E012	001	000A	0769	0771
@@E013	001	000B	0771	0773
@@E014	001	000C	0773	0775
@@E015	001	000D	0775	0777
@@E016	001	000E	0777	0779
@@E017	001	000F	0779	0781
@@E018	001	0010	0781	0783
@@E019	001	0011	0783	0785
@@E020	001	0012	0785	0787
@@E021	001	0013	0787	0789
@@E023	001	0014	0789	0791
@@E024	001	0015	0791	0793
@@E025	001	0016	0793	0795
@@E026	001	0017	0795	0797
@@E027	001	0018	0797	0799
@@E028	001	0019	0799	0801
@@E029	001	001A	0801	0803
@@E030	001	001B	0803	0805
@@E031	001	001C	0805	0807
@@E032	001	001D	0807	0809
@@E035	001	001E	0809	0811
@@E036	001	001F	0811	0813
@@E037	001	0020	0813	0815
@@E038	001	0021	0815	0817
@@E039	001	0022	0817	0819
@@E040	001	0023	0819	0821
@@E041	001	0024	0821	0823
@@E042	001	0025	0823	0825
@@E043	001	0026	0825	0827
@@E044	001	0027	0827	0829
@@E045	001	0028	0829	0831
@@E046	001	0029	0831	0833
@@E060	001	002A	0833	0835
@@E080	001	002B	0835	
@@E100	001	0000	0221	0223
@@E101	001	0001	0223	0225
@@E102	001	0002	0225	0227
@@E103	001	0003	0227	0229
@@E110	001	0004	0229	0231 5026
@@E112	001	0005	0231	0233
@@E113	001	0006	0233	0235
@@E114	001	0007	0235	0237
@@E115	001	0008	0237	0239
@@E116	001	0009	0239	0241

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E117	001	000A	0241	0243
@@E120	001	000B	0243	0245 4897
@@E122	001	000C	0245	0247 4628
@@E123	001	000D	0247	0249 4858
@@E124	001	000E	0249	0251 4904
@@E129	001	000F	0251	0253
@@E130	001	0010	0253	0255
@@E131	001	0011	0255	0257 2372 2467 4303
@@E133	001	0012	0257	0259
@@E134	001	0013	0259	0261 2401 4309
@@E135	001	0014	0261	0263
@@E136	001	0015	0263	0265 2408 2457 4306
@@E137	001	0016	0265	0267
@@E138	001	0017	0267	0269
@@E139	001	0018	0269	0271
@@E142	001	0019	0271	0273
@@E143	001	001A	0273	0275
@@E150	001	001B	0275	0277
@@E151	001	001C	0277	0279
@@E160	001	001D	0279	0281
@@E162	001	001E	0281	0283
@@E163	001	001F	0283	0285
@@E164	001	0020	0285	0287
@@E200	001	0021	0287	0289
@@E205	001	0022	0289	0291
@@E210	001	0023	0291	0293
@@E211	001	0024	0293	0295
@@E212	001	0025	0295	0297
@@E213	001	0026	0297	0299
@@E215	001	0027	0299	0301
@@E216	001	0028	0301	0303
@@E217	001	0029	0303	0305
@@E220	001	002A	0305	0307
@@E221	001	002B	0307	0309
@@E222	001	002C	0309	0311
@@E223	001	002D	0311	0313
@@E225	001	002E	0313	0315
@@E226	001	002F	0315	0317 4132
@@E227	001	0030	0317	0319
@@E228	001	0031	0319	0321
@@E229	001	0032	0321	0323
@@E230	001	0033	0323	0325
@@E232	001	0034	0325	0327
@@E234	001	0035	0327	0329
@@E237	001	0036	0329	0331
@@E240	001	0037	0331	0333
@@E241	001	0038	0333	0335 4358
@@E242	001	0039	0335	0337
@@E248	001	003A	0337	0339
@@E249	001	003B	0339	0341 2424
@@E250	001	003C	0341	0343
@@E251	001	003D	0343	0345
@@E252	001	003E	0345	0347
@@E253	001	003F	0347	0349
@@E254	001	0040	0349	0351
@@E255	001	0041	0351	0353

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@@E256	001	0042	0353	0355	
@@E300	001	0043	0355	0357	
@@E301	001	0044	0357	0359	
@@E302	001	0045	0359	0361	
@@E303	001	0046	0361	0363	
@@E304	001	0047	0363	0365	
@@E305	001	0048	0365	0367	
@@E308	001	0049	0367	0369	
@@E310	001	004A	0369	0371	
@@E315	001	004B	0371	0373	
@@E316	001	004C	0373	0375	
@@E320	001	004D	0375	0377	
@@E325	001	004E	0377	0379	
@@E330	001	004F	0379	0381	
@@E335	001	0050	0381	0383	2543
@@E338	001	0051	0383	0385	
@@E340	001	0052	0385	0387	
@@E350	001	0053	0387	0389	
@@E351	001	0054	0389	0391	
@@E352	001	0055	0391	0393	
@@E360	001	0056	0393	0395	
@@E361	001	0057	0395	0397	
@@E362	001	0058	0397	0399	
@@E371	001	0059	0399	0401	
@@E380	001	005A	0401	0403	
@@E390	001	005B	0403	0405	
@@E400	001	005C	0405	0407	
@@E410	001	005D	0407	0409	
@@E415	001	005E	0409	0411	
@@E417	001	005F	0411	0413	
@@E420	001	0060	0413	0415	
@@E430	001	0061	0415	0417	
@@E432	001	0062	0417	0419	
@@E433	001	0063	0419	0421	
@@E450	001	0064	0421	0423	
@@E451	001	0065	0423	0425	
@@E460	001	0066	0425	0427	
@@E461	001	0067	0427	0429	
@@E464	001	0068	0429	0431	
@@E465	001	0069	0431	0433	
@@E466	001	006A	0433	0435	
@@E467	001	006B	0435	0437	
@@E469	001	006C	0437	0439	
@@E470	001	006D	0439	0441	
@@E471	001	006E	0441	0443	
@@E473	001	006F	0443	0445	
@@E474	001	0070	0445	0447	
@@E475	001	0071	0447	0449	
@@E476	001	0072	0449	0451	
@@E477	001	0073	0451	0453	
@@E478	001	0074	0453	0455	
@@E479	001	0075	0455	0457	
@@E480	001	0076	0457	0459	
@@E481	001	0077	0459	0461	
@@E482	001	0078	0461	0463	
@@E483	001	0079	0463	0465	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E484	001	007A	0465	0467
@@E485	001	007B	0467	0469
@@E486	001	007C	0469	0471
@@E487	001	007D	0471	0473
@@E488	001	007E	0473	0475
@@E489	001	007F	0475	0477
@@E490	001	0080	0477	0479
@@E491	001	0081	0479	0481
@@E492	001	0082	0481	0483
@@E493	001	0083	0483	0485
@@E494	001	0084	0485	0487
@@E495	001	0085	0487	0489
@@E496	001	0086	0489	0491
@@E497	001	0087	0491	0493
@@E498	001	0088	0493	0495
@@E500	001	0089	0495	0497
@@E501	001	008A	0497	0499
@@E530	001	008B	0499	0501
@@E531	001	008C	0501	0503
@@E535	001	008D	0503	0505
@@E540	001	008E	0505	0507
@@E541	001	008F	0507	0509
@@E542	001	0090	0509	0511
@@E543	001	0091	0511	0513
@@E544	001	0092	0513	0515
@@E545	001	0093	0515	0517
@@E546	001	0094	0517	0519
@@E547	001	0095	0519	0521
@@E548	001	FFFF	0725	
@@E549	001	0096	0521	0523 4345
@@E550	001	0097	0523	0525 3165
@@E551	001	0098	0525	0527 3338
@@E552	001	0099	0527	0529
@@E553	001	009A	0529	0531
@@E554	001	009B	0531	0533
@@E555	001	009C	0533	0535
@@E556	001	009D	0535	0537
@@E558	001	009E	0537	0539
@@E570	001	009F	0539	0541 2565 2592
@@E571	001	00A0	0541	0543 2566 2589
@@E572	001	00A1	0543	0545
@@E573	001	00A2	0545	0547
@@E574	001	00A3	0547	0549
@@E575	001	FFFF	0727	
@@E578	001	00A4	0549	0551
@@E579	001	FFFF	0729	
@@E580	001	FFFF	0731	
@@E585	001	00A5	0551	0553
@@E595	001	FFFF	0733	
@@E597	001	FFFF	0735	
@@E598	001	FFFF	0737	
@@E600	001	00A6	0553	0555
@@E601	001	00A7	0555	0557
@@E602	001	00A8	0557	0559
@@E603	001	00A9	0559	0561
@@E604	001	00AA	0561	0563

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E606	001	00AB	0563	0565
@@E607	001	00AC	0565	0567
@@E608	001	00AD	0567	0569
@@E609	001	00AE	0569	0571
@@E610	001	00AF	0571	0573
@@E611	001	00B0	0573	0575
@@E612	001	00B1	0575	0577
@@E613	001	00B2	0577	0579
@@E614	001	00B3	0579	0581
@@E700	001	00B4	0581	0583
@@E701	001	00B5	0583	0585
@@E710	001	00B6	0585	0587
@@E712	001	00B7	0587	0589
@@E713	001	00B8	0589	0591
@@E714	001	00B9	0591	0593
@@E715	001	00BA	0593	0595
@@E716	001	00BB	0595	0597
@@E717	001	00BC	0597	0599
@@E718	001	00BD	0599	0601
@@E720	001	00BE	0601	0603
@@E721	001	00BF	0603	0605
@@E723	001	00C0	0605	0607
@@E724	001	00C1	0607	0609
@@E725	001	00C2	0609	0611
@@E726	001	00C3	0611	0613
@@E727	001	00C4	0613	0615
@@E728	001	00C5	0615	0617
@@E729	001	00C6	0617	0619
@@E730	001	00C7	0619	0621
@@E732	001	00C8	0621	0623
@@E752	001	00C9	0623	0625
@@E753	001	00CA	0625	0627
@@E754	001	00CB	0627	0629
@@E755	001	00CC	0629	0631
@@E756	001	00CD	0631	0633
@@E757	001	00CE	0633	0635
@@E758	001	00CF	0635	0637
@@E759	001	00D0	0637	0639
@@E760	001	00D1	0639	0641
@@E761	001	00D2	0641	0643
@@E762	001	00D3	0643	0645
@@E763	001	00D4	0645	0647
@@E764	001	00D5	0647	0649
@@E765	001	00D6	0649	0651
@@E766	001	00D7	0651	0653
@@E767	001	00D8	0653	0655
@@E768	001	00D9	0655	0657
@@E769	001	00DA	0657	0659
@@E770	001	00DB	0659	0661
@@E771	001	00DC	0661	0663
@@E772	001	00DD	0663	0665
@@E773	001	00DE	0665	0667
@@E774	001	00DF	0667	0669
@@E775	001	00E0	0669	0671
@@E776	001	00E1	0671	0673
@@E777	001	00E2	0673	0675

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E778	001	00E3	0675	0677
@@E779	001	00E4	0677	0679
@@E780	001	00E5	0679	0681
@@E781	001	00E6	0681	0683
@@E782	001	00E7	0683	0685
@@E783	001	00E8	0685	0687
@@E784	001	00E9	0687	0689
@@E785	001	00EA	0689	0691
@@E786	001	00EB	0691	0693
@@E790	001	00EC	0693	0695
@@E791	001	00ED	0695	0697
@@E792	001	00EE	0697	0699
@@E793	001	00EF	0699	0701
@@E794	001	00F0	0701	0703
@@E795	001	00F1	0703	0705
@@E796	001	00F2	0705	0707
@@E797	001	00F3	0707	0709
@@E798	001	00F4	0709	0711
@@E800	001	FFFF	0739	
@@E801	001	FFFF	0741	
@@E802	001	FFFF	0743	
@@E803	001	FFFF	0745	
@@E804	001	FFFF	0747	
@@E900	001	00F5	0711	0713
@@E901	001	00F6	0713	0715
@@E902	001	00F7	0715	0717
@@E903	001	00F8	0717	0719
@@E905	001	00F9	0719	0721
@@E906	001	00FA	0721	0723
@@E910	001	00FB	0723	
@ALTFL	001	0001	1544	
@ARR	001	0008	0016	2597 2816 3052* 3053 3054* 3055 3144 3259 3361 3504* 3505 3506* 3507 3803 3947 3971 4125 4244 4333 4500 4625 4820 5024
@ASIGN	001	007C	0071	
@ASTER	001	005C	0069	2866 2908
@BCRDL	001	0050	0088	
@BE	001	0081	0043	4529 4895
@BF	001	0090	0052	
@BH	001	0084	0041	
@BKSPC	001	0010	1641	
@BL	001	0082	0042	
@BLANK	001	0040	0065	2843 2885 3586 3699 3852 3982 4060 4062 4073 4113 4661 5029 5035
@BM	001	0082	0054	
@BNE	001	0001	0046	5020
@BNH	001	0004	0044	
@BNL	001	0002	0045	
@BNM	001	0002	0057	
@BNOL	001	0020	0050	
@BNOZ	001	0008	0049	
@BNP	001	0004	0056	
@BNZ	001	0001	0058	
@BOL	001	00A0	0048	
@BOZ	001	0088	0047	
@BP	001	0084	0053	
@BR	001	0001	0013	2382* 2384 2385 2386 2387 2392* 2393* 2394 2399 2405 2406 2407

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				2423	2522	2524*	2529	2538*	2540	2542	2548	2550	2550	2553	2554
				2555	2558	2560	2565	2566	2568	2573	2573	2574	2598	2599*	2600
				2601	2602	2602	2603	2604	2606	2608	2608	2613	2617	2619	2620
				2620	2621	2621	2623	2623	2625	2628	2629	2630	2631	2631	2632
				2632	2634	2634	2635	2635	2636	2638	2639	2639	2640	2641	2642
				2642	2643	2647	2648	2649	2649	2650	2651	2652	2653	2654	2655
				2663	2664	2665	2665	2666	2666	2668	2668	2669	2669	2671	2672
				2673	2674	2675	2676	2677	2678	2679	2681	2684	2687	2687	2689
				2689	2690	2690	2691	2692	2692	2693	2694	2694	2695	2695	2696
				2696	2697	2697	2698	2699	2759	2760	2760	2761	2761	2762	2767
				2767	2770	2773	2775	2776	2779	2780	2780	2786	2791	2791	2793
				2799	2802	2806*	2810	2814	2815*	2816	2818	2820	2825	2828	2830
				2834	2836	2841	2846	2847	2850	2852	2853	2854	2856	2857	2858
				2858	2862	2863	2864	2867	2870	2871	2874	2879	2880	2881	2883*
				2889	2891	2901	2902	2903	2905	2909	2911	2913	3048	3049	3051*
				3052	3053	3054	3055	3057	3058	3058	3059	3061	3062	3064	3066
				3066	3067	3067	3068	3070	3072	3073	3073	3074	3076	3078	3079
				3079	3080	3080	3081	3081	3082	3089*	3109	3109	3111	3111	3112
				3113	3114	3114	3115	3115	3116	3117	3117	3118	3119	3120	3120
				3121	3123	3123	3124	3124	3125	3125	3126	3126	3127	3140	3142
				3143*	3145	3150	3152	3158	3159	3160	3160	3161	3162	3162	3165
				3166	3166	3169	3170	3171	3171	3178	3180	3181	3187*	3191	3193
				3196	3197	3198	3206	3212	3215	3216	3217	3218	3224	3225	3228
				3229	3230	3231	3235	3235	3241	3241	3244	3246	3246	3248	3248
				3249	3253	3253	3254	3255	3259	3266	3267	3267	3268	3269	3272
				3273	3274	3274	3277	3358	3359	3360*	3361	3363	3363	3364	3365
				3370	3370	3372	3372	3373	3373	3374	3376	3376	3377	3378*	3499
				3501	3502*	3503	3504	3506	3507	3509	3510	3511	3521	3521	3534
				3536	3540	3541	3543	3544	3544	3545	3545	3546	3547	3551	3552
				3557	3557	3558	3558	3559	3561	3561	3574	3576	3577	3581	3581
				3582	3582	3583	3584	3588	3588	3589	3589	3590	3590	3591	3591*
				3592	3594*	3633	3635*	3639	3640	3641	3641	3642	3643	3643	3645
				3645	3646	3646	3647	3647	3648	3648	3654	3654	3657	3657	3658
				3658	3660	3660	3668	3669	3670	3670	3674	3682	3683*	3684	3685
				3687	3688*	3689	3690	3690	3692	3693	3693	3696	3696	3697	3697
				3698	3701	3701	3702	3703	3703	3704	3802	3810*	3820	3821	3821*
				3828	3829	3830	3831	3831*	3838	3840	3841	3842	3842*	3849*	3850
				3852	3859	3859*	3860	3862	3863	3892	3893	3893*	3896	3903	3904
				3904*	3907	3908	3908*	3913	3913*	3915*	3916	3916*	3919	3922*	3923
				3923*	3931	3934	3935	3935*	3936	3939	3943*	3962*	4045	4046	4048
				4048*	4056	4057	4057*	4058	4063	4063*	4071	4073	4074	4074*	4077*
				4081	4082	4082*	4087	4087*	4090	4091	4091*	4099	4103	4111	4112*
				4113	4114	4114	4116*	4117*	4118	4134*	4496	4498	4499*	4500	4510
				4512	4520	4522	4526	4528	4540	4547	4560	4575*	4620	4622	4623*
				4625	4627	4629	4629	4639	4639	4644	4644	4645	4645	4646	4646
				4647	4647	4648	4648	4652	4653	4653	4656	4662	4663	4668	4669
				4669	4671*	4819	4821*	4830	4834	4834	4838	4838*	4863	4864	4865
				4865	4871	4871*	4893	4911*							
@BT	001	0010	0051												
@BZ	001	0081	0055												
@BZ37B	001	00F2	1654												
@B1	001	0001	0063	2546	2603	2604	2608	2620	2800	3283	3364	3365	3821	3831	3841*
				3843	3859	3878	3890	3907	3907*	3916	3935	3948	4057	4063	4064
				4074	4075	4081	4082	4083	4086	4087	4091	4605	4655	4660	
@CADDR	001	0002	0142	2448	2531	2535	2546	2549	2550	2551	2554	2572	2573	2602	2623
				2631	2632	2634	2638	2653	2665	2666	2668	2669	2673	2687	2689

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2690	2692	2694	2708	2732	2767	2791	2821	2829	2833	2835	2840
2846	2848	2853	2856	2857	2858	2867	2868	2871	2879	2901	2909
3058	3166	3206	3235	3241	3246	3248	3521	3693	3696	3865	3866
3889	3903	3950	3981	3996	4101	4107	4560	4562			

@CARDL 001 0060 0087

1388

@CC37B 001 0000 1650

@CD37B 001 00F0 1668

@CHARA 001 00C1 0072

@CHARF 001 00C6 0073

@CHARR 001 00D9 0074

@CHARZ 001 00E9 0075

@CKY01 001 0001 1602

@CKY02 001 0002 1603

@CKY03 001 0003 1604

@CKY04 001 0004 1605

@CKY05 001 0005 1606

@CKY06 001 0006 1607

@CKY07 001 0007 1608

@CKY08 001 0008 1609

@CKY09 001 0009 1610

@CKY10 001 000A 1611

@CKY11 001 000B 1612

@CKY12 001 000C 1613

3612

@CKY13 001 000D 1614

@CKY14 001 000E 1615

@CKY15 001 000F 1616

@CKY16 001 0010 1617

@CLOFF 001 0010 0094

@CLON 001 0011 0093

@CMLON 001 0001 1620

3536*

@CMOFF 001 0000 1619

3540*

@COMMA 001 006B 0066

2371 3934 4854 4873 5031

@CPLUS 001 004E 0079

@CP37B 001 0004 1681

@CR UNDEFINED SYMBOL

2831*

@CRERR 001 0090 1636

@CRPRY 001 0004 1640

@CRTDN UNDEFINED SYMBOL

2628

@CRTDS 001 0092 1633

@CRTQ 001 0090 1635

@CURSR 001 0040 1637

@DADDR 001 0002 0140

3057 3160

@DBFR1 001 0004 0129

3124*

@DBFR2 001 0005 0130

4599 4609

@DBUSY 001 0002 1538

@DCALK 001 0001 0081

@DCBCY 001 0009 0115

@DCBT1 001 0050 0117

@DCFLN 001 0004 1522

@DCNT 001 0003 0128

3106 4522* 4547*

@DCRID 001 0001 1536

@DCST1 001 0040 0116

@DCTRL 001 0000 0125

@DCTRW 001 0000 1535

@DCWID 001 0001 1532

@DCYL 001 0001 0126

3094

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@DCYMV	001	0001	1523	
@DD2	001	0003	0030	3588* 3589* 3590
@DEFLG	001	0002	1545	
@DERCE	001	0020	1575	
@DERD2	001	0008	1567	
@DEREQ	001	0010	1566	
@DERIN	001	0040	1564	
@DERMA	001	0020	1565	
@DERNR	001	0004	1568	
@DERR	001	0000	1539	
@DERSC	001	0001	1570	
@DERTC	001	0002	1569	
@DFCR	001	0006	1525	
@DFDR	001	0004	1526	
@DGET	001	0001	0134	2515 3289 4032 4593 4603
@DHARD	001	0000	1553	
@DLNCT	001	000F	1639	
@DLNLG	001	0040	1638	
@DOLAR	001	005B	0068	
@DOP2	001	0004	0028	2386* 2387* 2388* 2392 3053* 3057* 3058* 3129 3130 3692* 3693* 3696*
@DPLNG	001	0006	0132	3059 3093
@DPOS	001	0000	0133	
@DPUT	001	0002	0135	3281
@DREAD	001	0001	1529	
@DSAD	001	0002	0127	3095 3957* 4520* 4540* 4560
@DSBCY	001	0004	0106	
@DSBSY	001	0092	1634	
@DSCS1	001	0000	0107	
@DSEEK	001	0000	1528	
@DSIVF	001	0003	0138	
@DSPIN	001	0002	0131	
@DTRSZ	001	0018	0085	
@DUNSF	001	0080	1571	
@DVBCY	001	0007	0108	
@DVERY	001	0003	1534	
@DVRFY	001	0031	0136	
@DVST1	001	0002	1540	
@DVST2	001	0003	1541	
@DWAIT	001	00FF	0137	
@DWBCY	001	0005	0103	
@DWBIT	001	0002	1530	
@DWSIZ	001	00C0	0105	
@DWTB1	001	0003	0104	
@DZERO	001	00F0	0064	
@D1	001	0002	0026	2385* 2413 3364* 3376* 3590* 4639
@EOF	001	001C	0077	3209 3960 3963 4119 4130
@EOFTC	001	0075	0162	3322
@EOS	001	001E	0076	2374 2380 2415 4273 4852 4880 4886 4894 5037
@ER37B	001	00F0	1655	
@FDDBC	001	0000	0195	
@FDE1	001	000C	0200	
@FDFNA	001	000B	0198	
@FDHLN	001	0002	0208	
@FDLNC	001	0002	0193	
@FDNSC	001	0003	0210	
@FDSD	001	0000	0206	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@FLACE	001	0009	0197	
@FLDBC	001	0001	0196	
@FLDIN	001	0012	1627	
@FLENT	001	0004	0201	
@FLFNA	001	0002	0199	
@FLHLN	001	0002	0209	
@FLLNC	001	0002	0194	
@FLNSC	001	0001	0211	
@FLSD	001	0001	0207	
@HDRLN	001	0007	0092	1416
@HSTAD	001	0009	1551	
@HSTEN	001	0007	1550	
@HSTPE	001	0006	1549	
@HSTQR	001	0001	1547	
@HSTSN	001	0005	1548	
@HSTVI	001	000F	1552	
@IAR	001	0010	0017	
@ID37B	001	0040	1691	
@INDEX	001	0001	0156	0157 3619
@INST3	001	0003	0032	
@INST4	001	0004	0033	
@INST5	001	0005	0034	
@INST6	001	0006	0035	
@IP37B	001	00C0	1690	
@I1IAR	001	00C0	0020	
@KCMDK	001	0020	1601	
@KELOK	001	001B	1600	
@KENAB	001	001E	1598	
@KEXIT	001	001F	1599	
@KEYBD	001	0010	1618	3536* 3540*
@KFUNK	001	0010	1621	
@KHARD	001	0011	1626	
@KLEAR	001	000D	1622	
@LINSZ	001	00F4	0084	1390
@LO37B	001	00F0	1659	
@MAPEN	001	0005	0089	
@MINCR	001	2000	0083	
@MINUS	001	0060	0080	2547 3819 3820
@NOP	001	0080	0040	2367 3062 3215 3539 3543 3638 3835 3877 3966 4080 4276 4316 4634 4708 4831 4888
@NORFL	001	0000	1546	
@NTRDY	001	00A0	1683	
@NUMBR	001	007B	0070	
@OP	UNDEFINED SYMBOL			4500*
@OPD2	001	0004	0029	
@OP1	001	0003	0027	2597* 2598* 2814* 2816* 3049* 3055* 3185* 3188 3190 3243 3251 3279 3359* 3361* 3501* 3503* 3505* 3507* 3521* 3527 3801* 3802* 3803* 3856* 3862* 3865* 3876* 3882* 3915 3922 3947* 3971* 4058* 4071* 4125* 4244* 4245* 4333* 4498* 4622* 4625* 4819* 4820* 4837* 4846* 4870* 5024*
@OP2	001	0005	0031	3863* 3864*
@OVRUN	001	0004	1576	
@PBUSY	001	00E2	1588	
@PCAR	001	00E6	1585	
@PCNT	001	0003	1520	
@PCTRL	001	0000	0149	3534 3574 3674*
@PCYL	001	0001	1518	

CROSS REFERENCE

SYMBOL	LEN	VALUE	DEFN	REFERENCES	VER 15, MOD 00	04/06/21	PAGE	99
@PC37B	001	00F2	1675					
@PDAR	001	00E4	1584					
@PDATA	001	0003	0151	3509 3509* 3591				
@PD37B	001	0080	1689					
@PERR	001	00E0	1591					
@PFLAG	001	0000	1517					
@PFORM	001	00E1	1589					
@PGCSZ	001	0020	0082	0083				
@PLITE	001	00E2	1590					
@PLNGH	001	0004	1581					
@PMGCK	001	0020	1592					
@PN37B	001	00F0	1674					
@PPLNG	001	0004	0148	3509 3618				
@PRCNT	001	0001	0150	3576* 3581 3581* 3582 3582* 3588 3641 3643 3645 3647* 3654 3657* 3660* 3668* 3669* 3670* 3703* 4121* 4135*				
@PRETR	001	00C0	0154	4025				
@PRINT	001	0040	0152	0154 2630 3674				
@PRITY	001	0080	1625					
@PSAD	001	0002	1519					
@PSIOQ	001	00E0	1587					
@PSIOR	001	0000	1586					
@PSNSQ	001	00E2	1593					
@PSR	001	0004	0015	4258* 4298* 4312* 4907*				
@PWAIT	001	00FF	0158	3534 3574 3577 3583				
@P1IAR	001	0020	0018					
@P2IAR	001	0040	0019					
@Q	001	0001	0024	2367* 2384* 2405* 2406* 2412* 2620* 2677* 2681 2759* 2760* 3061* 3062* 3072* 3078* 3104 3105 3107 3116* 3118 3165* 3212* 3228* 3234 3365* 3373 3373* 3376 3541* 3543* 3832* 3835* 3846 3861* 3867* 3868* 3877* 3884* 3965 4072* 4080* 4108* 4109* 4110* 4128* 4263* 4316* 4702 4706 4832* 4836* 4867 4869* 4921 5043				
@RD37B	001	00F1	1669					
@REGL	001	0002	0012	4846				
@RETRN	001	0080	0153	0154 2630 3626				
@RLDWN	001	004F	0159	2698				
@RTCNT	001	0003	1583					
@RTRNC	001	0080	0161					
@RT37B	001	0005	1682					
@SBLNL	001	0002	0184					
@SCTS	001	0100	0100	2541 2559 2954 2955 4129* 4893				
@SDFLN	001	0007	0090					
@SDF0	001	0000	0166	3323				
@SDF1	001	0001	0167	3324				
@SDF2	001	0002	0168	3325				
@SDF3	001	0003	0169					
@SDLN	001	0005	0170					
@SECCY	001	0030	0086					
@SIST	001	0001	0181					
@SKCTL	001	0000	1533					
@SLASH	001	0061	0067					
@SLAST	001	0002	0183	3226				
@SMIDL	001	0003	0182					
@SNSB0	001	0000	1557					
@SNSB1	001	0001	1558					
@SNSB2	001	0002	1559					
@SNSB3	001	0003	1560					

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SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 04/06/21 PAGE 100

@SNULL	001	0080	0173	3183	3192										
@SN37B	001	00F2	1663												
@SONLY	001	0000	0180	3213											
@SPINA	001	00A0	1542												
@SPINB	001	00B0	1543												
@STEXT	001	0007	0172												
@STYPE	001	0006	0171	3320											
@SYCNT	001	0002	1582												
@TBCNT	001	0000	0160												
@TBLEF	001	0010	0155	0157											
@TBLIX	001	0011	0157												
@TJ37B	001	0040	1680												
@TYPAM	001	0002	1624												
@TYPO	001	001C	1623												
@UCB	001	0087	0039	3116	3212	3223	3228	3541	3832	3846	3861	4072	4128	4263	4704
				4832	4836	4867	4869	5021	5032						
@UPARW	001	005A	0078												
@VADDR	001	0002	0141												
@VENTA	001	0056	0113												
@VMDDV	001	00FE	0114												
@VMFD1	001	0000	0109												
@VMFD2	001	0001	0110												
@VMRS3	001	0002	0112												
@VMTRL	001	0001	0111												
@VOLID	001	0006	0091												
@VQ	001	0001	0025	2390	3592	3911	4114	4118							
@WA37B	001	00FF	1688												
@WSFIT	001	0500	0101	4594	4604										
@WSTBL	001	0503	0102	3285	4033										
@XR	001	0002	0014	2365*	2371	2374	2380	2383	2390	2413*	2414*	2415	2423*	2468*	2540*
				2541	2546	2547	2549	2558*	2559	2605*	2606	2607	2607*	2637*	2641*
				2647*	2648	2650*	2651*	2652	2653	2654	2655	2671*	2672*	2673	2674
				2677	2679	2681	2758	2758	2759	2776*	2777	2786	2812*	2813	2819
				2821	2829	2832	2832*	2833	2835	2838*	2839	2840	2840	2848	2849*
				2851	2853	2856	2867	2868	2870	2871	2873	2875	2876	2877	2878
				2879	2884*	2885	2890	2904	2909	2911	3149*	3158*	3159	3167	3170
				3176	3178	3179	3179*	3183	3185	3186	3186*	3192	3194	3204	3205
				3207	3213	3216	3217	3218	3219	3219*	3224	3226	3229	3230	3231
				3232	3232*	3233	3239	3242	3244	3250	3252	3252*	3266*	3268	3269*
				3270	3273	3367	3503	3508*	3509	3585*	3586	3587	3587	3592	3595*
				3691*	3692	3694	3695	3695*	3699	3700	3700*	3801	3807*	3811*	3815
				3817	3829	3833	3838	3856	3857	3860	3861	3862	3863	3864	3864
				3865	3865	3866	3866	3867	3867	3868	3868	3875	3875	3876	3876
				3877	3878	3878	3881	3881	3882	3882	3884	3884	3885	3885	3889
				3889	3897	3897	3898	3898	3899*	3915	3917	3920	3920	3921	3922
				3924*	3928	3942*	3948	3948*	3949	3956*	3960	3963	4043	4044	4047
				4047	4060	4062	4081	4084	4119	4126*	4130	4250	4253	4264	4264*
				4267	4267*	4273	4311*	4360*	4506*	4508	4508*	4510	4526	4540	4627
				4636	4652	4655	4655*	4660	4660*	4661	4668	4840	4845	4845*	4852
				4854	4857*	4873	4878	4878*	4880	4886	4894	4903*	4906*	5025	5028
				5028*	5029	5031	5034	5034*	5035	5037	5039				
@XRR	UNDEFINED SYMBOL			3858*	4245										
@ZERO	001	0000	0062	2374	2541	2559	2613	2617	2625	2636	2637	2829	2848	2873	2876
				2877	2885*	3061	3180	3224	3233*	3242	3551	3576	3642	3678	3679
				3684	3814	3815	3817	3820*	3838	3838*	3840*	3850	3892*	3896*	3917
				3934*	3939*	4060	4062*	4073*	4081	4081*	4084	4086*	4088	4090*	4104

CROSS REFERENCE																			
SYMBOL	LEN	VALUE	DEFN	REFERENCES													VER 15, MOD 00 04/06/21 PAGE 101		
@ZERO	UNDEFINED	SYMBOL		4129	4130	4273	4561	4884											
@4K	001	0010	1642	3852*	4056*														
AR	UNDEFINED	SYMBOL		2817															
CLICLO	001	0FC1	2723																
C2DEC5	001	141D	3357	3358	3360	3808	3900												
C2DVAL	005	145B	3385	3370	3370	3370*	3372	3372	3809	3901	3903	3907							
C2D020	003	142F	3365	3376	3377														
C2D030	003	1432	3367	3364*	3365*	3373	3373*	3374	3376*										
C2D040	004	143C	3372	3368															
C2D050	004	144E	3378	3359*															
C2D052	004	1452	3379	3361*															
C2D901	001	1456	3383	3363	3363	3363													
C2D902	001	1457	3384	3363															
C2D903	005	1460	3386	3363	3363*	3370	3370	3370	3372	3372	3372	3372*							
C4BCHC	001	0004	4696																
C4BCHR	001	1B47	4684	4652*	4653														
C4BINI	001	1B46	4682	4629															
C4BIN2	001	1ADB	4619	4620	4623	4823	4848												
C4BLEN	002	1B43	4694	4668*	4669*														
C4BLNK	003	1AF6	4702																
C4BLOW	001	00F0	4698	4636															
C4BLVL	002	0002	4700	4629	4644	4645	4646	4647	4648	4653									
C4BNMC	004	1AF2	4706																
C4BNOP	001	0080	4708																
C4BSAV	002	1B49	4688	4627*	4669	4837	4846	4870	4906										
C4BSPC	001	0087	4704																
C4BVAL	002	1B45	4680	4629*	4644	4644*	4645	4646	4646*	4647	4647*	4648*	4653*	4700	4830				
C4BWRK	002	1B43	4677	4864	4645*	4648	4694	4700											
C4BYT1	001	1B44	4679																
C4B100	004	1AF1	4630	4706															
C4B200	003	1AF5	4634	4656	4702														
C4B300	003	1AF8	4636	4662															
C4B590	003	1B27	4660	4639	4663														
C4B600	003	1B2A	4661	4634															
C4B700	003	1B33	4668	4637															
C4B800	004	1B3A	4671	4622*	4640														
C4B850	004	1B3E	4673	4625*															
C4B900	001	1B4A	4690	4630*	4639*														
C4END	001	1B4B	4709																
DCDOUT	UNDEFINED	SYMBOL		2782	2784	3978	3980												
DCRCNT	001	1578	3606	2797*	2800*	3607													
DLIBUF	003	0EA4	2956	3616															
DLPBLN	001	00F4	3707	3586*	3587	3587	3587*	3689											
DLPBSD	001	148C	3516	3603	3604	3605													
DLPBSE	004	149A	3527	3499	3502	3682	3683												
DLPBS2	001	157D	3706	3633	3635	3687	3688												
DLPBUF	UNDEFINED	SYMBOL		3585	3691														
DLPCNT	001	1578	3607	3551*	3552	3561*	3608												
DLPCRT	001	001B	3605	2525	2552	2556	4291	4297	4336										
DLPEXT	002	14AA	3532	3510*	3511*	3521													
DLPBK2	UNDEFINED	SYMBOL		3533															
DLPIPC	UNDEFINED	SYMBOL		3557*															
DLPK13	001	157C	3612	3536	3540														
DLPLIN																			

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
DLPLPC	002	157A	3610	3544* 3545* 3558*
DLPMAX	001	000D	3613	3552
DLPMPR	001	0085	3603	2427 4286 4294 4339
DLPNDX	001	1585	3619	
DLPNPT	001	1511	3566	3520 3525 3603
DLPNXT	001	158B	3623	3641* 3648* 3654 3658 3660 3703
DLPONE	002	1587	3620	3504 3506 3545 3558 3561 3589 3670 3696 3697 3701
DLPPNT	001	0001	3627	3667
DLPPRL	001	15E7	3666	3650
DLPPRT	001	158F	3634	3578 3704
DLPREM	001	158C	3624	3689* 3690* 3701*
DLPRES	001	1588	3621	3642* 3645* 3646* 3647 3648 3684 3690 3697*
DLPRIN	UNDEFINED SYMBOL			3582
DLPRNT	001	1461	3500	2575 2656 2789 3974
DLPRTN	001	158D	3625	3580
DLPSPI	001	148C	3518	3604
DLPSPPT	001	0000	3604	3515
DLPTIF	001	14A7	3529	3605
DLPTYP	001	148B	3513	2427* 2525* 2556 3514 4286* 4291 4294 4297* 4336 4339
DLPWK1	001	157D	3614	3577 3581* 3583 3588 3643 3645 3647* 3654 3657* 3660* 3668* 3669*
				3670* 3674* 3677 3703* 3706
DLPWK2	001	1581	3617	3509* 3523 3534 3570 3574 3576* 3581 3582* 3591 3641
DLPWTH	002	158A	3622	3639* 3640* 3643 3646 3657 3658 3693
DLPYYP	UNDEFINED SYMBOL			2552
DLP100	004	1479	3508	3505*
DLP120	004	1497	3522	3521* 3527
DLP140	003	14B3	3536	3547
DLP160	003	14BD	3539	3541* 3543*
DLP180	003	14C9	3543	3539
DLP200	004	14CC	3544	3542
DLP220	004	14D0	3545	3546
DLP240	004	14DA	3548	3538
DLP260	003	14E8	3552	3549
DLP280	003	14F2	3556	3554
DLP300	004	14F9	3558	3559
DLP320	004	1503	3561	3556
DLP340	003	1507	3562	3560
DLP360	004	150A	3563	3535
DLP380	004	1518	3569	3584
DLP400	003	1527	3574	3568
DLP420	003	1530	3577	3575
DLP440	004	153C	3581	3685
DLP460	004	1564	3592	3588* 3589* 3590 3590*
DLP480	004	1568	3594	3501* 3526 3562 3564 3573
DLP500	004	156C	3595	3503*
DLP520	004	1574	3597	3507*
DLP540	006	15C5	3649	3644
DLP560	003	15F9	3674	3655 3659 3662
DLP580	005	1630	3694	3692* 3693* 3696* 3698
DLP600	003	1643	3699	3702
DL4CYL	001	1276	3094	3066*
DL4C01	002	127C	3102	3052 3054 3066
DL4C05	002	127E	3103	3058
DL4C24	003	124D	3105	3079
DL4C48	003	123A	3107	3073 3114 3120
DL4C96	003	1229	3104	3067

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
DL4DPL	006	127A	3093	3059*
DL4EFD	001	0001	3100	3072 3118
DL4END	001	12BC	3131	
DL4ETB	001	0080	3101	3078
DL4E01	001	0001	3099	3074
DL4E24	001	0018	3098	3076
DL4E48	001	0030	3097	3070 3112
DL4E96	001	0060	3096	3064
DL4ICS	001	1200	3047	3275 3952 4543 4550
DL4LST	001	1275	3092	3085 3094 3095 3106 3124*
DL4SAV	005	1217	3130	3117* 3120* 3123
DL4SCD	001	1277	3095	3064 3067* 3070 3073* 3076 3079* 3080 3080* 3081 3081* 3082* 3111
				3117 3123* 3125*
DL4SCT	001	1278	3106	3074 3109 3115* 3124 3125 3126*
DL4SPT	004	127F	3110	3075 3134
DL4WRK	005	1218	3129	3109* 3111* 3112 3114* 3115 3126
DL4010	001	1204	3050	3048 3051
DL4020	005	1214	3057	3053* 3129 3130
DL4030	005	121D	3059	3057* 3058*
DL4035	003	1222	3061	3127
DL4040	003	1228	3064	3068 3104
DL4050	003	1239	3070	3065 3107
DL4060	003	1246	3074	3071
DL4070	003	124C	3076	3105 3113 3119 3121
DL4080	004	1259	3080	3077
DL4100	003	1261	3082	3061* 3072* 3078* 3118
DL4200	003	126A	3087	3062* 3116*
DL4500	004	127F	3109	3110
DL4600	004	12A9	3123	3087
DL4900	004	126D	3089	3049*
DL4920	004	1271	3090	3055*
GFIBF1	001	1B00	2955	3956 3996 4035 4126 4129* 4479 4596
GFIBF2	001	1C00	2954	2955 4606
GFIBR1	001	1B3E	4599	4562
GFIBR2	001	1B44	4609	
GFIBSE	001	1AE6	4505	4496 4499
GFICT1	001	0001	4465	4528 4547 4566
GFICT2	001	0002	4466	4522
GFIDS0	001	0000	4468	
GFIDS1	001	0001	4469	
GFIDS2	001	0002	4470	4510
GFIDS3	001	0003	4471	
GFIDS4	001	0004	4472	4508 4526 4540
GFIDS5	001	0005	4473	
GFIDS8	001	0008	4474	4483
GFIDTA	001	0003	4485	4520
GFIFR1	001	1B00	4479	
GFILNI	UNDEFINED	SYMBOL		4526
GFILNO	002	1B37	4585	2531 2531* 2821* 2829 2833 2835* 4510
GFILN1	001	0001	4476	4540
GFILN2	001	0002	4477	4510
GFINDN	001	1ADB	4497	2533 2823
GFIND0	004	1B2E	4575	4498*
GFIND2	004	1B32	4576	4500*
GFINTY	001	1D08	4483	2831 4506
GFIRAD	001	1B3F	4602	4540* 4544 4609

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
GFIRED	001	1B39	4592	4520* 4522* 4547* 4551 4560 4599
GFITAD	001	1D00	4481	4483
GFIWRK	001	1B38	4587	4526* 4528
GFI100	003	1AEA	4508	4512
GFI150	004	1AED	4510	
GFI200	003	1B01	4529	2367*
GFI500	004	1B11	4550	4529
GRABIT	001	127F	3141	2534 2845 4138 4564
GRABOA	002	1408	3306	3235 3248 3253
GRABSE	004	135D	3332	3140 3143
GRACCA	002	13F9	3283	
GRACFN	001	13F8	3281	
GRACPL	001	13F8	3280	
GRACSC	001	13FB	3286	3162*
GRAEBS	001	00FF	3314	3161 3277
GRAEDB	001	0002	3300	3169 3272
GRAEDC	001	0001	3331	
GRAEDL	UNDEFINED	SYMBOL		3186 3204
GRAEDS	001	0005	3333	
GRAEDT	001	0007	3320	3176 3205 3207
GRAED5	UNDEFINED	SYMBOL		3267
GRAEET	001	0075	3322	3176 3207
GRAEFG	001	0004	3313	3198
GRAEFI	001	0000	3309	3145
GRAEFR	001	0001	3311	3150 3196
GRAEFS	001	0002	3312	3152
GRAEFW	001	0003	3310	
GRAELK	001	0000	3316	3167 3170 3270 3273
GRAELL	001	0002	3321	3204
GRAELN	001	0000	3317	3167 3219 3270
GRAELP	001	0007	3327	
GRAELS	001	0004	3328	3232
GRAEMR	001	001B	3329	3239
GRAENC	001	0001	3330	3239 3244* 3250 3252
GRAERR	004	1411	3338	3165* 3181 3193 3197
GRAESC	001	0001	3315	
GRAESO	UNDEFINED	SYMBOL		3192
GRAES0	001	0001	3323	3183
GRAES1	001	0002	3324	3178 3179 3216 3217* 3218 3229 3230* 3231
GRAES2	001	0003	3325	3194 3213 3226
GRAETP	001	0002	3326	3194
GRAEW2	001	0006	3334	
GRAEXA	001	0001	3318	3319 3320 3323 3324 3325
GRANCA	002	1403	3294	3159* 3166* 3267 3268*
GRANDA	002	1400	3290	3160* 3169* 3170* 3171* 3272* 3273* 3274*
GRANPB	002	1408	3299	3171 3274 3305 3306 3307
GRANPL	001	13FE	3288	3276
GRANXC	002	1408	3307	
GRAONE	002	1408	3305	3244
GRAPSG	002	140D	3303	3217
GRASAR	004	1300	3190	3144*
GRASBR	004	12FC	3188	3142*
GRASEG	001	1410	3308	3218* 3231* 3253*
GRASIZ	001	1409	3301	3161* 3178* 3180 3216* 3229* 3277*
GRASSA	UNDEFINED	SYMBOL		3259*
GRASSG	002	140F	3304	3230

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
GRASSZ	002	1406	3298	3166
GRASVC	003	1381	3234	3224*
GRATND	005	139B	3243	3241* 3246 3248*
GRATXT	002	140B	3302	3206
GRA020	004	1291	3149	3185*
GRA100	003	12A4	3158	3146
GRA140	003	12C2	3167	
GRA150	004	12CF	3171	3168
GRA200	003	12D6	3176	3153
GRA210	004	12DC	3178	3154 3200
GRA220	003	12E3	3180	3221 3223
GRA230	004	12F2	3185	3177 3195 3199 3210
GRA240	004	12F9	3187	3188
GRA245	004	12FD	3189	3190
GRA250	003	1301	3191	3182 3184
GRA260	003	1304	3192	3172
GRA300	005	1322	3204	3151
GRA303	003	133F	3212	3208
GRA305	004	134B	3216	3214
GRA310	004	135D	3221	3212* 3215* 3222 3228* 3254 3332
GRA313	004	1371	3229	3227
GRA315	003	1380	3233	3234
GRA316	004	1383	3235	3255
GRA317	001	1387	3236	3220
GRA320	005	1398	3242	3243 3249
GRA330	004	13AB	3248	3245
GRA350	005	13B2	3250	3238 3240 3251
GRA360	003	13B7	3252	3247
GRA5SA	004	13F7	3279	
GRA500	003	13C4	3259	3191 3225
GRA600	001	13CD	3262	
GRA620	004	13E7	3274	3271
GRA640	004	13EB	3275	
GRA660	003	13F1	3277	
GRA680	004	13F4	3278	3279
GRBFRA	002	13FD	3287	3158 3266 3267* 3269 4562*
GRBFR1	UNDEFINED	SYMBOL		3287
GRLINE	002	1191	2897	2535 2846 2853 2856 3204* 3807
GRSCTR	001	1401	3291	2532* 3162
GRSRDA	002	13FA	3282	3160 3283 4560*
GRTEND	005	13B5	3251	2857 2868* 2884 3206* 3235* 3241 3246* 3929
GRTEXT	001	0C07	2952	2844* 2865 2866* 2895 2953 3209* 3302 4002
GRTYPE	001	118B	2894	2863 2905 3205*
GRWHAT	001	1404	3295	3145 3150 3152 3196 3198 4561* 4566*
I	UNDEFINED	SYMBOL		4046*
ICAERR	UNDEFINED	SYMBOL		4306* 4309*
ISPYCD	UNDEFINED	SYMBOL		4368
KIIFOR	001	0004	2933	
KLCLST	UNDEFINED	SYMBOL		2651 2672
KLDMON	001	0001	2942	
KLIASK	001	0001	2923	2561 2779
KLIBCW	001	0050	2948	2432 2770
KLIBD0	001	0000	2481	
KLIBD1	001	0001	2482	2399 2405 2406 2407*
KLIBD3	001	0003	2483	
KLIBF@	002	118D	2895	2638 2871 2901*

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
KLIBFF	001	00FF	2484	2394 2412
KLIBF0	UNDEFINED	SYMBOL		2858
KLIBLF	UNDEFINED	SYMBOL		2780*
KLIBLN	002	0FB7	2706	2546* 2572
KLIBMP	001	0004	2945	
KLIBOF	001	0002	2934	2793 2827
KLIBRY	001	0D58	2486	2382
KLIBUF	002	0FBD	2718	2638* 2647 2648* 2767* 2776 2786* 2871* 2904*
KLICDA	001	2004	2509	2516
KLICDC	001	0920	2511	2518
KLICDL	001	0001	2510	2517
KLICDO	001	0002	2946	2765
KLICD1	001	0E57	2589	2565*
KLICD2	001	0E5A	2592	2566*
KLICHG	001	0FC3	2725	2675* 2819 2839*
KLICLN	002	0FC0	2722	2551* 2623* 2653 2673* 2791* 2817 2821 2826 2840 2848 2853 2856*
KLICLO	UNDEFINED	SYMBOL		2604* 2621 2635 2649* 2654 2684* 2696 2876*
KLICRL	001	0040	2931	2797 2875
KLICRT	001	0008	2943	2527 2615 2872
KLICTR	001	0FDC	2750	2601* 2608* 2636* 2639 2642*
KLICWD	UNDEFINED	SYMBOL		2434 2773 3982* 3983 3983 3983*
KLIC64	002	0FD4	2743	2641 2879
KLIDCD	001	0D79	2514	2448
KLIDIS	001	0080	2930	2863 2905
KLIDVT	001	0D57	2471	2409 2411* 2425 2428 2449 2458 2464 2527* 2615 2765 2787 2872
				3972 3976
KLIEFI	001	0003	2935	2888
KLIEOF	002	118F	2896	2817 2846
KLIER1	001	0E59	2591	
KLIER2	001	0E5C	2594	2568
KLIFIL	UNDEFINED	SYMBOL		2911*
KLIFIV	002	0E52	2584	2550
KLIFLF	002	0FC5	2728	2535* 2826
KLIFLL	001	0FBB	2717	2770 2773 2870* 2875*
KLIFOR	UNDEFINED	SYMBOL		2549 2606* 2832
KLIHOF	UNDEFINED	SYMBOL		2839
KLIICI	001	0FC6	2729	
KLIICT	002	0FDF	2756	
KLIINC	002	0FB9	2709	2623 2669* 2690* 2710 2791
KLIKEY	001	0004	2927	
KLILCB	001	0FB5	2704	2812 2813 2838 2849
KLILLE	001	0001	2936	2890
KLILST	002	0FD0	2741	2605
KLIMAG	002	0FDB	2747	2455* 2748 2767
KLIMAX	002	0E50	2583	2554
KLIMK1	001	0002	2474	2428 2488 3972 3976
KLIMK2	001	0014	2475	2449 2458 2494
KLIMK3	001	0004	2476	2464 2491
KLIMK4	001	0001	2477	2497
KLIMK5	001	000F	2478	2425 2500
KLIMK6	001	0080	2480	2399 2407
KLIMLS	001	0FC2	2724	2603* 2606 2621 2655 2674* 2695 2761 2877* 2878*
KLIMN1	002	0FCE	2740	2669
KLIMN5	002	0FD9	2746	2602
KLIMOD	001	0FBE	2719	2619* 2620 2628 2652 2663 2676* 2678* 2679 2824 2851
KLIMOF	001	0000	2939	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
KLIMON		UNDEFINED	SYMBOL	2675 2819
KLIMXJ	002	0FCA	2738	2632 2666 2689 2694
KLINDC	001	0FDD	2753	2561 2563 2567* 2569 2754 2775* 2779*
KLINIT	001	0001	2941	
KLIOPT	001	0FBA	2712	2630* 2657 2698* 2783 2790
KLIPL1	002	0FCC	2739	2393 2414 2567 2608 2642 2649 2690 2697 2760 2780 2867 2868
				2878 2909
KLIPL5	002	0FD7	2745	2455 2631 2665 2687 2692
KLIPPP	001	00C0	2938	
KLIPRT	001	0001	2944	2787
KLISHF	001	0CFB	2953	2843* 2844 2865*
KLISIX	001	0006	2920	2568 2833
KLISLN	002	0FC8	2730	2549* 2551 2554* 2572* 2840
KLISTH	001	0000	2918	
KLISTL	001	0002	2919	2653* 2673
KLISTM		UNDEFINED	SYMBOL	2652* 2679
KLISTN	001	0C07	2364	2952
KLISTO	001	0003	2921	2654* 2677 2758
KLISTS	001	0004	2922	2655* 2674 2681 2758* 2759 2761*
KLISYS	001	0080	2926	
KLITAB	001	0D7F	2951	2741
KLITHR	001	0003	2949	
KLITLG	001	0005	2937	2568* 2606 2607
KLITNO	001	0002	2932	2547 2835
KLITWO	002	0E54	2585	2388 2573
KLITXE	001	00F3	2929	2844* 2865 2907
KLITYP	001	0FB5	2705	2613 2617 2625 2793* 2827* 2873* 2888* 2890*
KLIW		UNDEFINED	SYMBOL	2870
KLWRK	002	118A	2893	2857* 2858* 2867* 2879* 2902* 2903* 2909* 2911
KLIXRJ	002	0FD2	2742	2602* 2631* 2632 2634 2634* 2650 2665* 2666 2668 2668* 2671 2687*
				2689* 2692* 2694*
KLIXR1	002	0E56	2586	2540 2550* 2558 2573*
KLIIWK	001	0FD5	2744	2635* 2639 2695* 2696* 2697*
KLIZRO	002	0D56	2470	
KLIO15	001	0C31	2376	
KLIO17	003	0C39	2380	2420
KLIO19	005	0C47	2384	2395
KLIO20	005	0C60	2390	2384* 2385* 2386* 2387* 2388* 2392 2412* 2413
KLIO30	001	0C7A	2398	2391
KLIO35	001	0C87	2404	2400
KLIO37	004	0C98	2409	2405*
KLIO39	004	0C9F	2411	2406*
KLIO50	001	0CC3	2422	2381 2416
KLIO52	004	0CEA	2434	2431
KLIO53	004	0CEE	2435	2433
KLIO54	004	0CFC	2446	2436
KLIO55	004	0D24	2457	2429
KLIO57	004	0D3B	2462	2450
KLIO60	004	0D49	2467	2396 2418 2452 2454
KLIO61	004	0D51	2469	2370 2373 2402 2410 2419 2438 2459 2582
KLIO70	001	0D7F	2523	2426 2522 2524 2538 2951
KLIO72	001	0DB5	2537	2375 2456 2463 2465
KLIO73	005	0DD2	2546	2560
KLIO74	003	0DBD	2540	2529 2536
KLIO75	006	0DE6	2551	2542 2574
KLIO76	003	0DF8	2555	2553

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
KLI078	005	0E25	2568	2564
KLI080	006	0E38	2572	2548
KLI090	004	0E45	2575	2557 2562
KLI100	001	0E5D	2596	2555
KLI104	004	0E7A	2606	2609
KLI105	004	0E91	2612	2792
KLI106	003	0EA4	2617	2660 2662 2956
KLI110	003	0EAB	2619	2685
KLI120	004	0EB2	2621	
KLI125	001	0EC8	2627	2622
KLI135	004	0EE0	2635	2599 2600 2633
KLI136	003	0EE4	2636	2699
KLI14	001	000E	2925	2601
KLI140	004	0EF0	2639	2643
KLI145	003	0F01	2647	2640
KLI150	001	0F27	2658	2620* 2799 2802
KLI160	004	0F4C	2669	2667
KLI170	003	0F50	2671	2691
KLI175	004	0F74	2681	2762
KLI180	003	0F7F	2684	2677* 2681 2682 2759* 2760*
KLI182	004	0F86	2687	2664
KLI183	004	0F91	2690	2688
KLI185	004	0F98	2692	2629
KLI186	004	0FA3	2695	2693
KLI190	004	0FE0	2758	2680
KLI2BF	001	0001	2940	2532
KLI2IB	UNDEFINED SYMBOL			2771
KLI21A	003	100B	2773	2769
KLI21B	003	100E	2774	
KLI210	001	0FF3	2764	2616
KLI212	003	1014	2776	2774
KLI214	001	1024	2781	2778
KLI220	004	103A	2789	2766
KLI230	004	1040	2791	2788
KLI244	001	00F4	2928	2844 2865 2907 2907*
KLI245	003	1048	2793	
KLI250	004	104B	2794	2618 2626
KLI260	004	104F	2795	2796
KLI305	UNDEFINED SYMBOL			2836
KLI380	001	106D	2804	2611
KLI387	004	106D	2805	
KLI399	004	1071	2806	2598* 2614
KLI400	001	1075	2807	2597*
KLI500	001	1079	2811	2612 2624 2683
KLI503	003	112A	2863	2860
KLI504	003	10BF	2832	2834
KLI505	001	109B	2822	2810 2815
KLI510	001	10D2	2837	2820 2825
KLI515	001	10E0	2842	2830 2850 2854
KLI516	001	110F	2855	2852
KLI517	001	1143	2869	2864
KLI520	004	114B	2872	2913
KLI530	005	115E	2878	2881
KLI54	UNDEFINED SYMBOL			2814*
KLI540	004	116D	2883	2828 2874 2889 2891
KLI541	004	1178	2886	2816*

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
KLI560	004	117C	2888	2818
KLI570	003	1183	2890	2841
KLI580	001	1192	2899	2862
KLI581	001	11BE	2910	2906
KLI940	UNDEFINED	SYMBOL		2880
KLI960	UNDEFINED	SYMBOL		2847
KLONGL	001	0002	2924	2561 2563 2775
SCACNT	002	1C7A	5049	4884 5039* 5040*
SCACOF	001	0087	5021	
SCACOM	001	0001	5020	2378 4246
SCAERK	UNDEFINED	SYMBOL		2545 2571
SCAERQ	UNDEFINED	SYMBOL		4303*
SCAERR	UNDEFINED	SYMBOL		4132*
SCAINC	001	0001	5019	5028 5034
SCAMMA	003	1C57	5043	4246*
SCANIT	001	1C3A	5023	2366 2379 2417 4269 4839 4847 4872 4879
SCASVE	002	1C78	5048	5025* 5040
SCASV1	001	1C77	5047	
SCA100	003	1C49	5028	5030
SCA200	003	1C4C	5029	5027
SCA250	003	1C56	5032	5043
SCA300	003	1C59	5034	5036
SCA400	004	1C69	5039	5032
SCA500	004	1C73	5042	5024* 5038
SCKCCR	UNDEFINED	SYMBOL		4250
SCKCFR	003	1A76	4326	
SCKCLI	UNDEFINED	SYMBOL		4369*
SCKCL1	004	1AC9	4368	
SCKCMP	007	1A7D	4327	4253
SCKDEV	001	1A84	4332	2526 2539 4360
SCKEND	001	1ADB	4374	4611
SCKERR	UNDEFINED	SYMBOL		4361
SCKOUT	001	19E8	4243	
SCK001	001	0003	4321	4250 4250 4264 4326
SCK002	001	0007	4322	4253 4253 4267 4327
SCK003	002	1A7F	4328	4258
SCK004	002	1A81	4329	
SCK005	002	1A83	4330	4312
SCK100	004	1A0B	4263	4251
SCK150	003	1A15	4267	4254
SCK200	004	1A18	4269	4265
SCK300	003	1A29	4276	4263* 4271 4316*
SCK304	UNDEFINED	SYMBOL		4298
SCK350	004	1A39	4291	4276
SCK400	004	1A4B	4298	4287
SCK410	004	1A52	4303	4274
SCK420	004	1A59	4306	4281 4295
SCK430	004	1A60	4309	4284 4292
SCK44	UNDEFINED	SYMBOL		4245*
SCK440	004	1A64	4311	4304 4307
SCK450	004	1A6C	4316	4259 4299
SCK46	UNDEFINED	SYMBOL		4244*
SCK460	004	1A70	4317	
SCK475	004	1AA8	4348	4337
SCK500	004	1AB9	4358	4349
SCK550	004	1ABD	4360	4346 4356

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
SCK600	004	1AC5	4365	4352
SCK650	004	1AD7	4373	4333* 4340 4343
SCOMMA	UNDEFINED	SYMBOL		2378*
SDLACT	001	1890	3987	4052* 4064* 4075* 4083* 4088
SDLBEG	001	0006	4006	
SDLBF@	001	0C07	4002	3811
SDLBLF	UNDEFINED	SYMBOL		3806 3983
SDLBUF	UNDEFINED	SYMBOL		2907 2907* 2908* 3806* 3809* 3810 3982* 3983* 3997 4027 4116 4134
SDLBUP	001	0607	2957	
SDLCON	002	1898	3991	3899
SDLCTR	001	189D	3995	3823* 3825* 3843* 3874* 3875* 3876 3878
SDLC18	001	0012	4000	4052
SDLC80	001	0080	4016	3869 3874
SDLDPL	001	18A6	4031	3953 3957*
SDLDZR	001	000F	4011	3833
SDLEBC	001	00F0	4008	3830 3840 3841
SDLED@	002	189F	3996	3950
SDLED1	001	00FD	3998	3806*
SDLEND	001	00FE	3999	3806
SDLEXE	001	00C5	4014	3896 4045
SDLEXP	001	1899	3992	3869 3875 3878* 3881* 3882 3884 3885 3890 3897* 3898* 3917 3920*
				4043 4047*
SDLFOR	001	0004	4017	3809
SDLHLD	001	12B1	4138	4111* 4118
SDLIST	001	1657	3800	2900
SDLI80	UNDEFINED	SYMBOL		3977
SDLLNE	001	0007	4021	
SDLLNG	001	0032	4019	3810
SDLLST	002	188F	3986	3860* 3866* 3867 3885 3889* 3890 3897 4047
SDLMAX	001	00FF	4018	3806
SDLMIN	001	0010	4004	3817
SDLMNI	002	1894	3989	
SDLMN1	UNDEFINED	SYMBOL		3849 3962 4112
SDLMOD	001	189C	3994	3881
SDLNLM	UNDEFINED	SYMBOL		3829
SDLNUM	001	0003	4007	
SDLONE	001	0001	4038	4034
SDLONG	001	0008	4010	3825
SDLOT@	002	18A1	3997	2901 2903 2904
SDLPGM	001	19B5	4124	2805
SDLPI	UNDEFINED	SYMBOL		3864
SDLPL1	002	189B	3993	3843 3868 3920 3957 4064 4075 4083 4106
SDLPL2	002	1892	3988	3889 3898
SDLPNT	001	004B	4013	3912
SDLPPL	001	18A2	4024	3975 3979 4121* 4135*
SDLQUO	001	007D	4001	4056 4084 4086 4090
SDLSAV	002	1896	3990	2902 3828* 3865 3866 3931* 3936* 4107
SDLSMN	001	19E5	4139	3814* 3819* 4104
SDLSRT	001	0004	4003	3823
SDLTHR	001	0003	4015	3904
SDLTWO	001	0002	4009	3842 3903* 3908 4043
SDLTYP	001	0040	4020	3815
SDLWID	002	18AD	4039	2432* 4101 4135
SDLWIO	UNDEFINED	SYMBOL		2434*
SDLWRK	002	19E7	4140	4099* 4101 4103* 4106* 4107* 4108 4109 4110 4117 4121
SDLZON	001	0002	4005	3838

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
SDLZRO	001	00F0	4012	3850 3901 3919 3939
SDL001	001	1663	3804	
SDL005	001	167F	3813	3938 4136
SDL010	004	169A	3822	3818
SDL025	001	16A9	3827	3824
SDL030	004	16C5	3836	3834 3844
SDL035	003	16C9	3837	3832* 3835* 3846
SDL037	006	16D9	3843	3837
SDL040	004	16EE	3849	3853
SDL050	001	16FF	3855	3851
SDL052	001	1731	3873	
SDL053	001	1748	3880	3870
SDL054	001	1750	3883	
SDL055	003	1774	3896	3891
SDL056	004	177F	3899	4049
SDL057	005	1799	3907	3902
SDL060	006	17A4	3911	3857 3858 3862* 3863* 3864* 3867* 3868* 3876* 3884* 3886 3922 4044
SDL061	004	17AA	3912	3865* 3915
SDL062	003	17B1	3914	3861* 3877*
SDL063	003	17B7	3916	3921
SDL064	003	17CA	3922	3918
SDL065	004	17D0	3924	3856* 3894 3905 3909 3914
SDL066	001	17D4	3925	3847 3940 4092
SDL069	UNDEFINED SYMBOL			3887
SDL075	001	17F1	3933	3930 4120
SDL080	003	1803	3939	
SDL089	004	180A	3942	3801* 3932 4123
SDL090	004	180E	3943	3802*
SDL091	004	1812	3944	3803* 4125*
SDL100	001	1816	3946	3836 3845 3937 4059 4067 4127
SDL102	004	1840	3958	
SDL104	004	1854	3964	3965 4128*
SDL105	004	1858	3968	3947* 3951 3959 3961
SDL150	001	185C	3970	4115 4122
SDL160	004	186D	3976	
SDL170	004	1874	3978	3973
SDL180	004	188A	3984	3971*
SDL200	003	18AE	4043	3879
SDL250	001	18C5	4051	3816
SDL251	004	18D3	4059	
SDL255	004	18F0	4067	4076 4089
SDL256	003	18F7	4070	4072* 4080*
SDL257	003	1902	4073	4070
SDL270	004	1912	4077	4058* 4065 4071*
SDL280	001	1919	4079	4061 4069
SDL281	004	1936	4088	4085
SDL285	003	193E	4090	4078
SDL291	UNDEFINED SYMBOL			4066
SDL300	001	1949	4098	3927 3964 4612
SDL305	006	1967	4107	4105
SDL310	005	197F	4111	4108*
SDL320	004	198B	4114	4110*
SDL330	005	199B	4118	4109*
SDL340	003	19A0	4119	4102
SDL345	004	19D7	4134	4131
SEYFTR	UNDEFINED SYMBOL			4369

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SLLBLW	002	1C39	4926	4907							
SLLDSH	001	0060	4919	4840	4863						
SLLIND	003	1C14	4921	2368*							
SLLINE	001	1948	4612	2588	4821						
SLLIST	001	1B4B	4817	2369							
SLLLN2	001	0002	4918	4821	4830	4834	4837	4864	4865	4870	
SLLRET	001	0087	4922	2368							
SLL000	001	0000	4914	4894							
SLL001	001	0001	4915	4834	4865						
SLL002	001	0002	4916	4838	4893*						
SLL003	001	0003	4917	4830*	4834	4864*	4865	4871			
SLL100	004	1B57	4823	4889							
SLL110	003	1B66	4831	4832*							
SLL115	004	1B70	4834	4831							
SLL120	003	1B81	4838	4833	4835						
SLL125	004	1BB1	4857	4846*	4853						
SLL130	003	1BBC	4863	4850							
SLL140	003	1BDC	4871	4866	4868						
SLL150	003	1BE3	4873	4841							
SLL160	004	1BF9	4884	4874							
SLL165	003	1C06	4888	4836*	4869*	4882	4885				
SLL169	UNDEFINED	SYMBOL		4867							
SLL180	003	1C0D	4893	4826							
SLL190	003	1C13	4895	4921							
SLL195	004	1C16	4897	4855	4887						
SLL200	004	1C1D	4903	4837*	4870*	4888					
SLL210	004	1C28	4906	4824	4849	4899					
SLL215	004	1C2C	4907	4859	4881	4905					
SLL220	004	1C30	4911	4819*	4895						
SLL230	004	1C34	4912	4820*							
SPLZRO	UNDEFINED	SYMBOL		3892							
SSL002	UNDEFINED	SYMBOL		4863*							

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY = 109

OL105 I THE CODE LENGTH OF #KLIST IS 7424 DECIMAL.