

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

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

ERR LOC OBJECT CODE				ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 07/03/22 PAGE 2			
0000					1	#KROVL	START 0				
					2		PRINT ON,NODATA				
					3	*	@SYS EXP-N				
					214+		PRINT ON				
					215	*	@FXD EXP-N				
					620+		PRINT ON				
					621	*	@CAN EXP-N				
					724+		PRINT ON				
					725	*	@SPF EXP-N				
					1188+		PRINT ON				
					1189	*	@B@E EXP-N				
					2089+		PRINT ON				
					2090	*	@ERM EXP-N				
					2712+		PRINT ON				

#KROVL -- RENUMBER COMMAND PROCESSOR - OVERLAY

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 07/03/22 PAGE 3
		2714		*****	
		2715	*	5703-XM1 COPYRIGHT IBM CORP. 1970	*
		2716	*	REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083	*
		2717	*		*
		2718		*****	
		2719	*	*STATUS	*
		2720	*	VERSION 1 MODIFICATION 0	*
		2721	*		*
		2722	*	*FUNCTION	*
		2723	*	KROVLY IS THE MODULE WHICH FORMS THE MAIN COMPONENT OF THE	*
		2724	*	RENUMBER COMMAND OVERLAY PROGRAM. KROVLY CREATES THE LINE	*
		2725	*	NUMBER TABLE AND RENUMBERS THE LINES IN THE WORKFILE ACCORDING	*
		2726	*	TO THE USER'S SPECIFICATIONS.	*
		2727	*		*
		2728	*	*ENTRY POINTS	*
		2729	*	* #KROVL, THE ADDRESS OF THE FIRST BYTE FOLLOWING THE PROGRAM	*
		2730	*	HEADER, IS THE MAIN ENTRY POINT.	*
		2731	*	* #KOVME, THE ADDRESS OF THE FIRST BYTE FOLLOWING THE MERGE	*
		2732	*	PROGRAM HEADER, IS THE ENTRY POINT WHEN THIS MODULE IS LOADED	*
		2733	*	BY THE MERGE KEYWORD PROGRAM.	*
		2734	*		*
		2735	*	*INPUT	*
		2736	*	INPUT TO KROVLY IS THE SAVED PARAMETER FIELD IN \$DPLSV AND THE	*
		2737	*	SAVED WORKFILE IN VIRTUAL MEMORY.	*
		2738	*		*
		2739	*	*OUTPUT	*
		2740	*	OUTPUT FROM KROVLY IS THE RENUMBERED FILE IN THE WORKAREA.	*
		2741	*		*
		2742	*	*EXTERNAL REFERENCES	*
		2743	*	* \$DISKN - ENTRY TO PHYSICAL DISK IOCS	*
		2744	*	* \$CAERR - ERROR CODE SAVE AREA	*
		2745	*	* \$CAERK - EXIT TO LOAD #ERRPG, THE ERROR PROGRAM	*
		2746	*	* \$CARPL - EXIT TO LOAD #GUFUD, THE FILE UPDATE PROGRAM	*
		2747	*	* \$ENDNU - ADDRESS OF END OF NUCLEUS	*
		2748	*	* \$DPLSV - IN-CORE AREA WHERE PARAMETER FIELD WAS SAVED	*
		2749	*	* \$INDR3 - NUCLEUS BYTE CONTAINING \$CLBFR, THE LINE OVERLAYED IND	*
		2750	*	* \$CIMSK - NUCLEUS BYTE SET TO MASK AGAINST INTERRUPTS	*
		2751	*	* \$INDR1 - NUCLEUS BYTE CONTAINING \$FITIN, THE FIT IN CORE IND	*
		2752	*	* \$ERRCT - ERROR COUNT AREA FOR STACKING	*
		2753	*	* \$SERSK - ERROR CODES FOR STACKING OF MESSAGES	*
		2754	*	* GRABIT - ENTRY TO MODULE TO RETRIEVE LINES	*
		2755	*	* GRSRDA - GRABIT INITIAL DISK ADDRESS	*
		2756	*	* GRWHAT - GRABIT REQUEST CODE FIELD	*
		2757	*	* GRTEXT - GRABIT AREA WHERE LINE TEXT IS PLACED	*
		2758	*	* GRTYPE - GRABIT AREA WHERE TYPE CODE IS PLACED	*
		2759	*	* GRLINE - GRABIT AREA WHERE FILE LINE NUMBER IS PLACED	*
		2760	*	* GRTEND - GRABIT AREA WHICH GIVES ADDRESS OF FILE LINE EOS	*
		2761	*	* GPUTIT - ENTRY TO MODULE TO PUT FILE LINES TO DISK	*
		2762	*	* GPUSMT - GPUTIT AREA CONTAINING FILE LINE TEXT	*
		2763	*	* C4BIN2 - ENTRY TO MODULE TO CONVERT DECIMAL TO BINARY	*
		2764	*	* C4BVAL - AREA WHERE C4BIN2 PLACES CONVERTED NUMBER	*
		2765	*	* C4BYT1 - LEFTMOST BYTE OF C4BVAL	*
		2766	*	* C2DEC5 - ENTRY TO MODULE TO CONVERT BINARY TO DECIMAL	*
		2767	*	* C2DVAL - AREA IN C2DEC5 CONTAINING CONVERTED VALUE	*
		2768	*		*
		2769	*	*EXITS,NORMAL	*

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	07/03/22	PAGE	4
		2770	*	\$CARPL TO LOAD #GUFUD			*	
		2771	*				*	
		2772	*	*EXITS,ERROR			*	
		2773	*	\$CAERK TO LOAD #ERRPG			*	
		2774	*				*	
		2775	*	*TABLES/WORKAREAS			*	
		2776	*	* THE RENUMBER PARAMETERS ARE FETCHED FROM \$DPLSV.			*	
		2777	*	* A LINE-NUMBER IS BUILT, BEGINNING AT THE END OF THE NUCLEUS			*	
		2778	*	(MAXIMUM LENGTH IS APPROXIMATELY EIGHT SECTORS).			*	
		2779	*	* TWO-SECTOR BUFFER FOR GPUTIT.			*	
		2780	*	* TWO-SECTOR BUFFER FOR GRABIT.			*	
		2781	*	* ONE-SECTOR BUFFER COMMON TO GPUTIT AND GRABIT.			*	
		2782	*				*	
		2783	*	*ATTRIBUTES			*	
		2784	*	RELOCATABLE			*	
		2785	*				*	
		2786	*	*CHARACTER CODE. DEPENDENCY			*	
		2787	*	THE OPERATION OF THIS MODULE DOES NOT DEPEND ON ANY PARTICULAR			*	
		2788	*	INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.			*	
		2789	*				*	
		2790	*	*NOTES			*	
		2791	*	ERROR PROCEDURES			*	
		2792	*	THE ERROR EXIT TO \$CAERK IS TAKEN IF A NEW LINE NUMBER WOULD			*	
		2793	*	EXCEED 9999. IF ANY FILE LINES ARE TRUNCATED, OR IF THE FILE			*	
		2794	*	SIZE IS EXCEEDED. \$CAERR CONTAINS THE APPROPRIATE ERROR CODE.			*	
		2795	*				*	
		2796	*	REGISTER USAGE			*	
		2797	*	* REGISTER 1 (@BR) IS USED AS A BASE REGISTER FOR ADDRESSING.			*	
		2798	*	* REGISTER 2 (@XR) IS USED INITIALLY AS A BASE REGISTER FOR			*	
		2799	*	ADDRESSING AND LATER AS A POINTER TO THE FILE LINE TEXT.			*	
		2800	*				*	
		2801	*	SAVED/RESTORED AREAS			*	
		2802	*	NONE			*	
		2803	*				*	
		2804	*	MODIFICATION CONSIDERATIONS			*	
		2805	*	NONE			*	
		2806	*				*	
		2807	*	REQUIRED MODULES			*	
		2808	*	* @SYSEQ - COMMON SYSTEM EQUATES			*	
		2809	*	* @FXDEQ - NUCLEUS FIXED ADDRESS EQUATES			*	
		2810	*	* @CANEQ - FIXED ADDRESSES OUTSIDE NUCLEUS EQUATES			*	
		2811	*	* @WKAEQ - SYSTEM WORKAREA EQUATES			*	
		2812	*	* @SPFEO - SYSTEM PROGRAM FILE EQUATES FOR #KROVL AND #KOVME			*	
		2813	*	* @ERMEQ - ERROR MESSAGE EQUATES (SELECTED ERROR CODES)			*	
		2814	*	* \$B@EQ - BASIC COMPILER SYSTEM AND PARAMETER EQUATES			*	
		2815	*	* C2DEC5 - MODULE TO CONVERT BINARY TO DECIMAL			*	
		2816	*	* GCPACK - BASIC STATEMENT CHARACTER PACKING ROUTINE			*	
		2817	*	* DL4ICS - FOUR-SURFACE DISK IOCS ROUTINE			*	
		2818	*	* GRABIT - ROUTINE TO RETRIEVE FILE LINES			*	
		2819	*	* C48142 - MODULE TO CONVERT DECIMAL TO BINARY			*	
		2820	*	* GPUTIT - ROUTINE TO PUT STATEMENTS TO THE WORKFILE			*	
		2821	*				*	
		2822	*	OTHER			*	
		2823	*	NONE			*	
		2824	*	*****			*	

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 07/03/22 PAGE 5
				2826	*	HDR	@KROVL	NAME AND NUMBER
				2827	*****			
				2828	*	PROGRAM HEADER FOR DISK LOAD		*
				2829	*****			
				2830	*\$KROV	EQU	X'028C'	DISK ADDR OF ?KROVL
				2831	*\$KRO	EQU	X'0D00'	CORE LOAD ADDRESS OF ?KROVL
				2832	*\$@KRO	EQU	010	SECTOR CNT OF ?KROVL
0D00				2833		ORG	\$\$\$KRO	CORE LOAD ADDRESS
				0D00 2834	\$\$\$\$\$	EQU	*	FIRST LOCATION IN PROGRAM
0D00	7BD2D9D6E5D3			0D05 2835		DC	CL6'#KROVL'	PROGRAM NAME
0D06	12			0D06 2836		DC	IL1'018'	PROGRAM NUMBER OF ?KROVL
				0D07 2837	\$KROVL	EQU	*	ENTRY POINT TO PROGRAM
				2838	*** END OF EXPANSION **			
				2839	*			
				2840	*** FIRST PASS CODING			
				2841	*			
				0FD2 2842		USING	KROBSB,@BR	BASE REGISTER VALUE
0D07	C0 87 0025			2843		B	\$DISKN	PRIME GRABIT BUFFERS
0D0B	0FD2			0D0C 2844		DC	AL(@CADDR)(KRODP\$)	ADDR OF DPL
				2845	*			
0D0D	C2 01 0FD2			2846		LA	KROBSB,@BR	LOAD BASE REGISTER
0D11	4C 05 31 0449			2847		MVC	KROPR3(@SBLNL*3,@BR),\$DPLSV	MOVE PARMS TO WORK AREA
				2848	*			
0D16	1C 01 1323 21			2849		MVC	GRSRDA,KRODAD(@DADDR,@BR)	INIT GRABIT DISK ADDRESS
0D1B	3C 00 132D			2850		MVI	GRWHAT,GRAEFI	SET INIT INDICATOR
0D1F	F2 87 04			2851		J	KRO210	GOTO CALL GRABIT
				2852	*			
0D22	6C 01 0B 00			2853	KRO200	MVC	KROSAV(@SBLNL,@BR),0(@,@XR)	SAVE PREVIOUS LINE NUMBER
0D26	C0 87 11A8			2854	KRO210	B	GRABIT	CALL GRABIT
				2855	*			
0D2A	3C 02 132D			2856		MVI	GRWHAT,GRAEFS	SET SKIP INDICATOR
0D2E	9D 01 00 2F			2857		CLC	0(@,@XR),KROPR2(@SBLNL,@BR)	DON'T PUT IN TABLE IF LESS
0D32	C0 82 0D22			2858		BL	KRO200	* THAN SECOND PARAMETER
				2859	*			
0D36	5D 01 0B 2D			2860		CLC	KROSAV(@SBLNL,@BR),KROPR1(@,@BR)	PREVIOUS LINE # LESS
0D3A	F2 82 0F			2861		JL	KRO230	* THAN PARAMETER ONE
				2862	*			
0D3D	5D 01 0B 2B			2863		CLC	KROSAV(@SBLNL,@BR),KRODC2(@,@BR)	IS THIS FIRST LINE ?
0D41	F2 81 08			2864		JE	KRO230	YES, GOTO PROCESS
				2865	*			
0D44	3C 61 03CD			2866		MVI	\$CAERR,@E430	SET ERROR CODE(INVALID RENUMBER)
0D48	C0 87 0469			2867		B	\$CAERK	GOTO ERROR PROGRAM
0D4C	5C 01 11 2D			2868	KRO230	MVC	KROLCT(@SBLNL,@BR),KROPR1(@,@BR)	INIT LINE COUNT TO PARM
0D50	F2 87 76			2869		J	KRO250	GOTO PROCESS

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 07/03/22 PAGE 6	
		2871	*	PATCH 1,1		
		2872	*****			
		2873	*	PATCH AREA 1	*	
		2874	*****			
0D53		0D53	2875	\$\$\$\$\$1 DS CL1	PATCH AREA FOR PROGRAM	
		2876	*****			
		2877	*** END OF EXPANSION ***			
0DBE		2879	ORG	\$ENDNU+991*@SBLNL	BEHIND MAX LINE NO. TABLE ADDR	
0DBE C0 87 11A8		2880	KRO235 B	GRABIT	CALL GRABIT TO RETURN NEXT LINE	
0DC2 5E 01 11 31		2881	ALC	KROLCT(@SBLNL,@BR),KROPR3(@BR)	INCR LINE COUNT BY PARM	
0DC6 F2 A0 1C		2882	JOL	KRO260	GOTO ERROR PROGRAM IF TOO LARGE	
0DC9 2C 01 0601 00		2883	KRO250 MVC	KROLNT+*-*(@SBLNL),0(@XR)	PUT LINE NUMBER IN TABLE	
0DCE 1E 01 0DCC 0F		2884	ALC	KRO250+@OP1(@SBLNL),KROENC(@BR)	UPDATE TABLE POINTER	
		2885	*			
0DD3 BD 1C 02		2886	CLI	2(@XR),@EOF	THIS EOF LINE	
0DD6 C0 01 0DBE		2887	BNE	KRO235	NO, GET NEXT ONE	
0DDA 5F 01 11 31		2888	SLC	KROLCT(@SBLNL,@BR),KROPR3(@BR)	SUBTRACT EOF FROM TOTAL	
0DDE 5D 01 11 09		2889	CLC	KROLCT(@SBLNL,@BR),KROHLN(@BR)	TAKE BRANCH IF HIGH NEW	
0DE2 F2 04 2E		2890	JNH	KRO300	* LINE NUMBER NOT TOO LARGE	
0DE5 3C 62 03CD		2891	KRO260 MVI	\$CAERR,@E432	SET ERROR CODE	
0DE9 C0 87 0469		2892	B	\$CAERK	GO TO ERROR PROGRAM	
		2894	*	PATCH 4		
		2895	*****			
		2896	*	PATCH AREA 4	*	
		2897	*****			
		2898	*			
		2899	* CALCULATE AREA LEFT IN THIS SECTOR			
		2900	*			
0E00		0DED	2901	\$\$\$\$L4 EQU *	START OF PATCH AREA 4	
		2902	ORG	*,256,0	SET LOC CNTR TO NEXT SECTOR	
		0E00	2903	\$\$\$\$T4 EQU *	DEFINE ADDR OF SCTR BNDRY	
0DED		2904	ORG	\$\$\$\$L4	SET LOC CNTR TO START OF	
		2905	*			* PATCH AREA
0DED		0DFF	2906	\$\$\$\$\$4 DS CL(\$\$\$T4-\$\$\$\$L4)	PATCH AREA	
		2907	*****			
		2908	*** END OF EXPANSION ***			

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2910 *      HDR      #KOVME,SEQ=2
2911 *****
2912 *  PROGRAM HEADER FOR DISK LOAD
2913 *****
2914 *#$KOV EQU      X'0290'          DISK ADDR OF #KOVME
2915 *$$$KOV EQU     X'0E00'          CORE LOAD ADDRESS OF #KOVME
2916 *#$@KOV EQU     009             SECTOR CNT OF #KOVME
0E00      2917      ORG      $$$KOV      CORE LOAD ADDRESS
0E00 7BD2D6E5D4C5 0E05 2918      $$$$2 EQU      *      FIRST LOCATION IN PROGRAM
0E06 13      0E06 2920      DC      IL1'019'      PROGRAM NUMBER OF #KOVME
0E07      2921      $KOVME EQU      *      ENTRY POINT TO PROGRAM
2922 *** END OF EXPANSION ***

0E07 C2 01 0FD2      2924      LA      KROBSB,@BR      LOAD BASE REGISTER
0E0B 4C 01 25 0449 2925      MVC      KROMGP(@SBLNL,@BR), $DPLSV
0E10 7A 80 06      2926      SBN      KROEOF-@B1(,@BR),KROBT0      SET MERGE EOF LINE NUMBER
2927 *
2928 ***      SECOND PASS
2929 *
0E13 C0 87 0025      2930 KRO300 B      $DISKN      REPRIME GRABIT BUFFERS
0E17 0FD2      0E18 2931      DC      AL(@CADDR)(KRODP$)      ADDR OF DPL
0E19 3A 10 03D6      2932      SBN      $INDR3,$CLBFR      INPUT LINE OVERLAYED INDICATOR
0E1D 1C 01 1323 21 2933      MVC      GRSRDA,KRODAD(@DADDR,@BR)      INIT GRABIT DISK ADDRESS
0E22 3C 00 132D      2934      MVI      GRWHAT,GRAEFI      INIT CODE
0E26 1C 01 1326 05 2935      MVC      GRBFRA,KRODP$+@DBFR2(@CADDR,@BR)      INIT BUFFER ADDR
0E2B C0 87 11A8      2936      B      GRABIT      GRABIT INIT CALL
2937 *
0E2F 3C 01 132D      2938      MVI      GRWHAT,GRAEFR      RETURN TEXT CODE
0E33 3C 80 0476      2939      MVI      $CIMSK,@NOP      MASK AGAINST INTERRUPTS
0E37 3A 10 03D4      2940      SBN      $INDR1,$FITIN      SET FIT IN CORE INDICATOR
2941 *
2942 ***      DETERMINE TYPE OF LINE
2943 *
0E3B C0 87 11A8      2944 KRO310 B      GRABIT      RETURN NEXT LINE
2945 *
0E3F C2 02 1A00      1A00 2946      USING KROXR1,@XR      ESTABLISH ADDRESS ABILITY
2947      LA      KROXR1,@XR      LOAD SECOND BASE REGISTER
2948 *
0E43 BD 1C 07      2949      CLI      GRTEXT(,@XR),@EOF      DON'T TAKE BRANCH IF THIS
0E46 F2 01 13      2950      JNE      KRO320      * IS EOF RECORD
0E49 C0 87 13B6      2951      B      GPUTIT      CLOSE OUT CALL TO GPUTIT
0E4D 3C 89 03CD      2952      MVI      $CAERR,@E500      SET ERROR CODE
0E51 7D 00 1F      2953      CLI      KROIND(,@BR),@ZERO      IF ANY FILE LINES TRUNCATED
0E54 C0 01 0469      2954      BNE      $CAERK      * USE ERROR EXIT
0E58 C0 87 04A1      2955      B      $CARPL      EXIT TO GUFUDI
2956 *
0E5C 6C 00 34 06      2957 KRO320 MVC      KROTYP(,@BR),GRTYPE(1,@XR)      SAVE TYPE CODE
0E60 7B 80 34      2958      SBF      KROTYP(,@BR),KRODAB      SET TRACE BIT OFF
0E63 7D 33 34      2959      CLI      KROTYP(,@BR),B@TGSB      TAKE BRANCH IF THIS IS
0E66 F2 81 12      2960      JE      KRO340      * GOSUB STATEMENT
0E69 7D 27 34      2961      CLI      KROTYP(,@BR),B@TIFA      TAKE BRANCH IF THIS IS
0E6C F2 81 0C      2962      JE      KRO340      * ARITHMETIC IF STATEMENT
0E6F 7D 7D 34      2963      CLI      KROTYP(,@BR),B@TIFS      STR IF STATEMENT ?      1-4
0E72 F2 81 06      2964      JE      KRO340      YES--TAKE BRANCH      1-4
0E75 7D 2A 34      2965      CLI      KROTYP(,@BR),B@TIFC      TAKE BRANCH IF THIS IS NOT

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	07/03/22	PAGE	8
	0E78	F2	01	17	2966		JNE KRO370				* CHARACTER IF STATEMENT
					2967	*					
	0E7B	35	02	12DE	2968	KRO340	L GR Tend,@XR				FETCH LOCATION OF EOS
	0E7F	76	02	23	2969	KRO350	A KROMN1(,@BR),@XR				DECR POINTER ONE CHAR
	0E82	BD	40	00	2970		CLI 0(,@XR),C' '				TAKE BRANCH IF THIS
	0E85	F2	81	06	2971		JE KRO360				* CHARACTER BLANK
	0E88	BD	F0	00	2972		CLI 0(,@XR),C'0'				TAKE BRANCH IF THIS
	0E8B	F2	82	46	2973		JL KRO420				* CHAR NOT NUMERIC
	0E8E	C0	87	0E7F	2974	KRO360	B KRO350				RETURN TO LOOP
					2975	*					
	0E92	7C	09	1C	2976	KRO370	MVI KROWR2(,@BR),B@LKPU-@B1				SET PRINT USING LENGTH COUNT
	0E95	7D	51	34	2977		CLI KROTYP(,@BR),B@TPRU				TAKE BRANCH IF THIS IS
	0E98	F2	81	20	2978		JE KRO400				* PRINT USING STATEMENT
					2979	*					
	0E9B	7C	0C	1C	2980		MVI KROWR2(,@BR),B@LMPU-@B1				SET MAT PRINT USING LENGTH COUNT
	0E9E	7D	69	34	2981		CLI KROTYP(,@BR),B@TMPU				TAKE BRANCH IF THIS IS
	0EA1	F2	81	17	2982		JE KRO400				* MAT PRINT USING STATEMENT
					2983	*					
	0EA4	7C	03	1C	2984		MVI KROWR2(,@BR),B@LGTO-@B1				SET GOTO LENGTH COUNT
	0EA7	7D	2D	34	2985		CLI KROTYP(,@BR),B@TGTO				TAKE BRANCH IF THIS IS
	0EAA	F2	81	0E	2986		JE KRO400				* SIMPLE GOTO STATEMENT
	0EAD	7D	30	34	2987		CLI KROTYP(,@BR),B@TCGT				TAKE BRANCH IF THIS IS NOT
	0EB0	F2	01	AB	2988		JNE KRO700				* COMPUTED GOTO STATEMENT
					2989	*					
					2990	***	INITIALIZATION FOR COMPUTED GOTO				
					2991	*					
	0EB3	3C	84	0EEF	2992		MVI KRO450+@Q,@BH				ACTIVATE BRANCH INSTRUCTION
	0EB7	3C	80	0F55	2993		MVI KRO600+@Q,@NOP				DISABLE BRANCH INSTRUCTION
					2994	*					
					2995	***	FIND LINE NUMBER REFERENCE				
					2996	*					
	0EBB	E2	02	07	2997	KRO400	LA GRTEXT(,@XR),@XR				SET POINTER TO FIRST TEXT CHAR
				0002	2998		DROP @XR				NO MORE SECOND BASE REGISTER
					2999	*					
	0EBE	C0	87	1346	3000		B C4BIN2				MOVE POINTER PASSED LINE NUMBER
					3001	*					
	0EC2	E2	02	01	3002	KRO410	LA 1(,@XR),@XR				INCR POINTER TO NEXT CHAR
	0EC5	BD	40	00	3003		CLI 0(,@XR),C' '				IF THIS CHAR IS BLANK
	0EC8	C0	81	0EC2	3004		BE KRO410				* BRANCH TO INCR POINTER
	0ECC	5F	00	1C 0D	3005		SLC KROWR2(1,@BR),KROINC(,@BR)				DECR COUNT BY ONE AND BRANCH
	0ED0	C0	01	0EC2	3006		BNZ KRO410				* TO LOOP IF COUNT REMAINS
					3007	*					
	0ED4	E2	02	01	3008	KRO420	LA 1(,@XR),@XR				INCR POINTER PASSED LAST CHAR

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 07/03/22 PAGE 9
				3010	*			
				3011	***		DETERMINE IF LINE NO REFERENCE TO BE CHANGED	
				3012	*			
0ED7	C0	87	1007	3013	KRO430	B	KRO900	SCAN TO AND CONVERT LINE NO.
0EDB	BD	F0	00	3014		CLI	0(,@XR),C'0'	TAKE BRANCH IF NEXT CHAR
0EDE	F2	01	08	3015		JNE	KRO440	* IS NOT A '0'
0EE1	3C	80	0EEF	3016		MVI	KRO450+@Q,@NOP	DISABLE RETURN FOR COMPUTER
0EE5	3C	87	0F55	3017		MVI	KRO600+@Q,@UCB	* GOTO STATEMENTS
0EE9	4D	01	2F 13B0	3018	KRO440	CLC	KROPR2(@SBLNL,@BR),C4BVAL	IF LINE NO. REFERENCE IS LESS
0EEE	C0	80	0ED4	3019	KRO450	BC	KRO420,@NOP	SET TO BH IF COMPUTED GOTO
0EF2	F2	84	69	3020		JH	KRO700	* THAN PARM 2 DO NOT CHANGE IT
0EF5	34	02	0F4A	3021		ST	KRO560+@OP1,@XR	SAVE ADDR OF NEXT ALPHA CHAR
				3022	*			
0EF9	39	40	1A04	3023		TBF	KROBYT,KROBT1	IF BIT 1 OF BINARY LINE NO. IS
0EFD	F2	10	07	3024		JT	KRO500	* OFF BR TO CHECK FURTHER
0F00	3A	40	13AF	3025		SBN	C4BYT1,KROBT1	SET ON BIT 1 OF LINE NO. REF.
0F04	F2	87	0C	3026		J	KRO520	GOTO SEARCH TABLE
0F07	1D	01	13B0 25	3027	KRO500	CLC	C4BVAL,KROMGP(@SBLNL,@BR)	IF LINE NO. REF. GREATER THAN
0F0C	F2	04	04	3028		JNH	KRO520	* MERGE PARM BR TO SEARCH TABLE
0F0F	3A	80	13AF	3029		SBN	C4BYT1,KROBT0	SET ON BIT 0 OF LINE NO. REF.
				3030	*			
				3031	***		TABLE SEARCH	
				3032	*			
0F13	C2	02	0601	3033	KRO520	LA	KROLNT,@XR	INITIALIZE POINTER TO FIRST
0F17	5C	01	27 2D	3034		MVC	KROCAL(@SBLNL,@BR),KROPR1(@BR)	A TABLE ENTRY AND NEW
0F1B	F2	87	07	3035		J	KRO540	A LINE NUMBER TO PARM 1
				3036	*			
0F1E	E2	02	02	3037	KRO530	LA	@SBLNL(@XR),@XR	INCREMENT POINTER TO NEXT ENTRY
0F21	5E	01	27 31	3038		ALC	KROCAL(@SBLNL,@BR),KROPR3(@BR)	ADD PARM 3 TO LINE NO
0F25	2D	01	13B0 00	3039	KRO540	CLC	C4BVAL,0(@SBLNL,@XR)	IF THIS ENTRY GREATER THAN REF.
0F2A	C0	84	0F1E	3040		BH	KRO530	* GOTO CHECK NEXT ONE. IF EQUAL
0F2E	F2	81	0F	3041		JE	KRO550	* GOTO CHANGE
0F31	5F	01	27 0D	3042		SLC	KROCAL(@SBLNL,@BR),KROINC(@BR)	LINE NO. NOT IN TABLE
0F35	9D	01	00 07	3043		CLC	0(@SBLNL,@XR),KROEOF(@BR)	TAKE BRANCH IF THIS IS NOT
0F39	F2	01	04	3044		JNE	KRO550	* END OF FILE ENTRY
0F3C	5C	01	27 09	3045		MVC	KROCAL(@SBLNL,@BR),KROHLN(@BR)	MOVE IN HIGH LINE NUMBER
				3046	*			
0F40	D2	02	26	3047	KRO550	LA	KROCAS(@BR),@XR	POINT TO FIRST BYTE LINE NO. RE
0F43	C0	87	15F8	3048		B	C2DEC5	CONVERT REF. TO DECIMAL
0F47	C2	02	0000	3049	KRO560	LA	*-*,@XR	RESTORE ADDR OF NEXT ALPHA CHAR
0F4B	C0	87	1031	3050		B	KRO920	CALL LINE ALTERING SUBROUTINE
0F4F	8C	03	01 1636	3051		MVC	1(@XR),C2DVAL(KROTLL)	MOVE IN NEW LINE NUMBER REF
				3052	*			
0F54	F2	87	07	3053	KRO600	JC	KRO700,@UCB	SET TO NOP IF COMPUTED GOTO
0F57	76	02	0F	3054		A	KROENC(@BR),@XR	SET POINTER PAST NUMBER
0F5A	C0	87	0ED7	3055		B	KRO430	GOTO CHANGE IT

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	07/03/22	PAGE 10
					3057	*				
					3058	*	CHANGE LINE NUMBER			
					3059	*				
0F5E	F2	80	13		3060	KRO700	JC KRO720,@NOP		SET TO UCB AFTER FIRST CHANGE	
0F61	1D	01	1A05 2F		3061		CLC GRLINE,KROPR2(@SBLNL,@BR)		TAKE BRANCH IF THIS LINE NO.	
0F66	F2	82	4D		3062		JL KRO850		IS LESS THAN PARAMETER TWO	
					3063	*				
0F69	5C	01	13 2D		3064		MVC KRONLN(@SBLNL,@BR),KROPR1(@BR)		INIT LINE NO. TO PARM 1	
0F6D	3C	87	0F5F		3065		MVI KRO700+@Q,@UCB		SET INDICATOR TO SHOW WE HAVE	
0F71	F2	87	04		3066		J KRO730		* FOUND ONE TO CHANGE	
					3067	*				
0F74	5E	01	13 31		3068	KRO720	ALC KRONLN(@SBLNL,@BR),KROPR3(@BR)		INCR NEW LINE NUMBER	
0F78	1C	01	1A05 13		3069	KRO730	MVC GRLINE(@SBLNL),KRONLN(@BR)		MOVE IN NEW BINARY LINE NO.	
					3070	*				
0F7D	38	40	03D4		3071		TBN \$INDR1,\$KEYDT		BRANCH IF THIS IS A	1-4
0F81	F2	90	07		3072		JF KRO740		* BASIC FILE	1-4
0F84	38	01	03D4		3073		TBN \$INDR1,\$PROCI		BRANCH IF THIS IS A DATA	1-4
0F88	F2	90	2B		3074		JF KRO850		* FILE (OTHERWISE PROCEDURE)	1-4
					3075	*				
0F8B	D2	02	12		3076	KRO740	LA KRONLS(@BR),@XR		SET POINTER TO LINE BUFFER	1-4
0F8E	C0	87	15F8		3077		B C2DEC5		CONVERT LINE NO. TO DECIMAL	
					3078	*				
0F92	C2	02	1A07		3079		LA GRTEXT,@XR		SET POINTER TO TEXT LINE NO.	
0F96	C0	87	1007		3080		B KRO900		SCAN TO AND CONVERT LINE NO.	
					3081	*				
0F9A	C0	87	1031		3082		B KRO920		CALL LINE ALTERING ROUTINE	
0F9E	8C	03	01 1636		3083		MVC 1(@XR),C2DVAL(KROTLL)		MOVE IN NEW LINE NO.	
0FA3	3D	FA	12DE		3084		CLI GRTEND,KROMAX		TAKE BRANCH IF LINE BUFFER	
0FA7	F2	04	0C		3085		JNH KRO850		* HAS NOT OVERFLOWED	
0FAA	3C	1E	1AFA		3086		MVI GPUSMT+KROMAX,@EOS		RESTORE EOS TO REAL MAX LINE	
0FAE	5E	00	1F 0D		3087		ALC KROIND(1,@BR),KROINC(@BR)		INCREMENT ERROR COUNT	
0FB2	3C	78	1A06		3088		MVI GRTYPE,B@TDUM		SET TRUNCATED LINE TYPE CODE	
					3089	*				
					3090	***	WRITE LINE BACK TO WORKAREA			
					3091	*				
0FB6	C0	87	13B6		3092	KRO850	B GPUTIT		WRITE BACK LINE	
0FBA	C0	87	0E3B		3093		B KRO310		GO GET NEXT LINE	
					3094	*				
					3095	***	GPUTIT ERROR EXIT			
					3096	*				
				0FBE	3097	GPUERR	EQU *		ENTRY POINT FOR GPUTIT ERROR EXT	
0FBE	7D	00	1F		3098		CLI KROIND(@BR),@ZERO		TAKE BRANCH IF NO LINES HAVE	
0FC1	F2	81	0A		3099		JE KRO860		* BEEN TRUNCATED	
0FC4	1C	01	03CF 19		3100		MVC \$ERRCT,KROERR(KROER2-KROER1,@BR)		SET ERROR CODE FOR STACK	
0FC9	1C	04	1C04 1E		3101		MVC \$\$ERSK+KROER4-KROER2,KROER4(KROIND-KROER2,@BR)		SET STACK	
0FCE	C0	87	0469		3102	KRO860	B \$CAERK		GOTO ERROR PROGRAM	

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 07/03/22 PAGE 11
			3104	*			
			3105	***	CONSTANTS AND SAVE AREAS		
			3106	*			
			0FD2	3107	KROBSB EQU	*	BASE REGISTER VALUE
0FD2	01		0FD2	3108	KRODP\$ DC	AL1(@DGET)	DPL TO READ FIRST TWO
0FD3	070C		0FD4	3109		XL(@DADDR)'070C'	* SECTORS OF WORK FILE
0FD5	02		0FD5	3110		IL1'2'	* FOR PRINING
0FD6	1B00		0FD7	3111		AL(@CADDR)(GRBFR1)	* GRABIT BUFFERS
			3112	*			
0FD8			0FD9	3113	KROEOF DS	IL(@SBLNL)	END OF FILE LINE NUMBER WHICH
0FD8				3114	ORG	*-@SBLNL	* WILL BE CHANGED IF MERGE
0FD8	2710		0FD9	3115		IL(@SBLNL)'10000'	* IS THE CALLING ROUTINE
			3116	*			
0FDA	270F		0FDB	3117	KROHLN DC	IL(@SBLNL)'9999'	LARGEST USER LINE NUMBER
0FDC			0FDD	3118	KROSAV DS	CL(@SBLNL)	SAVE AREA FOR PREVIOUS LINE NO.
0FDC				3119	ORG	*-@SBLNL	INITIALIZE
0FDC	FFFE		0FDD	3120		IL(@SBLNL)'-2'	* TO ZERO
			3121	*			
0FDE	0001		0FDF	3122	KROINC DC	IL(@SBLNL)'1'	INCREMENT AMOUNT FOR
0FE0	0002		0FE1	3123	KROENC DC	IL(@SBLNL)'2'	INCREMENT AMOUNT FOR TABLE POINT
			3124	*			
0FE2			0FE3	3125	KROLCT DS	CL(@SBLNL)	LINE COUNT SAVE AREA
0FE2				3126	ORG	*-@SBLNL	INITIALIZE TG ZERO
0FE2	0000		0FE3	3127		IL(@SBLNL)'0'	COMPARE IF PARM 1 IS ZERO
			3128	*			
			0FE4	3129	KRONLS EQU	*	FIRST BYTE OF BINARY LINE NUMBER
0FE4			0FE5	3130	KRONLN DS	CL(@SBLNL)	NEW LINE NO. SAVE AREA
			3131	*			
0FE6	0000		0FE7	3132	KROZER DC	IL(@SBLNL)'0'	CONSTANT ZERO
			3133	*			
0FE8			0FE9	3134	KROWR1 DS	CL(@SBLNL)	COUNT TO MOVE USERS LINR.
			3135	*			
0FEA	30		0FEA	3136	KROER1 DC	AL1(\$ERSTK)	ERROR STACK INDICATOR
0FEB	02		0FEB	3137	KROERR DC	IL1'2'	ERROR COUNT
0FEC	89		0FEC	3138	KROER2 DC	AL1(@@E500)	ERROR CODE FOR LINE TRUNCATION
0FED	A0		0FED	3139		AL1(\$\$SNLN)	NOLINE NUMBER REFERENCE
0FEE			0FEE	3140	KROWR2 DS	CL1	KEYWORD COUNT WORK AREA
0FEF	8A		0FEF	3141		AL1(@@E501)	ERROR CODE FOR FILE TRUNCATION
0FF0	A0		0FF0	3142	KROER4 DC	AL1(\$\$SNLN)	NO LINE NUMBER REFERENCE
			3143	*			
0FF1			0FF1	3144	KROIND DS	CL1	INDICATOR BYTE
0FF1				3145	ORG	*-1	INITIALIZE
0FF1	00		0FF1	3146		IL1'0'	* TO ZERO
0FF2	0703		0FF3	3147	KRODAD DC	XL(@DADDR)'0703'	FIRST LOGICAL SECTOR OF VIRT MEM
0FF4	FFFF		0FF5	3148	KROMN1 DC	IL(@REGL)'-1'	DECR REGISTER BY ONE
0FF6			0FF7	3149	KROMGP DS	CL(@SBLNL)	PARAMETER PASSED BY MERGE STORED
0FF6				3150	ORG	*-@SBLNL	* HERE. INITIALIZED TO MAXIMUM
0FF6	FFFF		0FF7	3151		XL(@SBLNL)'FFFF'	* IF MERGE NOT CALLER
			0FF8	3152	KROCAS EQU	*	FIRST BYTE OF LINE NO. REFERENCE
0FF8			0FF9	3153	KROCAL DS	CL(@SBLNL)	CALCULATE LINE NO. REFERENCE
			3154	*			
0FFA			0FFB	3155	KROWR3 DS	CL(@CADDR)	LAST BYTE OF DATA TO MOVE
			3156	*			
0FFC	FFFE		0FFD	3157	KRODC2 DC	IL(@REGL)'-2'	TO DECR XR BY TWO
			3158	*			
0FFE			0FFF	3159	KROPR1 DS	CL(@SBLNL)	PARM 1 SAVE AREA

[illegible]

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 07/03/22 PAGE 13
				3172		*****		
				3173	*			*
				3174	*		SUBROUTINE TO SCAN ACROSS BLANKS TO LINE	*
				3175	*		NUMBER REFERENCE AND CONVERT IT TO BINARY.	*
				3176	*			*
				3177		*****		
1007	74	08	5E	3178	KRO900	ST	KRO915+@OP1(, @BR), @ARR	SAVE RETURN ADDRESS
100A	BD	6B	00	3179	KRO905	CLI	0(, @XR), @COMMA	PTR REF A BLANK OR COMMA ?
100D	F2	84	06	3180		JH	KRO910	NO, GO CONVERT NUMBER
				3181	*			
1010	E2	02	01	3182		LA	1(, @XR), @XR	ELSE, INCR POINTER PAST BLANK
1013	D0	87	38	3183		B	KRO905(, @BR)	CONTINUE SCANNING
				3184	*			
1016	38	01	03D4	3185	KRO910	TBN	\$INDR1, \$PROCI	IS THIS A PROCEDURE FILE ? 1-4
101A	F2	90	04	3186		JF	KRO912	IF NOT. SKIP TO ALLOW BLANKS 1-4
101D	3C	80	1361	3187		MVI	C4B200+@Q, @NOP	ALLOW NO IMBEDDED BLANKS 1-4
1021	C0	87	1346	3188	KRO912	B	C4BIN2	CONVERT LINE NUMBER TO BLKS 1-4
1025	3C	00	13AD	3189		MVI	C4BLEN-1, @ZERO	SET NUMBER LENGTH TO TWO BYTES
1029	3C	87	1361	3190		MVI	C4B200+@Q, @UCB	RESTORE DEFAULT TO ALLOW BLK 1-4
102D	C0	87	0000	3191	KRO915	B	*-*	RETURN TO POINT WHERE CALLED
				3193		*****		
				3194	*			*
				3195	*		SUBROUTINE TO ADJUST THE FILE LINE IF NECESSARY	*
				3196	*		TO CONTAIN A FOUR DIGIT NUMBER	*
				3197	*			*
				3198		*****		
1031	74	08	F1	3199	KRO920	ST	KRO990+@OP1(, @BR), @ARR	SAVE RETURN ADDRESS
1034	76	02	23	3200	KRO925	A	KROMN1(, @BR), @XR	DECR POINTER BY ONE
1037	1F	01	13AE 0D	3201		SLC	C4BLEN, KROINC(@CADDR, @BR)	DECR LENGTH OF NO. BY ONE
103C	BD	40	00	3202		CLI	0(, @XR), @BLANK	CONTINUE DECREMENTING TO SCAN
103F	D0	81	62	3203		BE	KRO925(, @BR)	* BACK TO FIRST NON-BLANK
				3204	*			
1042	E2	02	01	3205		LA	@B1(, @XR), @XR	SET PTR TO CHAR AFTER LAST DIGIT
1045	74	02	29	3206		ST	KROWR3(, @BR), @XR	SAVE POINTER VALUE
1048	4C	01	B2 12DE	3207		MVC	KRO935+@OP2(@CADDR, @BR), GRTEND	SAVE ADDR OF EOS
104D	1F	01	12DE 29	3208		SLC	GRTEND(@CADDR), KROWR3(, @BR)	COMPUTE NO. OF CHAR PAST NO.
1052	7C	00	16	3209		MVI	KROWR1-1(, @BR), @ZERO	INITLZ LEFT BYTE OF WORK AREA
1055	7C	03	17	3210		MVI	KROWR1(, @BR), KROTLL-1	SET WORK AREA TO '3'
1058	4F	01	17 13AE	3211		SLC	KROWR1(@CADDR, @BR), C4BLEN	SET WORK AREA - BYTES AVAILABLE
				3212	*			
105D	F2	81	41	3213		JZ	KRO940	DON'T ADJUST LINE IF 4 BYTES,
1060	F2	84	0F	3214		JP	KRO930	IF '0' GO EXPAND LINE
				3215	*			
				3216	***		PERFORM LINE-SHRINKING OPERATION	
				3217	*			
1063	5C	01	B0 33	3218		MVC	KRO935+@OP1(@CADDR, @BR), KROBFR(, @BR)	INITLZ MOVE TO ADDR
1067	4E	01	B0 12DE	3219		ALC	KRO935+@OP1(@CADDR, @BR), GRTEND	PT MOVE TO ADDR TO BFR END
106C	7C	80	B4	3220		MVI	KRO937+@Q(, @BR), @NOP	SET SW TO DO A DOUBLE MOVE
106F	F2	87	08	3221		J	KRO933	GO MOVE PORTION OF LINE

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 07/03/22 PAGE 14
				3223	*			
				3224	***	PERFORM	LINE-EXPANDING OPERATION	
				3225	*			
1072	5C	01	B0 B2	3226	KRO930	MVC	KRO935+@OP1(@CADDR,@BR),KRO935+@OP2(@BR) MOVE TO ADDR	
1076	5E	00	B0 17	3227		ALC	KRO935+@OP1(1,@BR),KROWR1(@BR) INCR MOVE TO ADDR	
				3228	*			
107A	4C	00	AE 12DE	3229	KRO933	MVC	KRO935+@Q(1,@BR),GRTEND SET LENGTH OF MOVE	
107F	0C	00	0000 0000	3230	KRO935	MVC	*-*(@VQ),*-* PERFORM MOVE OPERATION	
				3231	*			
1085	F2	87	19	3232	KRO937	JC	KRO940,@UCB+*-* UCB UNLESS SHRINKING LINE	
				3233	*			
1088	5C	00	C7 AE	3234		MVC	KRO938+@Q(1,@BR),KRO935+@Q(@BR) SET LENGTH OF MOVE	
108C	5C	01	C9 B2	3235		MVC	KRO938+@OP1(@CADDR,@BR),KRO935+@OP2(@BR) MOVE TO ADDR	
1090	5E	00	C9 17	3236		ALC	KRO938+@OP1(1,@BR),KROWR1(@BR) INCR MOVE TO ADDR	
1094	5C	01	CB B0	3237		MVC	KRO938+@OP2(@CADDR,@BR),KRO935+@OP1(@BR) MOVE FROM ADDR	
1098	0C	00	0000 0000	3238	KRO938	MVC	*-*(@VQ),*-* MOVE LINE FROM BFR TO GPUSMT	
109E	7C	80	B4	3239		MVI	KRO937+@Q(@BR),@NOP SET OFF SW TO DO DOUBLE MOVE	
				3240	*			
10A1	1E	01	12DE 29	3241	KRO940	ALC	GRTEND(@CADDR),KROWR3(@BR) RESTORE GRTEND	
10A6	1E	01	12DE 17	3242		ALC	GRTEND(@CADDR),KROWR1(@BR) RESTORE GRTEND	
10AB	3D	FA	12DE	3243		CLI	GRTEND,KROMAX DID LINE OVERFLOW MAX SIZE	
10AF	F2	04	08	3244		JNH	KRO945 NO, GO COMPUTE XR POINTER VALUE	
				3245	*			
10B2	3C	FB	12DE	3246		MVI	GRTEND,KROMAX+1 SET NEW END OF LINE ADDR	
10B6	3C	87	0F55	3247		MVI	KRO600+@Q,@UCB SET LINE TRUNCATION SW	
				3248	*			
10BA	76	02	17	3249	KRO945	A	KROWR1(@BR),@XR SET POINTER VALUE IN @XR	
10BD	76	02	2B	3250		A	KRODC2(@BR),@XR * TO REFERENCE 3RD DIGIT IN NO.	
				3251	*			
10C0	C0	87	0000	3252	KRO990	B	*-* RETURN TO CALLER	

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	
		3254	*			
		3255	***	EQUATES		
		3256	*			
1800		3257	GPUBF1	EQU	\$\$ZERO+X'1800'	GPUTIT OUTPUT BUFFER
008A		3258	GPUECD	EQU	@E501	GPUTIT ERROR CODE
1A00		3259	GPUSMT	EQU	GPUBF1+X'0200'	GPUTIT INPUT BUFFER
0080		3260	KRODAB	EQU	X'80'	MASK FOR DISABLE BIT
		3261	*			
1B00		3262	GRBFR1	EQU	GPUSMT+X'0100'	GRABIT INPUT BUFFER
		3263	*			
0004		3264	KROTLL	EQU	4	LENGTH OF DECIMAL LINE NUMBER
		3265	*			
1A05		3266	GRLINE	EQU	GPUSMT+@SBLN	GRABIT BINARY LINE NUMBER SA
		3267	*			
1A06		3268	GRTYPE	EQU	GPUSMT+@STYPE	GRABIT TYPE CODE SAVE AREA
		3269	*			
1A07		3270	GRTEXT	EQU	GPUSMT+@STEXT	FIRST BYTE OF TEXT LINE
		3271	*			
0601		3272	KROLNT	EQU	\$ENDNU+1	LINE NUMBER TABLE
		3273	*			
1A00		3274	GCPBFR	EQU	GPUSMT	GCPACK BUFFER
		3275	*			
1700		3276	KROSQU	EQU	X'1700'	BUFFER FOR LINE SHRINKAGE
		3277	*			
00C0		3278	KROBIT	EQU	B'11000000'	INDICATOR BITS OF BIN LINE NO.
		3279	*			
1A04		3280	KROBYT	EQU	GRLINE-1	FIRST BYTE OF BIN LINE NO.
		3281	*			
0040		3282	KROBT1	EQU	B'01000000'	BIT MERGE MAY SET ON IN
0080		3283	KROBT0	EQU	B'10000000'	* BINARY LINE NUMBER
		3284	*			
1A00		3285	KROXR1	EQU	GPUSMT	SECOND BASE REGISTER VALUE
		3286	*			
00FA		3287	KROMAX	EQU	@SDFLN+243	LENGTH OF MAXIMUM FILE LINE
		3288	*			
0003		3289	KROIN3	EQU	3	COMPUTED GOTO NEXT LINE NO. REF.
		3290	*			

GCPACK - BASIC STATEMENT CHARACTER PACKING ROUTINE

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3292 *
3293 *      GCPBFR MUST BE EQUATED TO THE FIRST BYTE OF THE SDF
3294 *      PRECEEDING THE BASIC STATEMENT IN THE USED DEFINED AREA
3295 *
0001 3296      DROP 1      NO BASE REGISTER USED IN RTN
10C4 3297 GCPACK EQU *      ENTRY TO GCPACK ROUTINE
3298 *
3299 ***      SAVE REGISTERS AND SET UP POINTERS
3300 *
10C4 34 08 1131 3301      ST      GCP140+@OP1,@ARR      SAVE RET ADDR IN RESTORE INSTR
10C8 34 02 112D 3302      ST      GCP130+@OP1,@XR      SAVE @XR IN RESTORE INSTR
10CC 34 01 1129 3303      ST      GCP120+@OP1,@BR      SAVE @RB IN RESTORE INSTR
10D0 C2 01 1A08 3304      LA      GCPBFR+@STEXT+@B1,@BR      SET POINTER FOR PACKED PORTION
10D4 C2 02 1A07 3305      LA      GCPBFR+@STEXT,@XR      SET POINTER FOR UNPACKED PART
3306 *
3307 ***      TEST FOR EOS AND REPEAT CHARACTERS
3308 *
10D8 BD 1E 00 3309 GCP020 CLI      @ZERO(,@XR),@EOS      TEST FOR CARR RETURN CHAR
10DB F2 81 3E 3310      JE      GCP110      YES, GO CALC STMT LENGTH
10DE AD 00 00 01 3311      CLC      @ZERO(1,@XR),@B1(,@XR)      COMPARE FIRST TWO CHAR'S
10E2 F2 01 29 3312      JNE      GCP090      NOT EQUAL, GO MOVE 1ST TO PACKD
10E5 AD 00 01 02 3313      CLC      @B1(1,@XR),GCPTWO(,@XR)      COMPARE 2ND 3RD CHAR'S
10E9 F2 01 22 3314      JNE      GCP090      NOT EQUAL, GO MOVE 1ST TO PACKD
3315 *
3316 ***      DETERMINE LENGTH OF REPEAT COUNT
3317 *
10EC 7C 02 00 3318      MVI      @ZERO(,@BR),GCPTWO      SET UP INITIAL REPEAT COUNT
10EF E2 02 01 3319 GCP050 LA      @B1(,@XR),@XR      SET UNPACKED POINTER UP 1 CHAR
10F2 AD 00 01 02 3320      CLC      @B1(1,@XR),GCPTWO(,@XR)      TEST FOR ADDITIONAL REPEATS
10F6 F2 01 19 3321      JNE      GCP100      NO, GO INCR POINTERS
3322 *
3323 ***      TEST FOR MAX REPEAT COUNT AND RETURN TO PACKING MORE CHARACTERS
3324 *
10F9 7D 1B 00 3325      CLI      @ZERO(,@BR),GCPMAX      IS REPEAT COUNT AT MAX ?
10FC F2 81 09 3326      JE      GCP080      YES, GO INCR POINTERS
10FF 4E 00 00 1132 3327      ALC      @ZERO(1,@BR),GCPONE      NO, ADD ONE TO REPEAT COUNTER
1104 C0 87 10EF 3328      B      GCP050      GO TEST FOR MORE REPEAT CHAR'S
1108 D2 01 01 3329 GCP080 LA      @B1(,@BR),@BR      SET POINTER OF PACKED AREA UP 1
110B E2 02 01 3330      LA      @B1(,@XR),@XR      SET POINTER OF INPUT AREA UP 1
110E 6C 00 00 01 3331 GCP090 MVC      @ZERO(1,@BR),@B1(,@XR)      MOVE CHAR TO PACKED STMT AREA
1112 D2 01 01 3332 GCP100 LA      @B1(,@BR),@BR      INCREMENT PACKED AREA POINTER
1115 E2 02 01 3333      LA      @B1(,@XR),@XR      INCREMENT INPUT AREA POINTER
1118 C0 87 10D8 3334      B      GCP020      GO BACK TO CHECK NEXT CHARACTER
3335 *
3336 ***      CALCULATE STATEMENT LENGTH AND RETURN TO CALLING PROGRAM
3337 *
111C 34 01 1A01 3338 GCP110 ST      GCPBFR+@SDF1,@BR      SAVE PTR TO CALCULATE LENGTH
1120 0F 01 1A01 1134 3339      SLC      GCPBFR+@SDF1,GCPSTL(@CADDR)      SUBTRACT STARTING LOCATION
1126 C2 01 0000 3340 GCP120 LA      *-*,@BR      RELOAD BASE REGISTER
112A C2 02 0000 3341 GCP130 LA      *-*,@XR      RELOAD INDEX REGISTER
112E C0 87 0000 3342 GCP140 B      *-*      RETURN
3344 *
3345 ***      DEFINE CONSTANTS AREA
3346 *
1132 01      1132 3347 GCPONE DC      XL1'01'      INCR REPEAT COUNTER FACTOR

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[illegible]

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	07/03/22	PAGE	17
	1133	1A00		1134	3348	GCPSTL	DC AL2(GCPBFR)			START OF STATEMENT	CADDR
					3349	*					
					3350	***	EQUATES				
					3351	*					
				0002	3352	GCPTWO	EQU 2			INITLZ REPEAT COUNT VALUE	
				001B	3353	GCPMAX	EQU 27			MAX REPITITION COUNT ALLOWED	
					3354	*	END OF GCPACK				

DL4ICS - FOUR TRACK LOGICAL IOCR

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 07/03/22 PAGE 18
		3356		*****	
		3357	*	5703-XM1 COPYRIGHT IBM CORP. 1970	*
		3358	*	REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083	*
		3359	*		*
		3360		*****	
		3361	*	STATUS	*
		3362	*	VERSION 1 MODIFICATION 0	*
		3363	*		*
		3364	*	FUNCTION	*
		3365	*	* DL4ICS WILL CONVERT A RELATIVE DISK ADDRESS TO A PHYSICAL	*
		3366	*	DISK ADDRESS AND CALL \$DISKN TO PERFORM THE SPECIFIED FUNCTION	*
		3367	*	* THE DISK ADDRESS IS A ONE BYTE CYLINDER ADDRESS AND A ONE BYTE	*
		3368	*	SECTOR DISPLACEMENT RELATIVE TO SECTOR 0 ON A CYLINDER	*
		3369	*	BOUNDARY	*
		3370	*	* WHEN MORE THAN 1 SECTOR IS PROCESSED, DL4ICS WILL MAKE MULTIPLE	*
		3371	*	CALLS TO \$DISKN TO CROSS CYLINDER BOUNDARIES IF REQUIRED.	*
		3372	*	* IF 1 SECTOR ONLY IS TO BE PROCESSED, THE USER MAY OVERLAY THE	*
		3373	*	UNUSED CODE BY ORGING HIS NEXT MODULE AT DL4SPT	*
		3374	*		*
		3375	*	ENTRY POINTS	*
		3376	*	DL4ICS - ENTRY TO PROCESS A 4 SURFACE FILE. THE CALLING	*
		3377	*	SEQUENCE IS AS FOLLOWS	*
		3378	*	DSKL4 DPL	*
		3379	*	WHERE DPL IS THE LABEL OF A SIX BYTE DISK PARAMETER	*
		3380	*	LIST AS DESCRIBED FOR \$DISKN EXCEPT FOR THE SECTOR	*
		3381	*	ADDRESS BYTE.	*
		3382	*		*
		3383	*	INPUT	*
		3384	*	* INPUT TO DL4ICS IS THE ADDRESS OF THE DPL TO BE PROCESSED.	*
		3385	*		*
		3386	*	OUTPUT	*
		3387	*	* N/A	*
		3388	*		*
		3389	*	EXTERNAL REFENECES	*
		3390	*	\$DISKN - ENTRY TO SYSTEM DISK ROUTINE	*
		3391	*		*
		3392	*	EXITS, NORMAL	*
		3393	*	* NORMAL RETURN IS TO THE 1ST INSTRUCTION FOLLOWING THE TWO BYTE	*
		3394	*	ADDRESS POINTING TO THE DPL.	*
		3395	*		*
		3396	*	EXITS, ERROR	*
		3397	*	* N/A	*
		3398	*		*
		3399	*	TABLES/WORK AREAS	*
		3400	*	* N/A	*
		3401	*		*
		3402	*	ATTRIBUTES	*
		3403	*	* RELOCATABLE	*
		3404	*	* REUSABLE	*
		3405	*		*
		3406	*	CHARACTER CODE DEPENDENCY	*
		3407	*	* THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR	*
		3408	*	INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.	*
		3409	*		*
		3410	*	NOTES	*
		3411	*	ERROR PROCEDURES	*

DL4ICS - FOUR TRACK LOGICAL IOCR

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	07/03/22	PAGE 19
		3412	*	N/A			*
		3413	*				*
		3414	*	REGISTER USAGE			*
		3415	*	@BR IS SAVED AND RESTORED ON EXIT, @XR IS NOT USED. @ARR IS			*
		3416	*	USED TO PROVIDE THE ADDRESS OF THE PARAMETER. THE @ARR IS			*
		3417	*	INCREMENTED BT TWO AND SAVED AS THE RETURN ADDRESS.			*
		3418	*				*
		3419	*	SAVED/RESTORED AREAS			*
		3420	*	N/A			*
		3421	*				*
		3422	*	MODIFICATION CONSIDERATIONS			*
		3423	*	N/A			*
		3424	*				*
		3425	*	REQUIRED MODULES			*
		3426	*	@SYSEQ - SYSTEM SOFTWARE EQUATES			*
		3427	*	@FXDEQ - SYSTEM NUCLEUS EQUATES			*
		3428	*				*
		3429	*	OTHER			*
		3430	*	THIS VERSION OF DL4ICS DEVIATES FROM THE SUBROUTINE LIB.			*
		3431	*	*****			*

DL4ICS - FOUR TRACK LOGICAL IOCR

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 07/03/22 PAGE 20
				1135	3433	DL4ICS	EQU *	ENTRY TO DL4ICS
				1139	3434		USING DL4010,@BR	ESTABLISH BASE REGISTER USAGE
1135	34	01	1199		3435		ST DL4900+@OP1,@BR	SAVE BASE REGISTER FOR EXIT
				1139	3436	DL4010	EQU *	BASE ADDRESSABILITY
1139	C2	01	1139		3437		LA DL4010,@BR	ESTABLISH BASE
113D	76	08	6C		3438		A DL4C01(,@BR),@ARR	BUMP TO HIGH END OF ADDR
1140	74	08	14		3439		ST DL4020+@DOP2(,@BR),@ARR	SET UP MOVE INSTRUCTION
1143	76	08	6C		3440		A DL4C01(,@BR),@ARR	BUMP TO RETURN ADDR
1146	74	08	64		3441		ST DL4920+@OP1(,@BR),@ARR	SAVE RETURN ADDR
					3442	*		
1149	4C	01	1D 0000		3443	DL4020	MVC DL4030+@DOP2(@DADDR,@BR),*-*	MOVE DPL ADDR INTO MOVE
114E	5E	01	1D 6E		3444		ALC DL4030+@DOP2(@CADDR,@BR),DL4C05(,@BR)	BUMP TO RIGHT END
1152	4C	05	6A 0000		3445	DL4030	MVC DL4DPL(@DPLNG,@BR),*-*	MOVE USER DPL TO WORK AREA
					3446	*		
1157	7C	00	55		3447	DL4035	MVI DL4100+@Q(,@BR),@ZERO	CLEAR TRACK, DISK SET INST
					3448	*		
115A	7D	60	67		3449	DL4040	CLI DL4SCD(,@BR),DL4E96	TEST IF DISPLACEMENT OVER 95 ?
115D	F2	82	0B		3450		JL DL4050	JUMP IF NOT OVER 95
1160	5E	00	66 6C		3451		ALC DL4CYL(1,@BR),DL4C01(,@BR)	INCREMENT CYLINDER COUNT
1164	5F	00	67 22		3452		SLC DL4SCD(1,@BR),DL4C96(,@BR)	DECREMENT DISP BY 96
1168	D0	87	21		3453		B DL4040(,@BR)	GO BACK CHECK FOR NEXT CYLINDER
					3454	*		
116B	7D	30	67		3455	DL4050	CLI DL4SCD(,@BR),DL4E48	TEST IF DISP ON NEXT DISK ?
116E	F2	82	07		3456		JL DL4070	JUMP IF NOT OVER 48
1171	7A	01	55		3457		SBN DL4100+@Q(,@BR),DL4EFD	TURN ON BIT FOR FIXED DISK
1174	5F	00	67 33		3458		SLC DL4SCD(1,@BR),DL4C48(,@BR)	DECREMENT DISP 1 DISK
1178	7D	18	67		3459	DL4070	CLI DL4SCD(,@BR),DL4E24	DISPLACEMENT OVER 23 ?
117B	F2	82	07		3460		JL DL4080	JUMP NOT OVER 24
117E	7A	80	55		3461		SBN DL4100+@Q(,@BR),DL4ETB	SET TRACK BIT ON
1181	5F	00	67 40		3462		SLC DL4SCD(1,@BR),DL4C24(,@BR)	DECR DISP TO NEXT TRACK
1185	5E	00	67 67		3463	DL4080	ALC DL4SCD(1,@BR),DL4SCD(,@BR)	SHIFT LEFT 1 PLACE
1189	5E	00	67 67		3464		ALC DL4SCD(1,@BR),DL4SCD(,@BR)	SHIFT LEFT 1 PLACE
118D	7A	00	67		3465	DL4100	SBN DL4SCD(,@BR),*-*	SET TRACK, DISK BIT
					3466	*		
1190	C0	87	0025		3467		B \$DISKN	GO PERFORM DISK I/O
1194	119E			1195	3468		DC AL2(DL4LST)	ADDR OF DISK PARAM LIST
					3469	*		
1196	C2	01	0000		3470	DL4900	LA *-*,@BR	RESTORE OLD BASE TO RETURN
119A	C0	87	0000		3471	DL4920	B *-*	RETURN TO CALLER
				119E	3473	DL4LST	EQU *	LEFT END OF DPL
119E				11A3	3474	DL4DPL	DS CL(@DPLNG)	DPL SAVE AREA
				119F	3475	DL4CYL	EQU DL4LST+@DCYL	CYLINDER COUNT BYTE
				11A0	3476	DL4SCD	EQU DL4LST+@DSAD	DISPLACEMENT SECTOR COUNT
				0060	3477	DL4E96	EQU 96	TWO DISK SECTOR COUNT PER CYL
				0030	3478	DL4E48	EQU 48	ONE DISK SECTOR COUNT PER CYL
				0001	3479	DL4E01	EQU 01	VALUE TO TEST SECTOR COUNT
				0001	3480	DL4EFD	EQU 01	VALUE TO SET FIXED DISK BIT
				0018	3481	DL4E24	EQU 24	TRACK SECTOR COUNT
				0080	3482	DL4ETB	EQU X'80'	VALUE TO SET TRACK BIT
11A4	0001			11A5	3483	DL4C01	DC IL2'1'	VALUE TO INCR TO CYLINDER
11A6	0005			11A7	3484	DL4C05	DC IL2'5'	DISP TO RIGHT END OF DPL
				115B	3485	DL4C96	EQU DL4040+@Q	VALUE TO DECR DISPLACEMENT
				1179	3486	DL4C24	EQU DL4070+@Q	VALUE OF 1 TRACK
				11A1	3487	DL4SCT	EQU DL4LST+@DCNT	POINTER TO DPL SECTOR COUNT
				116C	3488	DL4C48	EQU DL4050+@Q	VALUE TO DECR DISP BY 1 DISK

GRABIT -- RETRIEVE FILE STATEMENTS

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT VER 15, MOD 00 07/03/22 PAGE 22

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3493 *****
3494 * 5703-XM1      COPYRIGHT IBM CORP. 1970
3495 *              REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083
3496 *
3497 *****
3498 *STATUS
3499 *  VERSION 1 MODIFICATION 0
3500 *
3501 *FUNCTION
3502 *  GRABIT LOCATES SEQUENTIAL STATEMENTS IN THE FILE SPECIFIED BY THE
3503 *  USER, AND, DEPENDING UPON THE OPTION CHOSEN, PASSES BACK THE
3504 *  STATEMENT OR SKIPS TO THE NEXT.
3505 *  AFTER BEING PRIMED BY THE CALLING PROGRAM, GRABIT READS LOGICALLY
3506 *  CONSECUTIVE BLOCKS OF SEGMENTED STATEMENTS, FROM THE FILE
3507 *  SPECIFIED BY THE USER, INTO CORE.  GRABIT RETURNS WITH @XR
3508 *  POINTING TO THE BINARY LINE NUMBER OF THE NEXT STATEMENT.
3509 *  IN ADDITION TO @XR, GRABIT PARAMETERS CAN BE SET TO CAUSE THE
3510 *  BINARY LINE NR, THE TYPE CODE AND THE UNPACKED, NON-SEGMENTED
3511 *  TEXT OF THE NEXT STMT TO BE PLACED IN AREAS DEFINED BY THE USER.
3512 *  IF GRABIT IS USED TO SKIP THROUGH THE STMTS WITHOUT UNPACKING
3513 *  THEM OR CHANGING THEIR LENGTH OR SEGMENTED CONDITION, GRABIT CAN
3514 *  BE INSTRUCTED TO RETURN THE BLOCKS TO THEIR ORIGINAL DISK ADDRESS
3515 *  IF THE SPECIFIED FILE IS ACCESSED BY DL4ICS.
3516 *
3517 *NOTES
3518 *  THIS VERSION OF GRABIT USES ONLY DL4ICS TO ACCESS THE NEXT DATA
3519 *  BLOCK.  GRABIT IN THE SUBROUTINE LIBRARY USES DL4ICS AND DL2ICS.
3520 *****
1286 3521      USING GRABSE,@BR
11A8 3522 GRABIT EQU *          ENTRY POINT TO ROUTINE
11A8 3523      ST      GRASBR,@BR      SAVE CALLING PROG'S BASE REG.
11AC C2 01 1286 3524      LA      GRABSE,@BR      LOAD LOCAL BASE TO BASE REG.
11B0 34 08 1229 3525      ST      GRASAR,@ARR      SAVE RETURN ADDR.
11B4 7D 00 A7 3526      CLI     GRWHAT(,@BR),GRAEFI  IS FUNC REQ'D INITIALIZATION ?
11B7 F2 81 13 3527      JE      GRA100      YES, GO TO INITIALIZATION RTN
3528 * THE ADDRESS OF THE NEXT SEGMENT IN THE CURRENT BUFFER IS INITLZ'D
3529 * AND MAINTAINED IN THE NEXT INST, WHICH LOADS IT TO THE @XR.
11BA C2 02 0000 3530 GRA020 LA      *-*,@XR      LOAD NEXT STMT CADDR TO @XR
11BE 7D 01 A7 3531      CLI     GRWHAT(,@BR),GRAEFR  IS FUNC REQ'D RETURN TEXT ?
11C1 F2 81 87 3532      JE      GRA300      YES, GO RETURN STMT ROUTINE
11C4 7D 02 A7 3533      CLI     GRWHAT(,@BR),GRAEFS  IS FUNC REQ'D SKIP STATEMENT
11C7 F2 81 35 3534      JE      GRA200      YES, GO TO SKIP STMT ROUTINE
11CA F2 87 38 3535      J      GRA210      GO TO SKIP SEGMENT RTN
3536 *
3537 *          INITIALIZATION ROUTINE
3538 *
11CD 75 02 A0 3539 GRA100 L      GRBFRA(,@BR),@XR      LOAD 1ST BFR ADDR TO DB
11D0 74 02 A6 3540      ST      GRANCA(,@BR),@XR      PROPAGATE IT TO NEXT BFR DPL
11D3 5C 01 A3 9D 3541      MVC     GRANDA(@DADDR,@BR),GRSRDA(,@BR)  INITLZ NEXT BRG DADDR
11D7 7C FF AC 3542      MVI     GRASIZ(,@BR),GRAEBS      INITLZ BUFFER SIZE COUNTER
11DA 5C 00 9E A4 3543      MVC     GRACSC(1,@BR),GRSCTR(,@BR)  INITLZ SCTR COUNT IN DPL
11DE C0 87 0025 3544      B      $DISKN      WAIT FOR FIRST DATA BLOCKS TO
11E2 057F 11E3 3545      DC      AL2($WAITF)      * GET INTO CORE
11E4 7C 97 B5 3546      MVI     GRAERR+@Q(,@BR),@E550  SET ERR CODE TO SPECIFY WRKFILE
11E7 5E 01 A6 A9 3547      ALC     GRANCA(@CADDR,@BR),GRASSZ(,@BR)  SET CADDR OF NEXT BFR
11EB BD 00 00 3548 GRA140 CLI     GRAELK(,@XR),GRAELN      IS 1ST DB LINK CODE = 0 ?

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GRABIT -- RETRIEVE FILE STATEMENTS

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 07/03/22 PAGE 23
	11EE	F2	81 07		3549	JE	GRA150	YES, GO INCR TO NEXT LOGICAL DB
	11F1	7C	02 A3		3550	MVI	GRANDA(, @BR), GRAEDB	SET DADDR OF NEXT DB
	11F4	6E	00 A3 00		3551	ALC	GRANDA(1, @BR), GRAELK(, @XR) *	
	11F8	5E	00 A3 AB		3552	GRA150 ALC	GRANDA(1, @BR), GRANPB(, @BR)	INCR TO NEXT BFR DADDR
	11FC	F2	87 2E		3553	J	GRA260	GO ACCESS FIRST STATEMENT
					3554	*		
					3555	*	ACCESS NEXT STATEMENT OR NEXT SEGMENT ROUTINE	
					3556	*		
	11FF	BD	75 07		3557	GRA200 CLI	GRAEDT(, @XR), GRAEET	END-OF-FILE RECORD ?
	1202	F2	81 16		3558	JE	GRA230	YES, RESET OR TO THIS RECORD
	1205	6F	00 AC 02		3559	GRA210 SLC	GRASIZ(1, @BR), GRAES1(, @XR)	DECR BFR CT BY SEGMENT LENGTH
	1209	B6	02 02		3560	A	GRAES1(, @XR), @XR	INCR OR BY SEGMENT LENGTH
	120C	7D	00 AC		3561	GRA220 CLI	GRASIZ(, @BR), @ZERO	IS BUFFER EMPTY ?
	120F	D0	82 B4		3562	BL	GRAERR(, @BR)	GONE NEG, GO TO BAD ERR
	1212	F2	81 15		3563	JE	GRA250	YES, GO TO GET NEXT BFR
	1215	BD	80 01		3564	CLI	GRAES0(, @XR), @SNULL	IS SEGMENT NULL ?
	1218	F2	81 0F		3565	JE	GRA250	YES, GO TO GET NEXT BFR
	121B	34	02 11BD		3566	GRA230 ST	GRA020+@OP1, @XR	SAVE CADDR OF NEXT SEG. IN INST.
	121F	E2	02 06		3567	LA	GRAEDL(, @XR), @XR	POINT @XR TO LINE NUMBER
	1222	C2	01 0000		3568	GRA240 LA	*-*, @BR	RESTORE THE BASE REGISTER
				1225	3569	GRASBR EQU	GRA240+@OP1	* STORED IN INST AT GRA240
	1226	C0	87 0000		3570	GRA245 B	*-*	RETURN TO USER
				1229	3571	GRASAR EQU	GRA245+@OP1	* TO CADDR SAVED IN GRA245
	122A	D0	87 67		3572	GRA250 B	GRA500(, @BR)	ACCESS NEXT BUFFER
	122D	BD	80 01		3573	GRA260 CLI	GRAES0(, @XR), @SNULL	IS 1ST SEG. NULL ?
	1230	D0	81 B4		3574	BE	GRAERR(, @BR)	YES, GO TO BAD ERR
	1233	B9	02 03		3575	TBF	GRAES2(, @XR), GRAETP	PRIMARY SEGMENT
	1236	C0	10 121B		3576	BT	GRA230	YES, SAVE LOCATION
	123A	7D	01 A7		3577	CLI	GRWHAT(, @BR), GRAEFR	ACTION REQ'D = RETURN TEXT ?
	123D	D0	81 B4		3578	BE	GRAERR(, @BR)	YES, GO TO BAD ERR
	1240	7D	04 A7		3579	CLI	GRWHAT(, @BR), GRAEFG	ACTION REQ'D = SKIP SEGMENT ?
	1243	C0	81 121B		3580	BE	GRA230	YES, GO SAVE LOCATION
	1247	C0	87 1205		3581	B	GRA210	NO, GO SKIP THIS SEGMENT
					3582	*		
					3583	*	RETURN TEXT ROUTINE	
					3584	*		
	124B	2C	01 1A05 06		3585	GRA300 MVC	GRLINE, GRAEDL(GRAELL, @XR)	SET BINARY LINE NO. IN O/P FIELD
	1250	2C	00 1A06 07		3586	MVC	GRTYPE, GRAEDT(1, @XR)	SET TYPE CODE IN OUTPUT FIELD
	1255	4C	01 58 1334		3587	MVC	GRTEND(@CADDR, @BR), GRATXT	INITLZ TEXT O/P CADDR IN INST.
	125A	BD	75 07		3588	CLI	GRAEDT(, @XR), GRAEET	END OF FILE STATEMENT ?
	125D	F2	01 08		3589	JNE	GRA303	NO - GO RESET SEGMENT SWITCH
	1260	3C	1C 1A07		3590	MVI	GRTEXT, @EOF	MOVE EOF CODE TO GRTEXT
	1264	C0	87 121B		3591	B	GRA230	GO GET OUT
	1268	7C	87 01		3593	GRA303 MVI	GRA310+@Q(, @BR), @UCB	INITLZ BRANCH FOR ONLY SEGMENT
	126B	BD	00 03		3594	CLI	GRAES2(, @XR), @SONLY	IS IT AN ONLY SEGMENT ?
	126E	F2	81 03		3595	JE	GRA305	YES, BYPASS BRANCH RESET
	1271	7C	80 01		3596	MVI	GRA310+@Q(, @BR), @NOP	SET FOR MORE SEGMENTS
	1274	6F	00 AC 02		3597	GRA305 SLC	GRASIZ(1, @BR), GRAES1(, @XR)	DECR BFR CT BY SEG LENGTH
	1278	9F	00 02 B0		3598	SLC	GRAES1(1, @XR), GRAPSG(, @BR)	DECR SEG CT BY SDF-HDR LENGTH
	127C	6C	00 B3 02		3599	MVC	GRASEG(1, @BR), GRAES1(, @XR)	MOVE TEXT LENGTH TO TEXT CTR
	1280	E2	02 07		3600	LA	GRAELP(, @XR), @XR	INCR TO TYPE CODE
	1283	F2	87 2A		3601	J	GRA317	GO TEST FILE TYPE
	1286	C0	87 120C		3602	GRA310 B	GRA220	GO ACCESS NEXT STATEMENT
	1286				3603	ORG	GRA310	* UNLESS CURRENT STATEMENT
	1286	C0	87 120C		3604	BC	GRA220, @UCB	* HAS MORE SEGMENTS

GRABIT -- RETRIEVE FILE STATEMENTS

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 07/03/22 PAGE 24
	128A	6C	00 24 00		3605	MVC	GRASVC(, @BR), @ZERO(1, @XR)	SAVE CURR CHAR IN RESTORE INST
	128E	D0	87 67		3606	B	GRA500(, @BR)	ACCESS NEXT BUFFER
	1291	BD	02 03		3607	CLI	GRAES2(, @XR), @SLAST	LAST SEGMENT ?
	1294	F2	01 03		3608	JNE	GRA313	NO, GO RESET SEG COUNTER
	1297	7C	87 01		3609	MVI	GRA310+@Q(, @BR), @UCB	RESET BRANCH OUT
	129A	6F	00 AC 02		3610	GRA313 SLC	GRASIZ(1, @BR), GRAES1(, @XR)	DECR BUFFER COUNTER
	129E	9F	00 02 B2		3611	SLC	GRAES1(1, @XR), GRASSG(, @BR)	DECR SEG COUNT BY SDF LENGTH
	12A2	6C	00 B3 02		3612	MVC	GRASEG(1, @BR), GRAES1(, @XR)	MOVE TEXT LNG TO SEG COUNTER
	12A6	E2	02 04		3613	LA	GRAELS(, @XR), @XR	INCR @XR PAST SECONDARY SDF
	12A9	BC	00 00		3614	GRA315 MVI	@ZERO(, @XR), *-*	RESTORE CHAR SAVED IN Q-CODE
				12AA	3615	GRASVC EQU	GRA315+@Q	SAVED CHAR HOLD AREA
	12AC	5E	01 58 AB		3616	GRA316 ALC	GRTEND(@CADDR, @BR), GRABOA(, @BR)	INCR RECEIVING CADDR
				12B0	3617	GRA317 EQU	*	MOVE TEXT TO GRTEXT
	12B0	38	80 03D4		3618	TBN	\$INDR1, \$BASIC	IS FILE TYPE = BASIC ?
	12B4	F2	90 24		3619	JF	GRA350	NO, BYPASS REPITION CODE CHECK
	12B7	BD	1B 01		3620	CLI	GRAENC(, @XR), GRAEMR	IS CHAR REF A REPITION CODE ?
	12BA	F2	84 1E		3621	JH	GRA350	NO, GO RETURN REF'D CHAR
	12BD	5C	01 3E 58		3622	MVC	GRATND(@CADDR, @BR), GRTEND(, @BR)	SET RCV'G CADDR IN INSTR
	12C1	2C	00 0000 00		3623	GRA320 MVC	*-*, @ZERO(1, @XR)	RETURN REPEATED CHAR TO OUTPUT
				12C4	3624	GRATND EQU	GRA320+@OP1	* ADDR SUPPLIED
	12C6	9F	00 01 AB		3625	SLC	GRAENC(1, @XR), GRAONE(, @BR)	DECR. REPITION COUNTER
	12CA	F2	01 07		3626	JNZ	GRA330	IF <> 0, GO INCR O/P CADDR
	12CD	5C	01 58 3E		3627	MVC	GRTEND(@CADDR, @BR), GRATND(, @BR)	RESTORE NEW O/P CADDR
	12D1	F2	87 0C		3628	J	GRA360	GO INCR @XR
	12D4	5E	01 3E AB		3629	GRA330 ALC	GRATND(@CADDR, @BR), GRABOA(, @BR)	INCR O/P CADDR IN INSTR
	12D8	D0	87 3B		3630	B	GRA320(, @BR)	GO MOVE CHAR TO OUTPUT
	12DB	2C	00 0000 01		3631	GRA350 MVC	*-*, GRAENC(1, @XR)	MOVE NON-REPEAT CHAR TO OUTPUT
				12DE	3632	GRTEND EQU	GRA350+@OP1	* ADDR SUPPLIED
	12E0	E2	02 01		3633	GRA360 LA	GRAENC(, @XR), @XR	INCR @XR TO NEXT CHAR.
	12E3	5F	00 B3 AB		3634	SLC	GRASEG(1, @BR), GRABOA(, @BR)	DECR BFR SPACE CTR
	12E7	D0	81 00		3635	BZ	GRA310(, @BR)	NO MORE TEXT IN SEG, CHK MORE
	12EA	D0	87 26		3636	B	GRA316(, @BR)	MORE TEXT, GO INCR RECV CADDR
					3637	*		
					3638	*	ACCESS NEXT BUFFER ROUTINE	
					3639	*		
	12ED	74	08 9A		3640	GRA500 ST	GRA5SA(, @BR), @ARR	
	12F0	C0	87 0025		3641	B	\$DISKN	WAIT FOR PRIOR READ TO COMPLETE
	12F4	057F		12F5	3642	DC	AL2(\$WAITF)	*
				12F6	3643	GRA600 EQU	*	
					3644	*		
					3645	*	DL4ICS BEING USED - ACCESS NEXT DATA BLOCK	
					3646	*		
	12F6	75	02 A0		3647	L	GRBFRA(, @BR), @XR	SAVE CURR BFR STARTING CADDR
	12F9	5C	04 A0 A6		3648	MVC	GRBFRA(GRAEDS, @BR), GRANCA(, @BR)	MOVE NEXT DPL TO CURR DPI
	12FD	74	02 A6		3649	ST	GRANCA(, @BR), @XR	RESTORE NEXT BFR STARTING CADDR
	1300	75	02 A0		3650	L	GRBFRA(, @BR), @XR	POINT EN TO CURR BFR CADDR
	1303	BD	00 00		3651	CLI	GRAELK(, @XR), GRAELN	NEXT LOGICAL DB = NEXT PHYS DB ?
	1306	F2	81 07		3652	JE	GRA620	YES, GO INCR SCTR DISP.
	1309	7C	02 A3		3653	MVI	GRANDA(, @BR), GRAEDB	SET DADDR OF NEXT DB
	130C	6E	00 A3 00		3654	ALC	GRANDA(1, @BR), GRAELK(, @XR)	*
	1310	5E	00 A3 AB		3655	GRA620 ALC	GRANDA(1, @BR), GRANPB(, @BR)	INCR SCTR DISP FOR NEXT PHYS D
	1314	C0	87 1135		3656	GRA640 B	DL4ICS	GO READ NEXT DB
	1318	1327		1319	3657	DC	AL2(GRANPL)	* CADDR OF DPL
	131A	7C	FF AC		3658	GRA660 MVI	GRASIZ(, @BR), GRAEBS	RE-INITLZ BFR SPACE COUNT
	131D	C0	87 0000		3659	GRA680 B	*-*	RETURN TO
				1320	3660	GRA5SA EQU	GRA680+@OP1	* CADDR SUPPLIED

GRABIT -- RETRIEVE FILE STATEMENTS

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 07/03/22 PAGE 25
			1321	3661	GRACPL	EQU *	DPL FOR CURRENT BUFFER
1321	02		1321	3662	GRACFN	DC AL1(@DPUT)	WRITE FUNCTION CODE
1322			1323	3663	GRSRDA	DS CL2	RELATIVE DADDR OF CURR. BFR
			1322	3664	GRACCA	EQU GRSRDA-@B1	CYLINDER BYTE OF DISK ADDR.
1322				3665		ORG *-2	* INITIALIZED TO THE
1322	0503		1323	3666		DC AL2(@WSTBL)	* 1ST DB OF THE WORK FILE
1324			1324	3667	GRACSC	DS CL1	SECTOR COUNT
1325	1B00		1326	3668	GRBFRA	DC AL2(GRBFR1)	CADDR OF CURRENT BUFFER
			1327	3669	GRANPL	EQU *	DPL FOR NEXT BUFFER
1327	01		1327	3670		DC AL1(@DGET)	READ FUNCTION CODE
1328			1329	3671	GRANDA	DS CL2	RELATIVE DADDR OF NEXT BFR.
132A			132A	3672	GRSCTR	DS CL1	SECTOR COUNT
132A				3673		ORG *-1	* INITIALIZE TO 1
132A	01		132A	3674		DC XL1'01'	
132B			132C	3675	GRANCA	DS CL2	CADDR OF NEXT BUFFER
132D			132D	3676	GRWHAT	DS CL1	USER SPEC'D FUNCTION CODE
132D				3677		ORG *-1	SET TO ZERO FOR
132D	00		132D	3678		DC XL1'00'	* INITIALIZATION CALL
132E	0100		132F	3679	GRASSZ	DC XL2'0100'	SECTOR SIZE
1330	0001		1331	3680	GRANPB	DC XL2'01'	DISP TO NEXT PHYS BFR DADDR
			0002	3681	GRAEDB	EQU 2	DB DADDR ADJUSTMENT FACTOR
1332			1332	3682	GRASIZ	DS CL1	BUFFER SPACE COUNTER
1333	1A07		1334	3683	GRATXT	DC AL2(GRTEXT)	ADDRESS OF TEXT OUTPUT AREA
1335	0007		1336	3684	GRAPSG	DC XL2'07'	SIZE OF PRIMARY SEG. HEADER
1337	0004		1338	3685	GRASSG	DC XL2'04'	SIZE OF 2NDARY SEG. HEADER
			1331	3686	GRAONE	EQU GRANPB	DECR FACTOR FOR REPITITION CTR
			1331	3687	GRABOA	EQU GRANPB	INCR FACTOR FOR NEXT TEXT CHAR
			1331	3688	GRANXC	EQU GRANPB	CYL ADJ FACTOR
1339			1339	3689	GRASEG	DS CL1	SEGMENT TEXT COUNTER
			0000	3690	GRAEFI	EQU X'00'	INITIALIZATION FUNC. CODE
			0003	3691	GRAEFW	EQU X'03'	WRITE BACK ONLY FUNC. CODE
			0001	3692	GRAEFR	EQU X'01'	RETURN TEXT FUNC. CODE
			0002	3693	GRAEFS	EQU X'02'	SKIP STATEMENT FUNC. CODE
			0004	3694	GRAEFG	EQU X'04'	SKIP SEGMENT FUNC. CODE
			00FF	3695	GRAEBS	EQU X'FF'	BUFFER TEXT AREA SIZE
			0001	3696	GRAESC	EQU X'01'	SCTR COUNT IF DL4ICS USED
			0000	3697	GRAELK	EQU X'00'	DISP TO LINK CODE WITHIN DB
			0000	3698	GRAELN	EQU X'00'	LINK CODE TO NEXT PHYS DB
			0001	3699	GRAEXA	EQU X'01'	ADJ TO '@' EQU'S FOR @XR ADDR
			0006	3700	GRAEDL	EQU @SBLN+GRAEXA	DISP TO STMT BINARY LINE NO.
			0007	3701	GRAEDT	EQU @STYPE+GRAEXA	DISP TO STMT TYPE CODE
			0002	3702	GRAELL	EQU X'02'	LENGTH OF BINARY LINE NUMBER
			0075	3703	GRAEET	EQU @EOFTC	TYPE CODE OF END-OF-FILE STMT
			0001	3704	GRAES0	EQU @SDF0+GRAEXA	DISP TO SDF0 - NULL INDR
			0002	3705	GRAES1	EQU @SDF1+GRAEXA	DISP TO SDF1 - LENGTH
			0003	3706	GRAES2	EQU @SDF2+GRAEXA	DISP TO SDF2 - SEGMENTATION CDE
			0002	3707	GRAETP	EQU X'02'	MASK FOR A PRIMARY SEGMENT
			0007	3708	GRAELP	EQU X'07'	LENGTH OF PRIMARY SEG.
			0004	3709	GRAELS	EQU X'04'	LENGTH OF SECONDARY SEG.
			001B	3710	GRAEMR	EQU 27	MAX. REPITITION CODE
			0001	3711	GRAENC	EQU X'01'	DISP TO NEXT TEXT CHARACTER
			0001	3712	GRAEDC	EQU X'01'	DISP TO CYL IN DADDR
			1286	3713	GRABSE	EQU GRA310	BASE ADDRESS OF GRABIT
			0005	3714	GRAEDS	EQU X'05'	LNG OF DPL DADDR, SCTR-CT.
			0006	3715	GRAEW2	EQU 6	SECOND CYL OF WORK FILE
			3716	*			

GRABIT -- RETRIEVE FILE STATEMENTS

ERR LOC		OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00		07/03/22	PAGE	26
				3717	*	ERROR ROUTINE					
				3718	*						
133A	3C	98 03CD		3719	GRAERR MVI	\$CAERR,@E551			SET BAD FILE ERROR CODE		
				3720	*	THE ABOVE ERROR CODE IS INITIALLY SET FOR A SAVED FILE,					
				3721	*	BUT IS MODIFIED TO THE WORK FILE IF DL4ICS IS USED					
133E	3A	04 03D6		3722	SBN	\$INDR3,\$ERHRD			SET INDR FOR HARD ERROR		
1342	C0	87 0469		3723	B	\$CAERK			GO TO ERRPGM INTERFACE		

C4BIN2 - CONVERT DECIMAL TO BINARY ROUTINE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 07/03/22 PAGE 28
					3727+	*		*
					3728+		INITIALIZATION	*
					3729+			*
				1346	3730+	C4BIN2 EQU *	ENTRY POINT	
				1346	3731+	USING C4BIN2,@BR	BASE VALUE	
					3732+			
1346	34	01	13A8		3733+	ST C4B800+@OP1,@BR	SAVE CALLERS BASE REGISTER	
134A	C2	01	1346		3734+	LA C4BIN2,@BR	LOAD BASE VALUE	
					3735+			
134E	74	08	66		3736+	ST C4B850+@OP1(,@BR),@ARR	SAVE RETURN ADDRESS	
					3737+			
1351	74	02	6E		3738+	ST C4BSAV(,@BR),@XR	SAVE VALUE OF POINTER	
1354	3C	0C	03CD		3739+	MVI \$CAERR,@E122	SET ERROR CODE IN CASE	
1358	5C	01	6A 6B		3740+	MVC C4BVAL(C4BLVL,@BR),C4BINI(,@BR)	INIT VALUE TO ZERO	
135C	3C	04	13B5		3741+	C4B100 MVI C4B900,4	INITLZ CHAR. COUNT	
					3742+			
					3743+	*** DETERMINE IF CHAR NUMERIC AND DECR CHAR COUNT		
					3744+			
1360	F2	80	32		3745+	C4B200 JC C4B600,@NOP	SET TO UCB IF IMBEDDED BLANKS	
					3746+		* ALLOWED	
1363	BD	F0	00		3747+	C4B300 CLI 0(,@XR),C4BLOW	THIS CHAR NUMERIC ?	
1366	F2	82	35		3748+	JL C4B700	NO, GOTO RETURN	
					3749+			
1369	5F	00	6F 4E		3750+	SLC C4B900(1,@BR),C4B590+@D1(,@BR)	DECR CHAR COUNT	
136D	F2	82	35		3751+	JL C4B800	BR TO ERROR EXIT IF TOO MANY	
					3752+			
					3753+	*** MULTIPLY PREVIOUS VALUE BY TEN		
					3754+			
1370	5E	01	6A 6A		3755+	ALC C4BVAL(C4BLVL,@BR),C4BVAL(,@BR)	DOUBLE PREVIOUS VALUE	
1374	5C	01	68 6A		3756+	MVC C4BWRK(C4BLVL,@BR),C4BVAL(,@BR)	SAVE DOUBLE VALUE	
1378	5E	01	6A 6A		3757+	ALC C4BVAL(C4BLVL,@BR),C4BVAL(,@BR)	QUADRUPLE PREVIOUS VALUE	
137C	5E	01	6A 6A		3758+	ALC C4BVAL(C4BLVL,@BR),C4BVAL(,@BR)	OCTUPLE PREVIOUS VALUE	
1380	5E	01	6A 68		3759+	ALC C4BVAL(C4BLVL,@BR),C4BWRK(,@BR)	ADD IN SAVED DOUBLE	
					3760+			
					3761+	*** ADD IN VALUE OF THIS CHAR AND INCR POINTER		
					3762+			
1384	68	03	6C 00		3763+	MNN C4BCHR(,@BR),0(,@XR)	FETCH NEMERIC VALUE OF NEW CHAR	
1388	5E	01	6A 6C		3764+	ALC C4BVAL(C4BLVL,@BR),C4BCHR(,@BR)	INCR VALU BY THIS CHAR	
					3765+			
138C	E2	02	01		3766+	LA @B1(,@XR),@XR	INCR POINTER TO NEXT CHAR	
138F	D0	87	1A		3767+	B C4B200(,@BR)	GOTO DO IT AGAIN	
					3768+			*
					3769+		ROUTINE TO SCAN BLANKS	*
					3770+			*
1392	E2	02	01		3771+	C4B590 LA @B1(,@XR),@XR	INCR POINTER TO NEXT CHAR	
1395	BD	40	00		3772+	C4B600 CLI 0(,@XR),@BLANK	IS THIS CHAR A BLANK ?	
1398	D0	01	1D		3773+	BNE C4B300(,@BR)	RETURN IF NOT	
139B	D0	87	4C		3774+	B C4B590(,@BR)	GET NEXT CHAR IF YES	

C4BIN2 - CONVERT DECIMAL TO BINARY ROUTINE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 07/03/22 PAGE 29
					3776+*			
					3777+***	ENDING ROUTINE		
					3778+*			
139E	74	02	68		3779+C4B700	ST	C4BLEN(,@BR),@XR	PLACE VALUE OF POINTER
13A1	5F	01	68 6E		3780+	SLC	C4BLEN(2,@BR),C4BSAV(,@BR)	SUBTRACT ENTERING VALUE
					3781+*			
13A5	C2	01	0000		3782+C4B800	LA	*-*,@BR	RESTORE CALLERS BR
					3783+*			
13A9	C0	87	0000		3784+C4B850	B	*-*	RETURN TO CALLING ROUTINE
					3785+*			*
					3786+*		WORK AREA AND CONSTANT	*
					3787+*			*
13AD				13AE	3788+C4BWRK	DS	CL2	SAVE AREA FOR DOUBLED VALUE
					3789+*			
				13AF	3790+C4BYT1	EQU	*	FIRST BYTE OF BINARY VALUE
13AF				13B0	3791+C4BVAL	DS	CL2	SAVE AREA FOR BINARY VALUE
					3792+*			
13B1	00			13B1	3793+C4BINI	DC	XL1'00'	INITIALIZE WA TO ZERO
					3794+*			
13B2				13B2	3795+C4BCHR	DS	CL1	SAVE AREA FOR EACH NEW CHAR
13B2					3796+	ORG	*-1	INITIALIZE
13B2	00			13B2	3797+	DC	XL1'00'	* TO ZERO
					3798+*			
13B3				13B4	3799+C4BSAV	DS	CL2	SAVE AREA FOR XR
					3800+*			
13B5				13B5	3801+C4B900	DS	CL1	SAVE AREA FOR CHAR COUNTER
					3802+*			*
					3803+*		EQUATES FOR C4BIN2	*
					3804+*			*
				13AE	3805+C4BLEN	EQU	C4BWRK	ON RETURN WILL CONTAIN COUNT
					3806+*			* @XR INCREMENTED BY
				0004	3807+C4BCHC	EQU	4	NUMBER OF CHAR TO CONVERT
					3808+*			
				00F0	3809+C4BLOW	EQU	C'0'	LOWEST NUMERIC CHARACTER
					3810+*			
				0002	3811+C4BLVL	EQU	C4BVAL-C4BWRK	LENGTH OF BINARY VALUE
					3812+*			
				1361	3813+C4BLNK	EQU	C4B200+@Q	LOCATION OF IMBEDDED BLANK IND
					3814+*			
				0087	3815+C4BSPC	EQU	@UCB	MOVED TO C4BLNK TO ALLOW BLANKS
					3816+*			
				135D	3817+C4BNMC	EQU	C4B100+@Q	LOCATION OF CONVERSION COUNT
					3818+*			
				0080	3819+C4BNOP	EQU	@NOP	CHANGED IF IMBEDDED BLANK OK
				13B6	3820+C4END	EQU	*	DEFINE END OF CODE
					3821+***		END OF C4BIN2	***

GPUTIT -- PUT STATEMENTS INTO THE WORK FILE

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 07/03/22 PAGE 30
		3823		*****	
		3824	*	5703-XM1 COPYRIGHT IBM CORP. 1970	*
		3825	*	REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083	*
		3826	*		*
		3827		*****	
		3828	*	*STATUS	*
		3829	*	VERSION 1 MODIFICATION 0	*
		3830	*		*
		3831	*	*FUNCTION	*
		3832	*	THE FUNCTION OF GPUTIT IS TO PUT STATEMENTS INTO THE WORK FILE.	*
		3833	*	WHEN FIRST CALLED, THE ROUTINE WILL PLACE THE STATEMENT PASSED TO	*
		3834	*	IT IN A CORE BUFFER INTO THE POSITION OF THE FIRST STATEMENT OF	*
		3835	*	THE WORK FILE, AND IF REQUESTED, WILL INITIALIZE THE FILE INDEX	*
		3836	*	TABLE. (THE CALL ROUTINE SETS THE INDR GPUFIT IN GPUIDR OFF IF A	*
		3837	*	FIT IS REQUESTED).	*
		3838	*	EACH STATEMENT PASSED VIA A SUBSEQUENT CALL TO GPUTIT WILL BE	*
		3839	*	PLACED IN THE CORE BUFFERS, FOLLOWING THE PREVIOUS STATEMENT.	*
		3840	*	AS A STATEMENT IS PLACED IN A CORE BUFFER, THE FIT IS ADJUSTED	*
		3841	*	IF IT WAS REQUESTED.	*
		3842	*	WHEN A CORE BUFFER IS FILLED IT IS WRITTEN TO DISK VIA DL4ICS.	*
		3843	*	AND FILE BUILDING WILL CONTINUE IN AN ALTERNATE CORE BUFFER.	*
		3844	*	WHEN A EOF CODE IS FINALLY PASSED TO GPUTIT, IT WILL BE REPLACED	*
		3845	*	BY AN END OF FILE RECORD AND THE LAST BLOCK WILL BE WRITTEN TO	*
		3846	*	DISK	*
		3847	*		*
		3848	*	*ENTRY POINTS	*
		3849	*	GPUTIT - THE FIRST LOCATION IN THE PROGRAM. THE CALL IS:	*
		3850	*	B GPUFIT	*
		3851	*		*
		3852	*	*INPUT	*
		3853	*	INPUT TO GPUTIT IS THE STATEMENT TO BE PROCESSED AND PUT TO THE	*
		3854	*	WORK FILE. IT IS PASSED IN A COMMON ANEA, GPUSMT. THE FORMAT OF	*
		3855	*	GPUSMT IS AS FOLLOWS:	*
		3856	*	4 BYTE SDF - FILLED IN BY GPUTIT	*
		3857	*	2 BYTE BINARY LINE NUMBER - SUPPLIED BY USER	*
		3858	*	1 BYTE TYPE CODE - SUPPLIED BY USER	*
		3859	*	244 BYTE TEXT ARE - SUPPLIED BY USER	*
		3860	*	PRIOR TO INITIAL ENTRY, THE FOLLOWING FIELDS MUST BE SET FOR	*
		3861	*	GPUTIT:	*
		3862	*	GPUCYL - STARTING CYLINDER OF THE FILE. (1 BYTE)	*
		3863	*	GRUBFR - CADDR (2 BYTES) OF THE LEFT-MOST BYTE OF THE 2 SECTOR	*
		3864	*	BUFFER AREA ASSIGNED BY USER.	*
		3865	*	GPUFIT - '0' FIT WILL BE BUILT IN CORE	*
		3866	*	'1' FIT WILL NOT BE BUILT	*
		3867	*		*
		3868	*	*OUTPUT	*
		3869	*	OUTPUT FROM GPUTIT WILL BE THE WORK FILE DISK BLOCKS WRITTEN TO	*
		3870	*	DISK AND A FIT BUILT IN CORE IF REQUESTED.	*
		3871	*		*
		3872	*	*EXTERNAL REFERENCES	*
		3873	*	DL4ICS - FOUR TRACK LOGICAL DISK IOCS	*
		3874	*	GCPACK - STAMEMENT PACK ROUTINE	*
		3875	*	GPUSMT - BUFFER MONK AREA SUPPLIED BY USER	*
		3876	*	GPUERR - ERROR EXIT ROUTINE ADM	*
		3877	*	GRTEND - ADDR IN GRABIT - EOS ADDR	*
		3878	*	\$\$FITS - CORE ADDR FILE INDEX TABLE	*

GPUTIT -- PUT STATEMENTS INTO THE WORK FILE

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 07/03/22 PAGE 31
		3879	*	\$INDR1 - ADDR IN SYSTEM NUCLEUS-SYSTEM STATUS INDR	*
		3880	*	\$KEYDT - MASK IN SINDR1 - KEYBOARD OR CARD FILE INDR	*
		3881	*	\$CAERR - ADDR IN SYSTEM NUCLEUS-ERROR CODE SAVE AREA	*
		3882	*		*
		3883	*	*EXITS, NORMAL	*
		3884	*	NEXT SEQUENTIAL INSTRUCTION IN CALL ROUTINE. REGISTERS FOR	*
		3885	*	CALL ROUTINE ARE RESTORED AND POINTERS ARE SAVED INTERNALLY.	*
		3886	*		*
		3887	*	*EXITS, ERROR	*
		3888	*	GPUERR - ERROR EXIT ROUTINE IN CALL PROGRAM. THE ONLY ERROR	*
		3889	*	DETECTED BY GPUTIT IS A FULL WORK FILE AND A REQUEST HAS	*
		3890	*	BEEN MADE TO ENTER ANOTHER LINE. AN ERROR CODE WHICH IS	*
		3891	*	EQUATED TO GPUECD BY THE CALL ROUTINE WILL BE PLACED IN	*
		3892	*	\$CAERR.	*
		3893	*		*
		3894	*	*TABLES/WORK AREAS	*
		3895	*	DPL'S, WORK AREAS AND CONSTANTS ARE PLACED BETWEEN THE 2 MAJOR	*
		3896	*	BLOCKS OF CODE IN ORDER TO FACILITATE BASE ADDRESSIBILITY.	*
		3897	*		*
		3898	*	*ATTRIBUTES	*
		3899	*	GPUTIT IS REUSABLE	*
		3900	*		*
		3901	*	*CHARACTER CODE DEPENDENCY	*
		3902	*	CHARACTER CODE DEPENDENCY CLASS - C	*
		3903	*	THE OPERATION OF THIS MODULE DEPENDS UPON AN INTERNAL REPRESENTA-	*
		3904	*	TION OF THE EXTERNAL CHARACTER SET WHICH IS EQUIVALENT TO THE ONE	*
		3905	*	USED AT ASSEMBLY TIME. THE CODING HAS BEEN ARRANGED SO THAT RE-	*
		3906	*	DEFINITION OF CHARACTER CONSTANTS. BY REASSEMBLY, WILL RESULT IN	*
		3907	*	A CORRECT MODULE FOR THE NEW DEFINITIONS. THE FOLLOWING ARE THE	*
		3908	*	SPECIAL CONSIDERATIONS FOR THIS MODULE:	*
		3909	*	* @EOS - PART OF @SYSEQ	*
		3910	*	* @EOF - PART OF @SYSEQ - DC AS A CONSTANT	*
		3911	*	* @EOFTC - PART OF @SYSEQ - DC AS A CONSTANT	*
		3912	*		*
		3913	*	*NOTES	*
		3914	*	ERROR PROCEDURES	*
		3915	*	UPON DETECTION OF AN ERROR. THE ERROR CODE EQUATED TO GPUECD	*
		3916	*	BY THE CALL ROUTINE IS MOVED TO \$CAERR AND AN EXIT IS MADE TO	*
		3917	*	GPUERR.	*
		3918	*		*
		3919	*	REGISTER USAGE	*
		3920	*	INDEX REGISTER 1 (@BR) IS SAVED AND RESTORED AND USED AS A	*
		3921	*	BASE REGISTER TO ADDRESS CONSTANTS, WORK AREAS ETC, AND CORE.	*
		3922	*	INDEX REGISTER 2 (@XR) IS SAVED AND RESTORED AND USED AS A	*
		3923	*	POINTER TO THE FIRST UNUSED SPACE IN THE CURRENT BUFFER, AND	*
		3924	*	AS AN INDEX IN CREATING THE FIT.	*
		3925	*		*
		3926	*	SAVED/RESTORED AREAS	*
		3927	*	N/A	*
		3928	*		*
		3929	*	MODIFICATION CONSIDERATIONS	*
		3930	*	N/A	*
		3931	*		*
		3932	*	REQUIRED MODULES	*
		3933	*	@SYSEQ - COMMON SYSTEM SOFTWARE EQUATES	*
		3934	*	@FXDEQ - COMMON CORE LOCATIONS WITHIN THE SYSTEM NUCLEUS	*

GPUTIT -- PUT STATEMENTS INTO THE WORK FILE

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	07/03/22	PAGE	32
		3935	*	@ERMEQ	- ERROR MESSAGE EQUATES				*
		3936	*	@CANEQ	- FIXED ADDRESSES OUTSIDE SYSTEM NUCLEUS				*
		3937	*	GRABIT	- FILE LINE RETRIEVER				*
		3938	*	GCPACK	- PACK CHARACTER ROUTINE				*
		3939	*	DL4ICS	- FOUR TRACK LOGICAL DISK IOCS				*
		3940	*						*
		3941	*	OTHER					*
		3942	*	N/A					*
		3943	*	*****					*

GPUTIT -- PUT STATEMENTS INTO THE WORK FILE

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 07/03/22 PAGE 33
		3945		*****	
		3946	*		*
		3947	*	GPUTIT MODULE EQUATES	*
		3948	*		*
		3949		*****	
		3950	*		
0001		3951	GPULN1 EQU	1	LENGTH CODE OF 1
0002		3952	GPULN2 EQU	2	LENGTH CODE OF 2
0003		3953	GPULN3 EQU	3	LENGTH CODE OF 3
0004		3954	GPULN4 EQU	4	LENGTH CODE OF 4
000C		3955	GPUL12 EQU	12	LENGTH OF FIRST FIT ENTRY
		3956	*		
		3957	*		
0000		3958	GPUDS0 EQU	0	DISPLACEMENT OF 0
0001		3959	GPUDS1 EQU	1	DISPLACEMENT OF 1
0002		3960	GPUDS2 EQU	2	DISPLACEMENT OF 2
0003		3961	GPUDS3 EQU	3	DISPLACEMENT OF 3
0004		3962	GPUDS4 EQU	4	DISPLACEMENT OF 4
000B		3963	GPUD11 EQU	11	DISPLACEMENT OF 11
		3964	*		
00FF		3965	GPUXFF EQU	X'FF'	CORE BLOCK LENGTH
		3966	*		
00BC		3967	GPUXBC EQU	X'BC'	NUMBER OF FIT ENTRIES TO BE
		3968	*		* CREATED INTERNALLY
00BC		3969	GPU188 EQU	188	MAXIMUM DB COUNT
		3970	*		
0008		3971	GPU008 EQU	X'08'	LENGTH OF EOF RECORD
		3972	*		
0001		3973	GPUON1 EQU	X'01'	TEST MICH BUFFER TO FILL
		3974	*		
0008		3975	GPUX08 EQU	8	MINIMUM CB BYTES
		3976	*		
1D00		3977	GPUADR EQU	X'1D00'	ADDR FIT IN CORE
1D0B		3978	GPUFTS EQU	GPUADR+GPUD11	DISP OF 11 FROM FIT BEGIN
		3979	*		
		3980		*****	

GPUNIT -- PUT STATEMENTS INTO THE WORK FILE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 07/03/22 PAGE 34
				3982		*****		
				3983		*		*
				3984		*	INITIALIZATION OF MODULE	*
				3985		*		*
				3986		*****		
				3987		*		
				1462	3988		USING GPUDPL,@BR	
				13B6	3989	GPUNIT	EQU *	
13B6	34	01	1459		3990		ST GPU270+@OP1,@BR	SAVE BASE REGISTER
13BA	C2	01	1462		3991		LA GPUDPL,@BR	LOAD BASE REGISTER
13BE	34	02	1455		3992	GPU050	ST GPU260+@OP1,@XR	SAVE INDEX REGISTER
13C2	34	08	1461		3993		ST GPU280+@OP1,@ARR	SAVE RETURN ADDRESS
				3995		*****		
				3996		*		*
				3997	*		THE FIRST TIME IN THE ROUTINE THE BRANCH AROUND THE FIRST	*
				3998	*		PROCESSING IS NO-OP'ED. AFTER THE INITIAL PASS THROUGH,	*
				3999	*		THE BRANCH IS ALTERED TO BYPASS THE INITIALIZATION ROUTINE.	*
				4000	*			*
				4001		*****		
				4002	*			
13C6	F2	80	12		4003	GPU100	JC GPU200,@NOP	
				4005		*****		
				4006	*			*
				4007	*		PROCESSING OF INITIAL ENTRY TO ROUTINE	*
				4008	*			*
				4009		*****		
				4010	*			
13C9	5C	01	23 05		4011	GPU150	MVC GPUCLA(@CADDR,@BR),GPUBFR(,@BR)	MOVE DATA BUFFER ADDRESS
				4012	*			* TO CURRENT LINE ADDRESS
13CD	75	02	05		4013		L GPUBFR(,@BR),@XR	LOAD BUFFER ADDRESS
				4014	*			*
13D0	BC	00	00		4015		MVI @ZERO(,@XR),@ZERO	MOVE A ZERO TO FIRST BYTE OF
				4016	*			* FIRST BUFFER
13D3	3C	87	13C7		4017		MVI GPU100+@Q,@UCB	MODIFY BRANCH AROUND INITIAL-
				4018	*			* IZATION ROUTINE
13D7	3C	00	1A03		4019		MVI GPUSMT+@SDF3,@ZERO	INIT FOURTH BYTE OF GPUSMT
				4020	*			
				4021		*****		

GPUNIT -- PUT STATEMENTS INTO THE WORK FILE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 07/03/22 PAGE 35
				4023		*****		
				4024	*			*
				4025	*	CREATE FILE RECORD SEGMENTS		*
				4026	*			*
				4027		*****		
				4028	*			
13DB	75	02	23	4029	GPU200	L	GPUCLA(,@BR),@XR	LOAD CURRENT LINE ADDRESS
13DE	3C	00	1A02	4030		MVI	GPUSMT+@SDF2,@ZERO	INIT TYPE CODE
13E2	3D	1C	1A07	4031		CLI	GPUSMT+@STEXT,@EOF	IS THIS THE EOF RECORD ?
13E6	D0	81	40	4032		BE	GPU340(,@BR)	IF EOF, MODIFY STATUS
13E9	38	40	03D4	4033		TBN	\$INDR1,\$KEYDT	IS THIS A DATA FILE ?
13ED	F2	90	0E	4034		JF	GPU210	NO, PACK DATA
				4035	*			
				4036	*	PROCESS DATA FILE LINE LENGTH		
				4037	*			
13F0	0C	01	1A01 12DE	4038		MVC	GPUSMT+@SDF1(@CADDR),GRTEND	GET ADDR OF EOS
13F6	1F	01	1A01 26	4039		SLC	GPUSMT+@SDF1(@CADDR),GPUMOV(,@BR)	COMPUTE LENGTH OF STMT
				4040	*			
13FB	F2	87	04	4041		J	GPU215	BRANCH AROUND PACK
13FE	C0	87	10C4	4042	GPU210	B	GCPACK	PACK TEXT DATA; COMPUTE LENGTH
				4043	*			
1402	7D	BC	16	4044	GPU215	CLI	GPUDBS(,@BR),GPU188	IS DATA BLOCK COUNT 188 ?
1405	3C	8A	03CD	4045		MVI	\$CAERR,GPUECD	MAX FILE SIZE EXCEEDED
1409	D0	81	2D	4046		BE	GPU300(,@BR)	YES, CHECK SEGMENT LENGTH
140C	5E	01	18 28	4047	GPU220	ALC	GPUCNT(GPULN2,@BR),GPU001(,@BR)	ADD TO LINE COUNT
1410	7D	08	1D	4048		CLI	GPUPSTR(,@BR),GPUX08	MIN 8 BYTES LEFT ?
				4049	*			* IN CORE BLOCK ?
1413	D0	82	BE	4050		BL	GPU400(,@BR)	NO, WRITE BLOCK
1416	78	80	19	4051	GPU230	TBN	GPUIDR(,@BR),GPUBRK	IS BREAK INDR ON ?
1419	D0	90	4C	4052		BF	GPU360(,@BR)	NO, PROCESS FIT
141C	7B	80	19	4053		SBF	GPUIDR(,@BR),GPUBRK	TURN OFF BREAK INDR
141F	D0	87	A7	4054		B	GPU396(,@BR)	GO MOVE SECOND SEGMENT
1422	3C	80	15E6	4055	GPU240	MVI	GPU502+@Q,@NOP	RESET RE-ENTRY SWITCH
1426	36	02	1A01	4056		A	GPUSMT+@SDF1,@XR	ADD LENGTH OF SEGMENT TO XR
142A	4F	00	1D 1A01	4057		SLC	GPUPSTR(GPULN1,@BR),GPUSMT+@SDF1	SUB LENGTH OF SEG-
				4058	*			*
142F	3C	FF	1445	4059		MVI	GPU245+@VQ,GPUXFF	SET Q CODE TO -1
1433	0E	00	1445 1A01	4060		ALC	GPU245+@VQ(1),GPUSMT+@SDF1	ADD SEGMENT LENGTH
1439	1C	01	1448 26	4061		MVC	GPU245+@DOP2(@CADDR),GPUSTT(,@BR)	MOVE BASE ADDR
143E	0E	01	1448 1A01	4062		ALC	GPU245+@DOP2(@CADDR),GPUSMT+@SDF1	ADD SEGMENT LENGTH
1444	8C	00	00 0000	4063	GPU245	MVC	@ZERO(@VQ,@XR),*-*	MOVE LINE SEGMENT TO CORE BUFF
1449	78	40	19	4064	GPU247	TBN	GPUIDR(,@BR),GPUEOF	IS EOF INDR ON ?
144C	D0	10	D6	4065		BT	GPU405(,@BR)	YES, CONTINUE PROCESSING

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	07/03/22	PAGE	36
				4067		*****					
				4068	*						*
				4069	*	END OF MODULE PROCESSING					*
				4070	*						*
				4071		*****					
				4072	*						
144F	74	02	23	4073	GPU250 ST	GPUCLA(,@BR) ,@XR					
1452	C2	02	0000	4074	GPU260 LA	*-*,@XR	RESTORE REGS				
1456	C2	01	0000	4075	GPU270 LA	*-*,@BR	*				
145A	C0	80	0FBE	4076	GPU275 BC	GPUERR,@NOP	CONDITIONAL ERROR EXIT				
145E	C0	87	0000	4077	GPU280 B	*-*					
				4078	*						
				4079		*****					

GPUNIT -- PUT STATEMENTS INTO THE WORK FILE

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 07/03/22 PAGE 37
			4081	*	*****	
			4082	*		*
			4083	*	DATA CONSTANTS, BUFFERS, AND WORK AREAS	*
			4084	*		*
			4085	*	*****	
			4086	*		
			4087	*	DPL FOR WRITING FILE DATA BLOCKS TO DISK	
			4088	*		
1462	02		1462	4089	GPUDPL DC AL1(@DPUT)	
1463	0503		1464	4090	DC XL2'0503'	
1465	01		1465	4091	DC AL1(@B1)	
1466	1800		1467	4092	DC AL2(GPUBF1)	
			1463	4094	GPUCYL EQU GPUDPL+@DCYL	CYLINDER
			1464	4095	GPUSCT EQU GPUDPL+@DSAD	SECTOR
			1467	4096	GPUBFR EQU GPUDPL+@DBFR2	CORE ADDR
			0005	4097	GPU005 EQU 5	CYLINDER
			4098	*		
			1468	4099	GPUSDF EQU *	TEMPORARY SDF
1468			146B	4100	DS CL4	
1468				4101	ORG GPUSDF	RESET FOR INITIALIZATION
1468	00000000		146B	4102	DC XL4'00000000'	INITIAL VALUE OF ZERO
			4103	*		
			146C	4104	GPUNUL EQU *	NULL SDF
146C	00000000		146F	4105	DC XL4'00000000'	INITIAL VALUE OF ZERO
			4106	*		
1470	000800002710		1475	4107	DC XL6'000800002710'	
1476	75		1476	4108	DC AL1(@EOFTC)	
1477	1C		1477	4109	GPURCD DC AL1(@EOF)	
			4110	*		
1478			1478	4111	GPUDBS DS CL1	DATA BLOCK COUNT
1478				4112	ORG GPUDBS	RESET FOR INITIALIZATION
1478	00		1478	4113	DC XL1'00'	INITIAL VALUE OF ZERO
1479			147A	4114	GPUCNT DS CL2	LINE COUNTER
1479				4115	ORG GPUCNT-1	RESET LOCATION COUNTER
1479	0000		147A	4116	DC XL2'0000'	INITIALIZED TO ZERO
			4117	*		
147B			147B	4118	GPUIDR DS CL1	BYTE OF INDICATORS
147B				4119	ORG GPUIDR	RESET LOCATION COUNTER
147B	00		147B	4120	DC XL1'00'	INITLZ INDICATORS
			0080	4121	GPUBRK EQU X'80'	BREAK INDICATOR
			4122	*		* 0 - SEGMENT NOT BROKEN
			4123	*		* 1 - SEGMENT WAS BROKEN
			0040	4124	GPUEOF EQU X'40'	EOF INDICATOR
			4125	*		* 0 - NOT EOF
			4126	*		* 1 - END OF FILE DETECTED
			0020	4127	GPUERD EQU X'20'	ERROR INDICATOR
			4128	*		* 0 - NO ERROR
			4129	*		* 1 - ERROR WAS DETECTED
			0001	4130	GPUFIT EQU X'01'	BUILD FIT INDICATOR
			4131	*		* 0 - BUILD FIT IN CORE
			4132	*		* 1 - DO NOT BUILD FIT
			4133	*	TEMPORARY FIT ENTRY	
			4134	*		
147C			147C	4135	GPUDSP DS CL1	SECTOR DISPLACEMENT
147C				4136	ORG GPUDSP	RESET FOR INITIALIZATION

GPUNIT -- PUT STATEMENTS INTO THE WORK FILE

ERR LOC		OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 07/03/22 PAGE 38
147C	00		147C	4137	DC	XL1'00'	INITIAL VALUE OF ZERO
147D			147E	4138	GPULIN DS	CL2	BINARY LINE NUMBER
147D				4139	ORG	GPULIN-1	RESET LOCATION COUNTER
147D	0000		147E	4140	DC	XL2'0000'	INITIAL VALUE OF ZERO
147F			147F	4141	GPULSTR DS	CL1	UNUSED DB SPACE
147F				4142	ORG	GPULSTR	RESET FOR INITIALIZATION
147F	FF		147F	4143	DC	XL1'FF'	INITIAL VALUE OF 255
				4144	*		
1480	1D0B		1481	4145	GPULUD DC	XL2'1D0B'	VALUE IN FIT FOR FILE UPDATE
1482			1483	4146	GPULUE DS	CL2	FIT 'LAST USED ENTRY'
1482				4147	ORG	GPULUE-1	RESET LOCATION COUNTER
1482	1D0B		1483	4148	DC	XL2'1D0B'	LAST USED ENTRY ADDR OF FIT
				4149	*		
1484			1485	4150	GPUCLA DS	CL2	CURRENT LINE ADDRESS
1484				4151	ORG	GPUCLA-1	RESET LOCATION COUNTER
1484	0000		1485	4152	DC	XL2'0000'	INITIALIZED TO ZERO
				4153	*		
1486			1486	4154	GPUCBL DS	CL1	LENGTH FIELD WORK AREA
				4155	*		
1487	19FF		1488	4156	GPUSTT DC	AL2(GPUSMT-1)	ADDR FOR MODIFYING MOVE
			1488	4157	GPUMOV EQU	GPUSTT	ADDR FOR MOVE OF DATA LINES
				4158	*		
1489	0001		148A	4159	GPU001 DC	XL2'0001'	INCREMENT
148B	0003		148C	4160	GPU003 DC	XL2'0003'	DECREMENT LUE
148D	0004		148E	4161	GPU004 DC	XL2'0004'	INCREMENT FOR SDF
				4162	*		
				4163	*****		

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 07/03/22 PAGE 39
		4165		*****	
		4166	*		*
		4167	*	TEST REMAINING CB SIZE AND SET STATUS INDICATORS	*
		4168	*		*
		4169		*****	
		4170	*		
148F 7C 08 24		4171	GPU300 MVI	GPUCBL(,@BR),GPU008	WILL THE LINE SEGMENT AND EOF
1492 4E 00 24 1A01		4172	ALC	GPUCBL(1,@BR),GPUSMT+@SDF1	* BOTH FIT IN CORE BLOCK ?
1497 5D 00 24 1D		4173	CLC	GPUCBL(1,@BR),GPUSTR(,@BR)	
149B C0 04 140C		4174	BNH	GPU220	CONTINUE PROCESS
149F 7A 20 19		4175	GPU320 SBN	GPUIR(,@BR),GPUERD	TURN ON ERROR INDICATOR
14A2 7A 40 19		4176	GPU340 SBN	GPUIR(,@BR),GPUEOF	TURN ON EOF INDICATOR
14A5 1C 07 1A07 15		4177	MVC	GPUSMT+@STEXT(GPU008),GPURCD(,@BR)	MOVE EOF RECORD
14AA C0 87 140C		4178	B	GPU220	RETURN TO PROCESSING
14AE 4C 01 1C 1A05		4179	GPU360 MVC	GPULIN(GPULN2,@BR),GPUSMT+@SBLN	MOVE LINE NUMBER FROM
		4180	*		* GPUSMT TO TEMPORARY FIT NTRY
14B3 1D 00 1A01 1D		4181	CLC	GPUSMT+@SDF1,GPUSTR(1,@BR)	WILL LINE SEGMENT FIT IN
		4182	*		* CURRENT CB ?
14B8 C0 04 1422		4183	BNH	GPU240	YES, ADD TO PRESENT SEGMENT
		4185		*****	
		4186	*		*
		4187	*	COMPLETE OLD SEGMENT AND INITIALIZE NEW SEGMENT	*
		4188	*		*
		4189		*****	
		4190	*		
14BC 4C 00 07 1A01		4191	GPU380 MVC	GPUSDF+@SDF1(1,@BR),GPUSMT+@SDF1	MOVE LINE LENGTH TO THE
		4192	*		* TEMPORARY SDF
14C1 1C 00 1A01 1D		4193	MVC	GPUSMT+@SDF1,GPUSTR(1,@BR)	MOVE REMAINING SEGMENT LENGTH
		4194	*		* TO LINE LENGTH IN GPUSMT
14C6 5F 00 07 1D		4195	SLC	GPUSDF+@SDF1(1,@BR),GPUSTR(,@BR)	SUBTRACT CB LENGTH LEFT
		4196	*		* FROM SEGMENT LENGTH TO DET-
		4197	*		* ERMIN LENGTH FOR 2ND SEG.
14CA 7C 00 1D		4198	MVI	GPUSTR(,@BR),@ZERO	ZERO UNUSED DB SPACE
14CD 36 02 1A01		4199	A	GPUSMT+@SDF1,@XR	ADD SEGMENT LENGTH TO XR
14D1 3C 01 1A02		4200	MVI	GPUSMT+@SDF2,@SIST	SET SEGMENT TYPE INDICATOR
14D5 7C 02 08		4201	MVI	GPUSDF+@SDF2(,@BR),@SLAST	SET SEGMENT TYPE INDICATOR
		4202	*		
		4203		*****	

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER	15,	MOD	00	07/03/22	PAGE	40
				4205		*****								
				4206	*								*	
				4207	*		MODIFY MOVE INSTR FOR MOVING CURRENT SEGMENT TO CB						*	
				4208	*								*	
				4209		*****								
				4210	*									
14D8	7C	FF	88	4211		MVI	GPU390+@VQ(,@BR),GPUXFF SET 0 CODE TO MINUS 1							
14DB	4E	00	88 1A01	4212		ALC	GPU390+@VQ(1,@BR),GPUSMT+@SDF1 ADD LENGTH TO Q CODE							
14E0	5C	01	8B 26	4213		MVC	GPU390+@DOP2(@CADDR,@BR),GPUSTT(,@BR) MOVE ADDR OF LEFT							
				4214	*		* BYTE -1 OF GPUSTT TO MOVE							
14E4	4E	01	8B 1A01	4215		ALC	GPU390+@DOP2(@CADDR,@BR),GPUSMT+@SDF1 ADD DISP FROM							
				4216	*		* 'GPUSMT' TO MOVE							
14E9	8C	00	00 0000	4217	GPU390	MVC	@ZERO(@VQ,@XR),*-* MOVE LINE SEGMENT TO CB							
				4219		*****								
				4220	*								*	
				4221	*		MODIFY MOVE FOR MOVING SEGMENT TO FRONT OF BUFFER						*	
				4222	*								*	
				4223		*****								
				4224	*									
14EE	5C	01	B9 8B	4225		MVC	GPU398+@DOP2(@CADDR,@BR),GPU390+@DOP2(,@BR) MODIFY MOVE							
14F2	5E	01	B9 07	4226		ALC	GPU398+@DOP2(@CADDR,@BR),GPUSDF+@SDF1(,@BR) OF SECOND							
				4227	*		* SEGMENT TO BUFFER							
14F6	5E	00	07 2C	4228		ALC	GPUSDF+@SDF1(1,@BR),GPU004(,@BR) ADD SDF LENGTH TO SEG							
14FA	5C	01	9F 8B	4229		MVC	GPU395+@OP1(@CADDR,@BR),GPU390+@DOP2(,@BR) MODIFY ADDR							
				4230	*		* WHERE TO MOVE SDF							
14FE	1C	03	0000 09	4231	GPU395	MVC	*-*(GPULN4),GPUSDF+3(,@BR) MOVE SDF TO FRONT OF THE							
				4232	*		* SECONDARY SEGMENT							
1503	7A	80	19	4233		SBN	GPUIDR(,@BR),GPUBRK TURN ON BREAK INDR							
1506	F2	87	53	4234		J	GPU450							
				4235	*									
				4236		*****								
1509	76	02	07	4238	GPU396	A	GPUSDF+@SDF1(,@BR),@XR MODIFY FOR MOVE OF SEGMENT							
150C	5F	00	1D 07	4239		SLC	GPUSTR(1,@BR),GPUSDF+@SDF1(,@BR)							
				4240	*									
1510	7C	FF	B6	4241		MVI	GPU398+@Q(,@BR),GPUXFF MODIFY Q CODE FOR MOVE OF							
1513	5E	00	B6 07	4242		ALC	GPU398+@Q(1,@BR),GPUSDF+@SDF1(,@BR) * OF 2ND SEGMENT							
1517	8C	00	00 0000	4243	GPU398	MVC	@ZERO(@Q,@XR),*-* MOVE SECONDARY SEGMENT TO BUFF							
151C	C0	87	1449	4244		B	GPU247 RETURN TO PROCESSING							

GPUNIT -- PUT STATEMENTS INTO THE WORK FILE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	07/03/22	PAGE 41
				4246		*****				
				4247	*					*
				4248	*	CREATE NULL ENTRY				*
				4249	*					*
				4250		*****				
				4251	*					
1520	78	40	19	4252	GPU400	TBN	GPUIR(,@BR),GPUEOF		IS EOF INDR ON ?	
1523	F2	90	12	4253		JF	GPU405		NO, CONTINUE	
1526	7D	08	1D	4254		CLI	GPUIR(,@BR),GPUX08		WILL EOF RECORD FIT ?	
1529	F2	02	0C	4255		JNL	GPU405		YES, CONTINUE	
152C	3C	87	15B9	4256		MVI	GPU480+@Q,@UCB		SET RE-ENTRY SWITCH	
1530	3C	80	1577	4257		MVI	GPU457+@Q,@NOP		SET RE-ENTRY SWITCH	
1534	3C	87	15E6	4258		MVI	GPU502+@Q,@UCB		SET RE-ENTRY SWITCH	
1538	7D	04	1D	4259	GPU405	CLI	GPUIR(,@BR),GPULN4		ARE THERE 4 BYTES IN CB ?	
153B	D0	82	E0	4260		BL	GPU410(,@BR)		NO, LESS THAN 4	
				4262		*****				
				4263	*					*
				4264	*	FILL CB WITH ENTIRE NULL SDF RECORD				*
				4265	*					*
				4266		*****				
				4267	*					
153E	9C	03	04 0D	4268		MVC	GPUDS4(GPULN4,@XR),GPUNUL+@SDF3(,@BR)		MOVE IN NULL SEG	
1542	7D	00	1D	4269	GPU410	CLI	GPUIR(,@BR),@ZERO		IS THERE ANY BYTES IN CB ?	
1545	F2	81	14	4270		JE	GPU450		NO, NO NULL SDF TO MOVE; WRITE	
1548	7D	02	1D	4271		CLI	GPUIR(,@BR),GPULN2		ARE THERE 2 BYTES IN CB ?	
154B	D0	82	F7	4272		BL	GPU430(,@BR)		1 BYTE SDF	
154E	D0	81	F3	4273		BE	GPU420(,@BR)		2 BYTE SDF	
1551	9C	02	03 0D	4274		MVC	GPUDS3(GPULN3,@XR),GPUNUL+@SDF3(,@BR)		MOVE 3 BYTE SDF	
1555	9C	01	02 0C	4275	GPU420	MVC	GPUDS2(GPULN2,@XR),GPUNUL+@SDF2(,@BR)		MOVE 2 BYTE SDF	
1559	BC	80	01	4276	GPU430	MVI	GPUDS1(,@XR),@SNULL		MOVE 1 BYTE SDF	
				4277	*					
				4278	*	WRITE COMPLETED CB TO DISK				
				4279	*					
155C	C0	87	1135	4280	GPU450	B	DL4ICS			
1560	1462			4281		DC	AL2(GPUDPL)			
				4282	*					
1562	78	01	19	4283		TBN	GPUIR(,@BR),GPUFIT		FIT BEING BUILT IN CORE ?	
1565	F2	10	16	4284		JT	GPU460		IF NOT, CONTINUE	
				4285	*					
				4286		*****				

GPUNIT -- PUT STATEMENTS INTO THE WORK FILE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 07/03/22 PAGE 42
				4288		*****		
				4289	*			*
				4290	*	FIT IS BUILT IN CORE		*
				4291	*			*
				4292		*****		
				4293	*			
1568	5E	01	21	2C	4294	ALC	GPULUE(@CADDR,@BR),GPU004(,@BR) ADD 4 TO FIT 'LUE'	
156C	1C	01	1574	21	4295	MVC	GPU455+@OP1(GPULN2),GPULUE(,@BR) MODIFY MOVE	
				4296	*		* WITH ADDR FIT 'LUE'	
1571	1C	03	0000	1D	4297	GPU455 MVC	*-(GPULN4),GPUSTR(,@BR) MOVE TEMP FIT ENTRY TO ADDR	
				4298	*		* REFERENCED BY GPULUE	
1576	F2	87	05		4299	GPU457 JC	GPU460,@UCB JUMP WHEN NO RE-ENTRY	
1579	4C	01	1C	1A05	4300	MVC	GPULIN(GPULN2,@BR),GPUSMT+@SBLN SET UP LINE NUMBER	
				4301	*			
157E	5E	00	16	28	4302	GPU460 ALC	GPUDBS(1,@BR),GPU001(,@BR) INCREMENT DB COUNT BY 1	
1582	7C	FF	1D		4303	MVI	GPUSTR(,@BR),GPUXFF INIT GPUSTR TO 255	
1585	5E	00	1A	28	4304	ALC	GPUDSP(1,@BR),GPU001(,@BR) INCREMENT DISPLACEMENT	
1589	5E	00	02	28	4305	ALC	GPUDPL+@DSAD(1,@BR),GPU001(,@BR) INCREMENT DPL SECTOR DIS	
158D	79	01	1A		4306	TBF	GPUDSP(,@BR),GPUON1 IS GPUDSP EVEN ?	
1590	F2	90	07		4307	JF	GPU470 NO, IT IS ODD	
1593	5F	00	04	28	4308	SLC	GPUBFR-1(1,@BR),GPU001(,@BR) DECREMENT GPUBFR BY 256	
1597	F2	87	04		4309	J	GPU475	
159A	5E	00	04	28	4310	GPU470 ALC	GPUBFR-1(1,@BR),GPU001(,@BR) INCREMENT GPUBFR BY 256	
159E	75	02	05		4311	GPU475 L	GPUBFR(,@BR),@XR LOAD XR WITH BUFFER ADDR	
15A1	BC	00	00		4312	MVI	@ZERO(,@XR),@ZERO MOVE ZERO TO FIRST BUFFER BYTE	
				4313	*			
				4314		*****		

GPUNIT -- PUT STATEMENTS INTO THE WORK FILE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	07/03/22	PAGE	43
				4316		*****					
				4317	*						*
				4318	*	TEXT STATUS INDICATORS					*
				4319	*						*
				4320		*****					*
				4321	*						*
15A4	78	40	19	4322	TBN	GPUIDR(,@BR),GPUEOF	EOF INDR ON ?				
15A7	C0	90	1416	4323	BF	GPU230	NO, TEST BREAK INDR				
				4324	*						
15AB	78	80	19	4325	TBN	GPUIDR(,@BR),GPUBRK	IS BREAK INDR ON ?				
15AE	C0	10	1416	4326	BT	GPU230	YES, PROCESS SEGMENT				
				4327	*						
15B2	78	01	19	4328	TBN	GPUIDR(,@BR),GPUFIT	IS FIT TO BE BUILT IN CORE ?				
15B5	F2	10	29	4329	JT	GPU500	NO, CHECK ERROR INDR				
15B8	F2	80	26	4330	GPU480 JC	GPU500,@NOP	JUMP FOR RE-ENTRY				
				4332		*****					*
				4333	*						*
				4334	*	BUILD FIT IN CORE					*
				4335	*						*
				4336		*****					*
				4337	*						*
15BB	1C	0B	1D0B 21	4338	MVC	GPUFTS(GPUL12),GPULUE(,@BR)	INIT BYTES OF FIT				
				4339	*						
				4340	*	SET UP DO DISPS FOR REST OP FIT ENTRIES					
				4341	*						
15C0	5F	01	21 2A	4342	SLC	GPULUE(GPULN2,@BR),GPU003(,@BR)	MODIFY LUE FOR MOVE				
15C4	75	02	21	4343	L	GPULUE(,@BR),@XR	LOAD CONTENTS OF LUE				
15C7	7C	BB	24	4344	MVI	GPUCBL(,@BR),GPUBC-1	INITIALIZE COUNTER				
15CA	6F	00	24 00	4345	SLC	GPUCBL(1,@BR),@ZERO(,@XR)	SUBTRACT ENTRY COUNT				
15CE	AC	00	04 00	4346	GPU490 MVC	GPUDS4(1,@XR),@ZERO(,@XR)	MOVE OLD DISP TO NEW				
15D2	9E	00	04 28	4347	ALC	GPUDS4(1,@XR),GPU001(,@BR)	ADD ONE TO NEW DISP				
15D6	E2	02	04	4348	LA	GPUDS4(,@XR),@XR	ADD 4 TO XR				
15D9	5F	00	24 28	4349	SLC	GPUCBL(1,@BR),GPU001(,@BR)	ALL ENTRIES COMPLETED?				
15DD	C0	02	15CE	4350	BNL	GPU490	NO, CREATE NEXT ENTRY				
15E1	3C	80	15B9	4351	GPU500 MVI	GPU480+@Q,@NOP	RESET RE-ENTRY BYPASS				
15E5	C0	80	1422	4352	GPU502 BC	GPU240,@NOP	BRANCH TO PREPARE FOR RE-ENTRY				
15E9	78	20	19	4353	TBN	GPUIDR(,@BR),GPUERD	IS ERROR IND ON				
15EC	C0	90	1452	4354	BF	GPU260	NO, RETURN				
15F0	3C	87	145B	4355	MVI	GPU275+@Q,@UCB	RESET				
15F4	C0	87	1452	4356	B	GPU260	RETURN TO CALLER				
				4357	*						
				4358		*****	END OF ROUTINE				*****
				4359	*	\$C2D5					

C2DEC5 - CONVERT 2 BYTE BIN NR TO 5 BYTE DEC NR

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER	MOD	00	07/03/22	PAGE	44
					4361+	*****							
					4362+	*	SERIALLY REUSABLE SUBROUTINE TO CONVERT A 2 BYTE BINARY VALUE TO						*
					4363+	*	A 5 BYTE POSITIVE DECIMAL NUMBER.						*
					4364+	*	ON ENTRY @XR POINTS TO THE LEFT BYTE OF THE BINARY VALUE.						*
					4365+	*	ON RETURN C2DVAL IS THE RIGHT BYTE OF THE 5 BYTES DECIMAL VALUE						*
					4366+	*	WITH LEADING ZEROS WHICH MAY BE MODIFIED BY THE USER IN ANY WAY						*
					4367+	*	IN IT'S LOCATION.						*
					4368+	*	THE 2 BYTES BINARY VALUE IS NOT ALTERED.						*
					4369+	*	@XR IS NOT ALTERED.						*
					4370+	*	@BR IS SAVED AND RESTORED AT EXIT.						*
					4371+	*****							
				15F8	4373+	C2DEC5 EQU *	MODULE ENTRY POINT						
				15F8	4374+	USING C2DEC5,@BR	BASE ADDRESS SPECIFICATION						
15F8	34	01	162C		4375+	ST C2D050+@OP1,@BR	SAVE @BR						
15FC	C2	01	15F8		4376+	LA C2DEC5,@BR	LOAD BASE REGISTER						
1600	74	08	38		4377+	ST C2D052+@OP1(,@BR),@ARR	SAVE RETURN ADDRESS						
					4378+	*	INITIALIZE DECIMAL INCREMENTER AND DECIMAL SUM TO 1 AND 0 RESP.						
1603	54	90	43 39		4379+	ZAZ C2D903(C2D903-C2D901,@BR),C2D901(C2D902-C2D901,@BR)							
1607	7C	01	17		4380+	MVI C2D030+@D1(,@BR),@B1	INITIALIZE DISP TO BYTE 1						
160A	7C	01	16		4381+	C2D020 MVI C2D030+@Q(,@BR),@B1	INIT TEST TO BIT 7						
					4382+	*							
160D	B8	00	00		4383+	C2D030 TBN *-*(,@XR),*-*	TEST IF THIS BIT IS OFF						
1610	F2	90	04		4384+	JF C2D040	* BR AROUND SUM INCREMENT						
					4385+	*	INCREMENT DECIMAL SUM BY DECIMAL VALUE OF THIS TESTED BIT						
1613	56	04	3E 43		4386+	AZ C2DVAL(C2D903-C2DVAL,@BR),C2D903(C2D903-C2DVAL,@BR)							
					4387+	*	DOUBLE DECIMAL VALUE OF INCREMENT TO VALUE OF NEXT BIT						
1617	56	04	43 43		4388+	C2D040 AZ C2D903(C2D903-C2DVAL,@BR),C2D903(C2D903-C2DVAL,@BR)							
161B	5E	00	16 16		4389+	ALC C2D030+@Q(1,@BR),C2D030+@Q(,@BR)	SHIFT BIT MASK LEFT ONE						
161F	D0	20	15		4390+	BNOL C2D030(,@BR)	CONTINUE LOOP UNLESS ALL BITS						
					4391+	*	TESTED						
1622	5F	00	17 13		4392+	SLC C2D030+@D1(1,@BR),C2D020+@Q(,@BR)	DECR DISP TO BYTE 0						
1626	D0	81	12		4393+	BZ C2D020(,@BR)	FALL THROUGH IF UNDERFLOW						
1629	C2	01	0000		4394+	C2D050 LA *-*,@BR	RESTORE @BR						
162D	C0	87	0000		4395+	C2D052 B *-*	RETURN TO CALLING PROGRAM						
					4396+	*							
					4397+	***	WORK AREA						
					4398+	*							
1631	F1			1631	4399+	C2D901 DC DL1'1'	INIT WORK AREA						
				1632	4400+	C2D902 EQU *	FIST BYTE OF DECIMAL VALUE						
1632				1636	4401+	C2DVAL DS CL5	5 BYTES DECIMAL VALUE						
1637				163B	4402+	C2D903 DS CL5	DECIMAL INCREMENTER						
					4403+	***	END OF C4DEC5						***

		4405	*	PATCH 7	
		4406	*****		
		4407	*	PATCH AREA 7	*
		4408	*****		
		4409	*		
		4410	*	CALCULATE AREA LEFT IN THIS SECTOR	
		4411	*		
1700	163C	4412	\$\$\$\$L7	EQU *	START OF PATCH AREA 7
		4413		ORG *,256,0	SET LOC CNTR TO NEXT SECTOR
	1700	4414	\$\$\$\$T7	EQU *	DEFINE ADDR OF SCTR BNDRY
163C		4415		ORG \$\$\$L7	SET LOC CNTR TO START OF
		4416	*		* PATCH AREA
163C	16FF	4417	\$\$\$\$\$7	DS CL(\$\$\$T7-\$\$\$L7)	PATCH AREA
		4418	*****		
		4419	***	END OF EXPANSION	***
	FFFF	4420		END	

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY = 0

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$\$\$\$\$	001	0D00	2834	
\$\$\$\$\$1	001	0D53	2875	
\$\$\$\$\$2	001	0E00	2918	
\$\$\$\$\$4	019	0DFF	2906	
\$\$\$\$\$7	196	16FF	4417	
\$\$\$\$L4	001	0DED	2901	2904 2906
\$\$\$\$L7	001	163C	4412	4415 4417
\$\$\$\$T4	001	0E00	2903	2906
\$\$\$\$T7	001	1700	4414	4417
\$\$\$CMD	001	0020	0659	
\$\$\$DAT	001	0040	0658	
\$\$\$EPL	001	0091	0655	
\$\$\$ERN	001	0080	0709	
\$\$\$FUN	001	0010	0660	
\$\$\$NLN	001	00A0	0705	3139 3142
\$\$\$STD	001	0081	0654	
\$\$BNLN	001	0605	0635	0637
\$\$CDBS	001	08C0	0685	
\$\$CDND	001	0666	0644	
\$\$CDRD	001	0890	0683	0685
\$\$CKEY	001	0603	0633	
\$\$CKFF	001	0B3D	0665	
\$\$COFF	001	0B44	0664	
\$\$CSNS	001	209C	0694	
\$\$DATB	001	0BBF	0666	
\$\$EOSA	001	0AFE	0663	
\$\$ERSK	001	1C00	0704	3101*
\$\$FITS	001	1D00	0712	
\$\$FLIB	001	06FF	0711	
\$\$ILEN	001	0601	0629	0631 0635
\$\$ILHD	001	0600	0627	0629
\$\$INLN	001	0607	0642	0644 0646
\$\$INND	001	06FA	0646	
\$\$KBDT	001	09E1	0653	0657
\$\$KBSN	001	09E2	0657	0662
\$\$KLD1	001	0600	0717	
\$\$KLD2	001	0700	0719	
\$\$KLD3	001	0C00	0721	
\$\$LPOS	001	09EB	0662	
\$\$PCNT	001	07E9	0678	
\$\$PLYN	001	2004	0692	
\$\$PRES	001	0890	0651	0653 0663 0664 0665 0666 0683
\$\$PRFL	001	2143	0696	
\$\$PRNT	001	0707	0672	0673 0677 0678
\$\$PRTN	001	0782	0673	
\$\$PSIO	001	07CE	0677	
\$\$PYCD	001	2200	0698	
\$\$PYMP	001	2000	0690	0692 0694 0696 0698
\$\$SLIB	001	1C00	0707	
\$\$TPCD	001	0606	0637	0642
\$\$UPAR	001	0602	0631	0633
\$\$WSPB	001	1E00	0710	
\$\$XIND	001	06FF	0708	0711
\$\$ZERO	001	0000	0223	0224 0226 0227 0228 0232 0690 3257
\$ABORT	001	0010	0336	
\$BASIC	001	0080	0394	3618

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$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 2867 2892 2954 3102 3723
\$CAERR	001	03CD	0287	0289 2866* 2891* 2952* 3719* 3739* 4045*
\$CAIPL	001	049D	0558	0560
\$CALLI	001	0008	0479	
\$CARDI	001	0001	0250	
\$CARPL	001	04A1	0560	0562 2955
\$CIENT	001	0483	0549	0550
\$CIEXT	001	0480	0548	0549
\$CIMSK	001	0476	0545	0548 2939*
\$CISUS	001	0496	0553	0558
\$CLBFR	001	0010	0437	2932
\$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	2843 2930 3467 3544 3641
\$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 2847 2925
\$DTNMB	001	0040	0270	
\$DTRDR	001	0040	0358	
\$ENDNU	001	0600	0617	0627 0651 0672 0708 0717 0719 0721 1196 2879 3272
\$ERDPL	001	046F	0542	0544
\$ERFIL	001	0040	0297	
\$ERHRD	001	0004	0429	3722
\$ERKEY	001	0080	0301	
\$ERLOG	001	0345	0231	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$ERMAD	001	0472	0544	0545
\$ERPND	001	0004	0402	
\$ERRCT	001	03CF	0303	3100*
\$ERRPG	001	03CE	0291	
\$ERSFL	001	0035	0296	
\$ERSTK	001	0030	0294	3136
\$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	2940
\$FUIND	001	0020	0414	
\$GUFIO	001	0583	0607	0608
\$GUFIR	001	0008	0259	
\$HISTE	001	042E	0510	0511
\$HIST1	001	0435	0511	0512
\$HRDER	001	0020	0355	
\$INDR1	001	03D4	0371	0397 2940* 3071 3073 3185 3618 4033
\$INDR2	001	03D5	0397	0422
\$INDR3	001	03D6	0422	0449 2932* 3722*
\$INLNO	001	03CF	0289	0291 0303 0310
\$INRPT	001	0020	0267	
\$IOIND	001	03D2	0338	0364
\$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	3071 4033
\$KE090	001	00DE	0227	
\$KE130	001	01D5	0228	
\$KOVME	001	0E07	2921	
\$KROVL	001	0D07	2837	
\$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	
\$MPDWN	001	0001	0340	
\$NEXTB	001	03E6	0493	0494
\$NEXTL	001	03E7	0494	0495
\$NOENB	001	0008	0432	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$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	3073 3185
\$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
\$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 3545 3642
\$WFDEF	001	0040	0519	
\$WFLOK	001	0008	0382	
\$WFNME	001	0443	0518	0523
\$WSIND	001	0004	0379	
\$XIND1	001	03D0	0310	0329
\$XIND2	001	03D1	0329	0338
\$XIND3	001	03D8	0457	0460

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$XPREC	001	0040	0322	0284
\$XRSAV	001	03C7	0282	
\$ZTRAD	001	05A2	0611	
\$12K	001	0004	0466	
\$16CKY	001	0008	0468	
\$16K	001	0002	0465	
\$22IMP	001	0001	0463	
###BL	001	0000	1049	
###CK	001	0000	1177	
###CN	001	0000	1145	
###CO	001	0000	0937	
###CS	001	0000	0997	
###DR	001	0000	0741	
###ER	001	0000	0941	
###FS	001	0000	1037	
###IN	001	0000	1181	
###PW	001	0000	1185	
###RS	001	0000	1017	
###SA	001	0000	1005	
###SS	001	0000	1001	
###VU	001	0600	0961	
###0T	001	0700	0733	
###1T	001	0000	0737	
###BCO	001	0600	0749	
###BOV	001	0800	1021	
###DPR	001	0700	0757	
###DRE	001	0889	0773	
###DSP	001	2800	0793	
###ECM	001	0C00	1053	
###EFK	001	0C00	1073	
###ERR	001	0C00	1045	
###EXM	001	0C00	0933	
###FIL	001	0E00	1013	
###FIS	001	0E00	1009	
###FML	001	0200	1141	
###FMS	001	0200	0981	
###GRA	001	0889	0905	
###GUF	001	0C00	1041	
###INL	001	0600	1121	
###INS	001	0600	0745	
###KAL	001	0C00	0909	
###KCA	001	0C00	1125	
###KCH	001	0C00	0877	
###KCN	001	0C00	0993	
###KCT	001	0C00	0845	
###KDE	001	0C00	0841	
###KDI	001	0D00	0921	
###KDN	001	0C00	0829	
###KDO	001	0E00	0925	
###KED	001	0C00	0765	
###KEN	001	0C00	0769	
###KEX	001	0C00	0789	
###KGO	001	0C00	0761	
###KHE	001	0C00	0945	
###KKE	001	0C00	1173	
###KLI	001	0C00	0849	

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\$\$\$KLL	001	0920	1149	
\$\$\$KLO	001	0C00	0853	
\$\$\$KME	001	0D00	0833	
\$\$\$KMO	001	0C00	0777	
\$\$\$KNA	001	0C00	0889	
\$\$\$KOV	001	0E00	0809	2917
\$\$\$KPA	001	0C00	0785	
\$\$\$KPO	001	0C00	0873	
\$\$\$KPR	001	0C00	0897	
\$\$\$KRE	001	0C00	0817	
\$\$\$KRL	001	0700	0913	
\$\$\$KRM	001	0C00	0781	
\$\$\$KRN	001	0700	0801	
\$\$\$KRO	001	0D00	0805	2833
\$\$\$KRS	001	0C00	1129	
\$\$\$KRU	001	0C00	0825	
\$\$\$KRV	001	0800	0917	
\$\$\$KSA	001	0C00	0861	
\$\$\$KSE	001	0E00	0901	
\$\$\$KSO	001	0C20	0953	
\$\$\$KSS	001	0C00	0885	
\$\$\$KSV	001	0980	0881	
\$\$\$KSY	001	0C00	0893	
\$\$\$KWI	001	0C00	0821	
\$\$\$KWR	001	0C00	0813	
\$\$\$LOA	001	0600	0753	
\$\$\$MIP	001	0C00	0949	
\$\$\$SDS	001	0C00	1061	
\$\$\$SFF	001	0E00	1065	
\$\$\$SFL	001	0F00	1057	
\$\$\$SFO	001	1500	1029	
\$\$\$SFS	001	0C00	1025	
\$\$\$SPA	001	0C00	0865	
\$\$\$SPO	001	0806	0869	
\$\$\$SPS	001	0C00	0857	
\$\$\$STR	001	1600	1033	
\$\$\$TDC	001	1000	0837	
\$\$\$TSY	001	1000	0797	
\$\$\$TVK	001	0FC0	0973	
\$\$\$UAL	001	0C00	0989	
\$\$\$UAT	001	0900	1085	
\$\$\$UCD	001	0900	1093	
\$\$\$UCN	001	0C00	1077	
\$\$\$UCP	001	0700	1081	
\$\$\$UDE	001	0C00	1097	
\$\$\$UDI	001	0C00	1101	
\$\$\$UEX	001	0C00	0985	
\$\$\$UIN	001	0C00	1089	
\$\$\$UPA	001	0C00	1069	
\$\$\$UPO	001	0C00	1137	
\$\$\$UPT	001	0C00	1133	
\$\$\$VCR	001	2000	0929	
\$\$\$VLO	001	0600	0965	
\$\$\$VOD	001	0600	0969	
\$\$\$VVM	001	0000	0977	
\$\$\$VXI	001	0600	0957	

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\$\$\$ZDU	001	1100	1109	
\$\$\$ZLB	001	1100	1153	
\$\$\$ZLO	001	1100	1113	
\$\$\$ZLV	001	0F00	1169	
\$\$\$ZL1	001	0F00	1157	
\$\$\$ZL2	001	0F00	1161	
\$\$\$ZL3	001	0C00	1165	
\$\$\$ZTR	001	1000	1105	
\$\$\$ZUT	001	0C00	1117	
\$\$#BLN	001	18D4	1048	
\$\$#CKT	001	2118	1176	
\$\$#CNF	001	2000	1144	
\$\$#COR	001	0800	0936	
\$\$#CSA	001	1000	0996	
\$\$#DRT	001	0000	0740	
\$\$#ERM	001	0928	0940	
\$\$#FSP	001	1880	1036	
\$\$#INV	001	212C	1180	
\$\$#PWR	001	2300	1184	
\$\$#RSP	001	1780	1016	
\$\$#SAV	001	1180	1004	
\$\$#SSA	001	1128	1000	
\$\$#VUF	001	0B08	0960	
\$\$#0TR	001	0000	0732	
\$\$#1TR	001	0080	0736	
\$\$@#BL	001	0001	1050	
\$\$@#CK	001	0004	1178	
\$\$@#CN	001	0001	1146	
\$\$@#CO	001	003A	0938	
\$\$@#CS	001	003A	0998	
\$\$@#DR	001	0008	0742	
\$\$@#ER	001	0032	0942	
\$\$@#FS	001	0030	1038	
\$\$@#IN	001	003A	1182	
\$\$@#PW	001	00C0	1186	
\$\$@#RS	001	0030	1018	
\$\$@#SA	001	0108	1006	
\$\$@#SS	001	0001	1002	
\$\$@#VU	001	0002	0962	
\$\$@#0T	001	0018	0734	
\$\$@#1T	001	0018	0738	
\$\$@BCO	001	0018	0750	
\$\$@BOV	001	0018	1022	
\$\$@DPR	001	0005	0758	
\$\$@DRE	001	0001	0774	
\$\$@DSP	001	0004	0794	
\$\$@ECM	001	0006	1054	
\$\$@EFK	001	0002	1074	
\$\$@ERR	001	0003	1046	
\$\$@EXM	001	0003	0934	
\$\$@FIL	001	0009	1014	
\$\$@FIS	001	0009	1010	
\$\$@FML	001	0052	1142	
\$\$@FMS	001	0052	0982	
\$\$@GRA	001	0003	0906	
\$\$@GUF	001	0010	1042	

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#\$@INL	001	0010	1122	
#\$@INS	001	0010	0746	
#\$@KAL	001	000F	0910	
#\$@KCA	001	000C	1126	
#\$@KCH	001	000C	0878	
#\$@KCN	001	0010	0994	
#\$@KCT	001	0009	0846	
#\$@KDE	001	0010	0842	
#\$@KDI	001	0005	0922	
#\$@KDN	001	0010	0830	
#\$@KDO	001	000C	0926	
#\$@KED	001	000E	0766	
#\$@KEN	001	0006	0770	
#\$@KEX	001	0003	0790	
#\$@KGO	001	0002	0762	
#\$@KHE	001	000C	0946	
#\$@KKE	001	0006	1174	
#\$@KLI	001	0011	0850	
#\$@KLL	001	0001	1150	
#\$@KLO	001	0008	0854	
#\$@KME	001	0003	0834	
#\$@KMO	001	0004	0778	
#\$@KNA	001	0008	0890	
#\$@KOV	001	0009	0810	
#\$@KPA	001	0005	0786	
#\$@KPO	001	000D	0874	
#\$@KPR	001	0009	0898	
#\$@KRE	001	0002	0818	
#\$@KRL	001	0004	0914	
#\$@KRM	001	0003	0782	
#\$@KRN	001	0003	0802	
#\$@KRO	001	000A	0806	
#\$@KRS	001	000A	1130	
#\$@KRU	001	0003	0826	
#\$@KRV	001	000D	0918	
#\$@KSA	001	0011	0862	
#\$@KSE	001	0004	0902	
#\$@KSO	001	0005	0954	
#\$@KSS	001	000B	0886	
#\$@KSV	001	0002	0882	
#\$@KSY	001	000F	0894	
#\$@KWI	001	0002	0822	
#\$@KWR	001	0002	0814	
#\$@LOA	001	0013	0754	
#\$@MIP	001	000D	0950	
#\$@SDS	001	0004	1062	
#\$@SFF	001	0008	1066	
#\$@SFL	001	0005	1058	
#\$@SFO	001	0003	1030	
#\$@SFS	001	0011	1026	
#\$@SPA	001	0004	0866	
#\$@SPO	001	0003	0870	
#\$@SPS	001	0001	0858	
#\$@STR	001	0002	1034	
#\$@TDC	001	0003	0838	
#\$@TSY	001	0003	0798	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
#\$@TVK	001	0001	0974	
#\$@UAL	001	0011	0990	
#\$@UAT	001	000C	1086	
#\$@UCD	001	000B	1094	
#\$@UCN	001	0009	1078	
#\$@UCP	001	000F	1082	
#\$@UDE	001	000E	1098	
#\$@UDI	001	0008	1102	
#\$@UEX	001	000E	0986	
#\$@UIN	001	000F	1090	
#\$@UPA	001	0004	1070	
#\$@UPO	001	0005	1138	
#\$@UPT	001	0012	1134	
#\$@VCR	001	0008	0930	
#\$@VLO	001	0002	0966	
#\$@VOD	001	0016	0970	
#\$@VVM	001	0030	0978	
#\$@VXI	001	0002	0958	
#\$@ZDU	001	0008	1110	
#\$@ZLB	001	0002	1154	
#\$@ZLO	001	000C	1114	
#\$@ZLV	001	0006	1170	
#\$@ZL1	001	0007	1158	
#\$@ZL2	001	000D	1162	
#\$@ZL3	001	000A	1166	
#\$@ZTR	001	0001	1106	
#\$@ZUT	001	0014	1118	
#\$BCOM	001	0080	0748	
#\$BOLV	001	1780	1020	
#\$DPRI	001	014C	0756	
#\$DREA	001	0200	0772	
#\$DSPL	001	0240	0792	
#\$ECMA	001	1900	1052	
#\$EFKE	001	1990	1072	
#\$ERRP	001	18C0	1044	
#\$EXMS	001	07D4	0932	
#\$FILN	001	1724	1012	
#\$FIST	001	1700	1008	
#\$FMLN	001	1E00	1140	
#\$FMST	001	0D00	0980	
#\$GRAP	001	0690	0904	
#\$GUFU	001	1880	1040	
#\$INLN	001	1C84	1120	
#\$INST	001	0020	0744	
#\$KALL	001	06A4	0908	
#\$KCAL	001	1CC4	1124	
#\$KCHA	001	053C	0876	
#\$KCND	001	0F80	0992	
#\$KCTL	001	03BC	0844	
#\$KDEL	001	035C	0840	
#\$KDIS	001	0744	0920	
#\$KDNT	001	0300	0828	
#\$KDOV	001	0780	0924	
#\$KEDI	001	0188	0764	
#\$KENA	001	01C4	0768	
#\$KEXT	001	0234	0788	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
#\$KGOS	001	0180	0760	
#\$KHEL	001	0A30	0944	
#\$KKEY	001	2100	1172	
#\$KLIS	001	0400	0848	
#\$KLLA	001	2004	1148	
#\$KLOG	001	0444	0852	
#\$KMER	001	030C	0832	
#\$KMOU	001	0204	0776	
#\$KNAM	001	05C0	0888	
#\$KOVN	001	0290	0808	
#\$KPAS	001	0220	0784	
#\$KPOO	001	0508	0872	
#\$KPRT	001	063C	0896	
#\$KREA	001	02BC	0816	
#\$KRLA	001	0700	0912	
#\$KRMO	001	0214	0780	
#\$KRNU	001	0280	0800	
#\$KROV	001	028C	0804	
#\$KRSU	001	1D24	1128	
#\$KRUN	001	02CC	0824	
#\$KRVL	001	0710	0916	
#\$KSAV	001	0488	0860	
#\$KSET	001	0680	0900	
#\$KSOV	001	0AC8	0952	
#\$KSSP	001	0594	0884	
#\$KSVL	001	058C	0880	
#\$KSYM	001	0600	0892	
#\$KWID	001	02C4	0820	
#\$KWRI	001	02B4	0812	
#\$LOAD	001	0100	0752	
#\$MIPP	001	0A80	0948	
#\$SDSY	001	192C	1060	
#\$SFFI	001	193C	1064	
#\$SFLO	001	1918	1056	
#\$SFOV	001	1844	1028	
#\$SFSY	001	1800	1024	
#\$SPAC	001	04CC	0864	
#\$SPOV	001	04DC	0868	
#\$SPSY	001	0484	0856	
#\$STRO	001	1850	1032	
#\$TDCK	001	0350	0836	
#\$TSYK	001	0250	0796	
#\$TVKB	001	0BAC	0972	
#\$UALL	001	0F00	0988	
#\$UATR	001	1A38	1084	
#\$UCDI	001	1AD8	1092	
#\$UCNF	001	19B8	1076	
#\$UCPL	001	19DC	1080	
#\$UDEL	001	1B24	1096	
#\$UDIS	001	1B5C	1100	
#\$UEXL	001	0EA8	0984	
#\$UINI	001	1A88	1088	
#\$UPAC	001	1980	1068	
#\$UPOV	001	1D24	1136	
#\$UPTF	001	1D5C	1132	
#\$VCRT	001	07B4	0928	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
#\$VLOA	001	0B80	0964	
#\$VODK	001	0B88	0968	
#\$VVMR	001	0C00	0976	
#\$VXIT	001	0B00	0956	
#\$ZDUM	001	1BA4	1108	
#\$ZLBM	001	2008	1152	
#\$ZLOA	001	1BC4	1112	
#\$ZLVR	001	20B0	1168	
#\$ZL1M	001	2010	1156	
#\$ZL2M	001	2030	1160	
#\$ZL3M	001	2088	1164	
#\$ZTRA	001	1B9C	1104	
#\$ZUTM	001	1C14	1116	
#KROVL	001	0000	0001	
@@E001	001	0000	2624	2626
@@E003	001	0001	2626	2628
@@E004	001	0002	2628	2630
@@E005	001	0003	2630	2632
@@E006	001	0004	2632	2634
@@E007	001	0005	2634	2636
@@E008	001	0006	2636	2638
@@E009	001	0007	2638	2640
@@E010	001	0008	2640	2642
@@E011	001	0009	2642	2644
@@E012	001	000A	2644	2646
@@E013	001	000B	2646	2648
@@E014	001	000C	2648	2650
@@E015	001	000D	2650	2652
@@E016	001	000E	2652	2654
@@E017	001	000F	2654	2656
@@E018	001	0010	2656	2658
@@E019	001	0011	2658	2660
@@E020	001	0012	2660	2662
@@E021	001	0013	2662	2664
@@E023	001	0014	2664	2666
@@E024	001	0015	2666	2668
@@E025	001	0016	2668	2670
@@E026	001	0017	2670	2672
@@E027	001	0018	2672	2674
@@E028	001	0019	2674	2676
@@E029	001	001A	2676	2678
@@E030	001	001B	2678	2680
@@E031	001	001C	2680	2682
@@E032	001	001D	2682	2684
@@E035	001	001E	2684	2686
@@E036	001	001F	2686	2688
@@E037	001	0020	2688	2690
@@E038	001	0021	2690	2692
@@E039	001	0022	2692	2694
@@E040	001	0023	2694	2696
@@E041	001	0024	2696	2698
@@E042	001	0025	2698	2700
@@E043	001	0026	2700	2702
@@E044	001	0027	2702	2704
@@E045	001	0028	2704	2706
@@E046	001	0029	2706	2708

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E060	001	002A	2708	2710
@@E080	001	002B	2710	
@@E100	001	0000	2096	2098
@@E101	001	0001	2098	2100
@@E102	001	0002	2100	2102
@@E103	001	0003	2102	2104
@@E110	001	0004	2104	2106
@@E112	001	0005	2106	2108
@@E113	001	0006	2108	2110
@@E114	001	0007	2110	2112
@@E115	001	0008	2112	2114
@@E116	001	0009	2114	2116
@@E117	001	000A	2116	2118
@@E120	001	000B	2118	2120
@@E122	001	000C	2120	2122 3739
@@E123	001	000D	2122	2124
@@E124	001	000E	2124	2126
@@E129	001	000F	2126	2128
@@E130	001	0010	2128	2130
@@E131	001	0011	2130	2132
@@E133	001	0012	2132	2134
@@E134	001	0013	2134	2136
@@E135	001	0014	2136	2138
@@E136	001	0015	2138	2140
@@E137	001	0016	2140	2142
@@E138	001	0017	2142	2144
@@E139	001	0018	2144	2146
@@E142	001	0019	2146	2148
@@E143	001	001A	2148	2150
@@E150	001	001B	2150	2152
@@E151	001	001C	2152	2154
@@E160	001	001D	2154	2156
@@E162	001	001E	2156	2158
@@E163	001	001F	2158	2160
@@E164	001	0020	2160	2162
@@E200	001	0021	2162	2164
@@E205	001	0022	2164	2166
@@E210	001	0023	2166	2168
@@E211	001	0024	2168	2170
@@E212	001	0025	2170	2172
@@E213	001	0026	2172	2174
@@E215	001	0027	2174	2176
@@E216	001	0028	2176	2178
@@E217	001	0029	2178	2180
@@E220	001	002A	2180	2182
@@E221	001	002B	2182	2184
@@E222	001	002C	2184	2186
@@E223	001	002D	2186	2188
@@E225	001	002E	2188	2190
@@E226	001	002F	2190	2192
@@E227	001	0030	2192	2194
@@E228	001	0031	2194	2196
@@E229	001	0032	2196	2198
@@E230	001	0033	2198	2200
@@E232	001	0034	2200	2202
@@E234	001	0035	2202	2204

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E237	001	0036	2204	2206
@@E240	001	0037	2206	2208
@@E241	001	0038	2208	2210
@@E242	001	0039	2210	2212
@@E248	001	003A	2212	2214
@@E249	001	003B	2214	2216
@@E250	001	003C	2216	2218
@@E251	001	003D	2218	2220
@@E252	001	003E	2220	2222
@@E253	001	003F	2222	2224
@@E254	001	0040	2224	2226
@@E255	001	0041	2226	2228
@@E256	001	0042	2228	2230
@@E300	001	0043	2230	2232
@@E301	001	0044	2232	2234
@@E302	001	0045	2234	2236
@@E303	001	0046	2236	2238
@@E304	001	0047	2238	2240
@@E305	001	0048	2240	2242
@@E308	001	0049	2242	2244
@@E310	001	004A	2244	2246
@@E315	001	004B	2246	2248
@@E316	001	004C	2248	2250
@@E320	001	004D	2250	2252
@@E325	001	004E	2252	2254
@@E330	001	004F	2254	2256
@@E335	001	0050	2256	2258
@@E338	001	0051	2258	2260
@@E340	001	0052	2260	2262
@@E350	001	0053	2262	2264
@@E351	001	0054	2264	2266
@@E352	001	0055	2266	2268
@@E360	001	0056	2268	2270
@@E361	001	0057	2270	2272
@@E362	001	0058	2272	2274
@@E371	001	0059	2274	2276
@@E380	001	005A	2276	2278
@@E390	001	005B	2278	2280
@@E400	001	005C	2280	2282
@@E410	001	005D	2282	2284
@@E415	001	005E	2284	2286
@@E417	001	005F	2286	2288
@@E420	001	0060	2288	2290
@@E430	001	0061	2290	2292 2866
@@E432	001	0062	2292	2294 2891
@@E433	001	0063	2294	2296
@@E450	001	0064	2296	2298
@@E451	001	0065	2298	2300
@@E460	001	0066	2300	2302
@@E461	001	0067	2302	2304
@@E464	001	0068	2304	2306
@@E465	001	0069	2306	2308
@@E466	001	006A	2308	2310
@@E467	001	006B	2310	2312
@@E469	001	006C	2312	2314
@@E470	001	006D	2314	2316

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E471	001	006E	2316	2318
@@E473	001	006F	2318	2320
@@E474	001	0070	2320	2322
@@E475	001	0071	2322	2324
@@E476	001	0072	2324	2326
@@E477	001	0073	2326	2328
@@E478	001	0074	2328	2330
@@E479	001	0075	2330	2332
@@E480	001	0076	2332	2334
@@E481	001	0077	2334	2336
@@E482	001	0078	2336	2338
@@E483	001	0079	2338	2340
@@E484	001	007A	2340	2342
@@E485	001	007B	2342	2344
@@E486	001	007C	2344	2346
@@E487	001	007D	2346	2348
@@E488	001	007E	2348	2350
@@E489	001	007F	2350	2352
@@E490	001	0080	2352	2354
@@E491	001	0081	2354	2356
@@E492	001	0082	2356	2358
@@E493	001	0083	2358	2360
@@E494	001	0084	2360	2362
@@E495	001	0085	2362	2364
@@E496	001	0086	2364	2366
@@E497	001	0087	2366	2368
@@E498	001	0088	2368	2370
@@E500	001	0089	2370	2372 2952 3138
@@E501	001	008A	2372	2374 3141 3258
@@E530	001	008B	2374	2376
@@E531	001	008C	2376	2378
@@E535	001	008D	2378	2380
@@E540	001	008E	2380	2382
@@E541	001	008F	2382	2384
@@E542	001	0090	2384	2386
@@E543	001	0091	2386	2388
@@E544	001	0092	2388	2390
@@E545	001	0093	2390	2392
@@E546	001	0094	2392	2394
@@E547	001	0095	2394	2396
@@E548	001	FFFF	2600	
@@E549	001	0096	2396	2398
@@E550	001	0097	2398	2400 3546
@@E551	001	0098	2400	2402 3719
@@E552	001	0099	2402	2404
@@E553	001	009A	2404	2406
@@E554	001	009B	2406	2408
@@E555	001	009C	2408	2410
@@E556	001	009D	2410	2412
@@E558	001	009E	2412	2414
@@E570	001	009F	2414	2416
@@E571	001	00A0	2416	2418
@@E572	001	00A1	2418	2420
@@E573	001	00A2	2420	2422
@@E574	001	00A3	2422	2424
@@E575	001	FFFF	2602	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E578	001	00A4	2424	2426
@@E579	001	FFFF	2604	
@@E580	001	FFFF	2606	
@@E585	001	00A5	2426	2428
@@E595	001	FFFF	2608	
@@E597	001	FFFF	2610	
@@E598	001	FFFF	2612	
@@E600	001	00A6	2428	2430
@@E601	001	00A7	2430	2432
@@E602	001	00A8	2432	2434
@@E603	001	00A9	2434	2436
@@E604	001	00AA	2436	2438
@@E606	001	00AB	2438	2440
@@E607	001	00AC	2440	2442
@@E608	001	00AD	2442	2444
@@E609	001	00AE	2444	2446
@@E610	001	00AF	2446	2448
@@E611	001	00B0	2448	2450
@@E612	001	00B1	2450	2452
@@E613	001	00B2	2452	2454
@@E614	001	00B3	2454	2456
@@E700	001	00B4	2456	2458
@@E701	001	00B5	2458	2460
@@E710	001	00B6	2460	2462
@@E712	001	00B7	2462	2464
@@E713	001	00B8	2464	2466
@@E714	001	00B9	2466	2468
@@E715	001	00BA	2468	2470
@@E716	001	00BB	2470	2472
@@E717	001	00BC	2472	2474
@@E718	001	00BD	2474	2476
@@E720	001	00BE	2476	2478
@@E721	001	00BF	2478	2480
@@E723	001	00C0	2480	2482
@@E724	001	00C1	2482	2484
@@E725	001	00C2	2484	2486
@@E726	001	00C3	2486	2488
@@E727	001	00C4	2488	2490
@@E728	001	00C5	2490	2492
@@E729	001	00C6	2492	2494
@@E730	001	00C7	2494	2496
@@E732	001	00C8	2496	2498
@@E752	001	00C9	2498	2500
@@E753	001	00CA	2500	2502
@@E754	001	00CB	2502	2504
@@E755	001	00CC	2504	2506
@@E756	001	00CD	2506	2508
@@E757	001	00CE	2508	2510
@@E758	001	00CF	2510	2512
@@E759	001	00D0	2512	2514
@@E760	001	00D1	2514	2516
@@E761	001	00D2	2516	2518
@@E762	001	00D3	2518	2520
@@E763	001	00D4	2520	2522
@@E764	001	00D5	2522	2524
@@E765	001	00D6	2524	2526

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E766	001	00D7	2526	2528
@@E767	001	00D8	2528	2530
@@E768	001	00D9	2530	2532
@@E769	001	00DA	2532	2534
@@E770	001	00DB	2534	2536
@@E771	001	00DC	2536	2538
@@E772	001	00DD	2538	2540
@@E773	001	00DE	2540	2542
@@E774	001	00DF	2542	2544
@@E775	001	00E0	2544	2546
@@E776	001	00E1	2546	2548
@@E777	001	00E2	2548	2550
@@E778	001	00E3	2550	2552
@@E779	001	00E4	2552	2554
@@E780	001	00E5	2554	2556
@@E781	001	00E6	2556	2558
@@E782	001	00E7	2558	2560
@@E783	001	00E8	2560	2562
@@E784	001	00E9	2562	2564
@@E785	001	00EA	2564	2566
@@E786	001	00EB	2566	2568
@@E790	001	00EC	2568	2570
@@E791	001	00ED	2570	2572
@@E792	001	00EE	2572	2574
@@E793	001	00EF	2574	2576
@@E794	001	00F0	2576	2578
@@E795	001	00F1	2578	2580
@@E796	001	00F2	2580	2582
@@E797	001	00F3	2582	2584
@@E798	001	00F4	2584	2586
@@E800	001	FFFF	2614	
@@E801	001	FFFF	2616	
@@E802	001	FFFF	2618	
@@E803	001	FFFF	2620	
@@E804	001	FFFF	2622	
@@E900	001	00F5	2586	2588
@@E901	001	00F6	2588	2590
@@E902	001	00F7	2590	2592
@@E903	001	00F8	2592	2594
@@E905	001	00F9	2594	2596
@@E906	001	00FA	2596	2598
@@E910	001	00FB	2598	
@ARR	001	0008	0016	3178 3199 3301 3438* 3439 3440* 3441 3525 3640 3736 3993 4377
@ASIGN	001	007C	0071	
@ASTER	001	005C	0069	
@BCRDL	001	0050	0088	
@BE	001	0081	0043	
@BF	001	0090	0052	
@BH	001	0084	0041	2992
@BL	001	0082	0042	
@BLANK	001	0040	0065	3202 3772
@BM	001	0082	0054	
@BNE	001	0001	0046	
@BNH	001	0004	0044	
@BNL	001	0002	0045	
@BNM	001	0002	0057	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@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	2842 2846* 2847 2849 2853 2857 2860 2860 2863 2863 2868 2868 2881 2881 2884 2888 2888 2889 2889 2924* 2925 2926 2933 2935 2953 2957 2958 2959 2961 2963 2965 2969 2976 2977 2980 2981 2984 2985 2987 3005 3005 3018 3027 3034 3034 3038 3038 3042 3042 3043 3045 3045 3047 3054 3061 3064 3064 3068 3068 3069 3076 3087 3087 3098 3100 3101 3178 3183 3199 3200 3201 3203 3206 3207 3208 3209 3210 3211 3218 3218 3219 3220 3226 3226 3227 3227 3229 3234 3234 3235 3235 3236 3236 3237 3237 3239 3241 3242 3249 3250 3303 3304* 3318 3325 3327 3329 3329* 3331 3332 3332* 3338 3340* 3434 3435 3437* 3438 3439 3440 3441 3443 3444 3444 3445 3447 3449 3451 3451 3452 3452 3453 3455 3457 3458 3458 3459 3461 3462 3462 3463 3463 3464 3464 3465 3470* 3521 3523 3524* 3526 3531 3533 3539 3540 3541 3541 3542 3543 3543 3546 3547 3547 3550 3551 3552 3552 3559 3561 3562 3568* 3572 3574 3577 3578 3579 3587 3593 3596 3597 3598 3599 3605 3606 3609 3610 3611 3612 3616 3616 3622 3622 3625 3627 3627 3629 3629 3630 3634 3634 3635 3636 3640 3647 3648 3648 3649 3650 3653 3654 3655 3655 3658 3731 3733 3734* 3736 3738 3740 3740 3750 3750 3755 3755 3756 3756 3757 3757 3758 3758 3759 3759 3763 3764 3764 3767 3773 3774 3779 3780 3780 3782* 3988 3990 3991* 4011 4011 4013 4029 4032 4039 4044 4046 4047 4047 4048 4050 4051 4052 4053 4054 4057 4061 4064 4065 4073 4075* 4171 4172 4173 4173 4175 4176 4177 4179 4181 4191 4193 4195 4195 4198 4201 4211 4212 4213 4213 4215 4225 4225 4226 4226 4228 4228 4229 4229 4231 4233 4238 4239 4239 4241 4242 4242 4252 4254 4259 4260 4268 4269 4271 4272 4273 4274 4275 4283 4294 4294 4295 4297 4300 4302 4302 4303 4304 4304 4305 4305 4306 4308 4308 4310 4310 4311 4322 4325 4328 4338 4342 4342 4343 4344 4345 4347 4349 4349 4353 4374 4375 4376* 4377 4379 4379 4380 4381 4386 4386 4388 4388 4389 4389 4390 4392 4392 4393 4394*
@BT	001	0010	0051	
@BZ	001	0081	0055	
@B1	001	0001	0063	2926* 2976 2980 2984 3205 3304 3311 3313 3319 3320 3329 3330 3331 3332 3333 3664 3766 3771 4091 4380 4381
@CADDR	001	0002	0142	1945 1946 1947 2844 2931 2935 3111 3155 3168 3201 3207 3208 3211 3218 3219 3226 3235 3237 3241 3242 3339 3444 3547 3587 3616 3622 3627 3629 4011 4038 4039 4061 4062 4213 4215 4225 4226 4229 4294
@CARDL	001	0060	0087	0644
@CHARA	001	00C1	0072	
@CHARF	001	00C6	0073	
@CHARR	001	00D9	0074	
@CHARZ	001	00E9	0075	
@CLOFF	001	0010	0094	
@CLON	001	0011	0093	
@COMMA	001	006B	0066	3179
@CPLUS	001	004E	0079	
@DADDR	001	0002	0140	2849 2933 3109 3147 3443 3541

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@DBFR1	001	0004	0129	
@DBFR2	001	0005	0130	2935 4096
@DCALK	001	0001	0081	
@DCBCY	001	0009	0115	1774
@DCBT1	001	0050	0117	1777
@DCNT	001	0003	0128	3487
@DCST1	001	0040	0116	1775
@DCTRL	001	0000	0125	
@DCYL	001	0001	0126	3475 4094
@DD2	001	0003	0030	
@DGET	001	0001	0134	3108 3670
@DOLAR	001	005B	0068	
@DOP2	001	0004	0028	3439* 3443* 3444* 4061* 4062* 4213* 4215* 4225 4225* 4226* 4229
@DPLNG	001	0006	0132	3445 3474
@DPOS	001	0000	0133	
@DPUT	001	0002	0135	3662 4089
@DSAD	001	0002	0127	3476 4095 4305*
@DSBCY	001	0004	0106	1712
@DSCS1	001	0000	0107	1713
@DSIVF	001	0003	0138	
@DSPIN	001	0002	0131	
@DTRSZ	001	0018	0085	
@DVBCY	001	0007	0108	1771
@DVRFY	001	0031	0136	
@DWAIT	001	00FF	0137	
@DWBCY	001	0005	0103	1768
@DWSIZ	001	00C0	0105	
@DWTB1	001	0003	0104	1769
@DZERO	001	00F0	0064	
@D1	001	0002	0026	3750 4380* 4392*
@EOF	001	001C	0077	2886 2949 3590 4031 4109
@EOFTC	001	0075	0162	3703 4108
@EOS	001	001E	0076	1784 3086 3309
@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	
@FLENT	001	0004	0201	
@FLFNA	001	0002	0199	
@FLHLN	001	0002	0209	
@FLLNC	001	0002	0194	
@FLNSC	001	0001	0211	
@FLSD	001	0001	0207	
@HDLN	001	0007	0092	0672
@IAR	001	0010	0017	
@INDEX	001	0001	0156	0157
@INST3	001	0003	0032	
@INST4	001	0004	0033	
@INST5	001	0005	0034	
@INST6	001	0006	0035	
@I1IAR	001	00C0	0020	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@LINSZ	001	00F4	0084	0646
@MAPEN	001	0005	0089	
@MINCR	001	2000	0083	
@MINUS	001	0060	0080	
@NOP	001	0080	0040	2939 2993 3016 3019 3060 3187 3220 3239 3596 3745 3819 4003 4055 4076 4257 4330 4351 4352
@NUMBR	001	007B	0070	
@OPD2	001	0004	0029	
@OP1	001	0003	0027	2884* 3021* 3178* 3199* 3218* 3219* 3226* 3227* 3235* 3236* 3237 3301* 3302* 3303* 3435* 3441* 3566* 3569 3571 3624 3632 3660 3733* 3736* 3990* 3992* 3993* 4229* 4295* 4375* 4377*
@OP2	001	0005	0031	3207* 3226 3235 3237*
@PCTRL	001	0000	0149	
@PDATA	001	0003	0151	
@PGCSZ	001	0020	0082	0083
@PPLNG	001	0004	0148	
@PRCNT	001	0001	0150	
@PRETR	001	00C0	0154	
@PRINT	001	0040	0152	0154
@PSR	001	0004	0015	
@PWAIT	001	00FF	0158	
@P1IAR	001	0020	0018	
@P2IAR	001	0040	0019	
@Q	001	0001	0024	2992* 2993* 3016* 3017* 3065* 3187* 3190* 3220* 3229* 3234 3234* 3239* 3247* 3447* 3457* 3461* 3485 3486 3488 3546* 3593* 3596* 3609* 3615 3813 3817 4017* 4055* 4241* 4242* 4243 4256* 4257* 4258* 4351* 4355* 4381* 4389 4389* 4392
@REGL	001	0002	0012	3148 3157
@RETRN	001	0080	0153	0154
@RLDWN	001	004F	0159	
@RTRNC	001	0080	0161	
@SBLN	001	0005	0170	3266 3700 4179 4300
@SBLNL	001	0002	0184	2847 2853 2857 2860 2863 2868 2879 2881 2883 2884 2888 2889 2925 3018 3027 3034 3037 3038 3039 3042 3043 3045 3061 3064 3068 3069 3113 3114 3115 3117 3118 3119 3120 3122 3123 3125 3126 3127 3130 3132 3134 3149 3150 3151 3153 3159 3160 3161 3162 3163 3164 3165 3166 3167
@SCTSZ	001	0100	0100	
@SDFLN	001	0007	0090	3287
@SDF0	001	0000	0166	3704
@SDF1	001	0001	0167	3338* 3339* 3705 4038* 4039* 4056 4057 4060 4062 4172 4181 4191 4191* 4193* 4195* 4199 4212 4215 4226 4228* 4238 4239 4242
@SDF2	001	0002	0168	3706 4030* 4200* 4201* 4275
@SDF3	001	0003	0169	4019* 4268 4274
@SECCY	001	0030	0086	
@SIST	001	0001	0181	4200
@SLASH	001	0061	0067	
@SLAST	001	0002	0183	3607 4201
@SMIDL	001	0003	0182	
@SNULL	001	0080	0173	3564 3573 4276
@SONLY	001	0000	0180	3594
@STEXT	001	0007	0172	3270 3304 3305 4031 4177*
@STYPE	001	0006	0171	3268 3701
@TBCNT	001	0000	0160	
@TBLEF	001	0010	0155	0157
@TBLIX	001	0011	0157	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES	VER 15, MOD 00	07/03/22	PAGE	65
@UCB	001	0087	0039	3017 3053 3065 3190 3232 3247 3593 3604 3609 3815 4017 4256 4258 4299 4355				
@UPARW	001	005A	0078					
@VADDR	001	0002	0141	1505 1941 1953 1954 1955 1955 1969 1972 1974 1998 1999 2000 2038 2041 2044 2047 2050 2053 2056 2065 2068 2071 2074 2077				
@VENTA	001	0056	0113	1772 2027				
@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	3230 3238 4059* 4060* 4063 4211* 4212* 4217				
@WSFIT	001	0500	0101					
@WSTBL	001	0503	0102	3666				
@XR	001	0002	0014	2853 2857 2883 2886 2946 2947* 2949 2957 2968* 2969* 2970 2972 2997 2997* 2998 3002 3002* 3003 3008 3008* 3014 3021 3033* 3037 3037* 3039 3043 3047* 3049* 3051 3054* 3076* 3079* 3083 3179 3182 3182* 3200* 3202 3205 3205* 3206 3249* 3250* 3302 3305* 3309 3311 3311 3313 3313 3319 3319* 3320 3320 3330 3330* 3331 3333 3333* 3341* 3530* 3539* 3540 3548 3551 3557 3559 3560 3560* 3564 3566 3567 3567* 3573 3575 3585 3586 3588 3594 3597 3598 3599 3600 3600* 3605 3607 3610 3611 3612 3613 3613* 3614 3620 3623 3625 3631 3633 3633* 3647* 3649 3650* 3651 3654 3738 3747 3763 3766 3766* 3771 3771* 3772 3779 3992 4013* 4015 4029* 4056* 4063 4073 4074* 4199* 4217 4238* 4243 4268 4274 4275 4276 4311* 4312 4343* 4345 4346 4346 4347 4348 4348* 4383				
@ZERO	001	0000	0062	2953 3098 3189 3209 3309 3311 3318* 3325 3327* 3331* 3447 3561 3605 3614* 3623 4015 4015* 4019 4030 4063* 4198 4217* 4243* 4269 4312 4312* 4345 4346				
B\$ADMK	001	0001	1409					
B\$ADSW	001	159D	1408					
B\$ARMK	001	0001	1394					
B\$ARSW	001	0A45	1393					
B\$BABF	001	1D00	1199					
B\$BCKT	001	1590	1321					
B\$BDPL	001	19E8	1273					
B\$BDSA	001	19EA	1274					
B\$BINO	001	1A6A	1337					
B\$BRLN	001	19F1	1272					
B\$BROP	001	1AF7	1378					
B\$BRVA	001	19EF	1271					
B\$BRVP	001	19EE	1270					
B\$BTAB	001	1996	1269					
B\$CADR	001	1AF9	1379					
B\$CASA	001	0000	1214					
B\$CASC	001	0671	1218					
B\$CASM	001	0608	1216					
B\$CBAS	001	14BB	1344					
B\$CBFA	001	0CBC	1299					
B\$CCGT	001	0600	1224					
B\$CCLS	001	0695	1230					
B\$CCON	001	001F	1297					
B\$CDAT	001	0600	1210					
B\$CDEF	001	0600	1211					
B\$CDIM	001	0673	1212					

CROSS REFERENCE																				
SYMBOL	LEN	VALUE	DEFN	REFERENCES													VER 15, MOD 00	07/03/22	PAGE	66
B\$CDUM	001	0000	1248	1247																
B\$CEND	001	0600	1246																	
B\$CEOF	001	0600	1247																	
B\$CFOR	001	0600	1219																	
B\$CGET	001	06A3	1227																	
B\$CGSB	001	0690	1225																	
B\$CGTO	001	06B3	1223																	
B\$CIFA	001	0600	1221																	
B\$CIFC	001	0600	1222																	
B\$CIMG	001	0600	1236																	
B\$CINP	001	0600	1231																	
B\$CLTA	001	0000	1213																	
B\$CLTC	001	0669	1217																	
B\$CLTM	001	0600	1215																	
B\$CMAT	001	0600	1237																	
B\$CMGT	001	0665	1238																	
B\$CMIN	001	06D3	1239																	
B\$CMPR	001	069B	1242																	
B\$CMPT	001	069B	1241																	
B\$CMPU	001	0600	1243																	
B\$CMRD	001	06D0	1240																	
B\$CNXT	001	0600	1220																	
B\$CPCT	001	0CA8	1302																	
B\$CPRT	001	0600	1234																	
B\$CPRU	001	0600	1235																	
B\$CPSE	001	06E7	1244																	
B\$CPUT	001	0600	1228																	
B\$CPWA	001	0CA6	1373																	
B\$CRAD	001	150D	1343																	
B\$CRBS	001	1509	1345																	
B\$CREA	001	06CF	1232																	
B\$CREM	001	0000	1209																	
B\$CRMK	001	0001	1421																	
B\$CRSR	001	06E3	1233																	
B\$CRST	001	06A6	1229																	
B\$CRSW	001	0E42	1420																	
B\$CRTN	001	06CF	1226																	
B\$CSBF	001	0600	1196	1210	1211	1212	1215	1216	1217	1218	1219	1220	1221	1222	1223					
				1224	1225	1226	1227	1228	1229	1230	1231	1232	1233	1234	1235					
				1236	1237	1238	1239	1240	1241	1242	1243	1244	1245	1246	1249					
				1250	1251	1252	1253													
B\$CSCN	001	14B0	1318																	
B\$CSMK	001	0007	1424																	
B\$CSSW	001	14BC	1423																	
B\$CSTP	001	06D6	1245																	
B\$CSTR	001	14CC	1342																	
B\$CSXA	001	2000	1202																	
B\$CTYP	001	0A5F	1296																	
B\$CVPD	001	0C5D	1301																	
B\$CVPG	001	0CA5	1300																	
B\$CWRK	001	F500	1370																	
B\$DIST	001	0700	1262																	
B\$DLNK	001	1B37	1368																	
B\$DL4T	001	1A6B	1339																	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B\$ERMK	001	0007	1397	
B\$ERSW	001	0993	1396	
B\$FACA	001	0E53	1305	
B\$FAIS	001	15AC	1322	
B\$FAIW	001	15A0	1323	
B\$FCON	001	0A46	1295	
B\$FORT	001	1B0E	1364	
B\$FPWA	001	15AC	1375	
B\$FRMK	001	0007	1415	
B\$FRSW	001	16CC	1414	
B\$FSC1	001	0E4C	1306	
B\$FSC2	001	0E4D	1307	
B\$FSMK	001	0007	1406	
B\$FSSW	001	0E5C	1405	
B\$FSVA	001	0E4F	1308	
B\$FTND	001	1B0B	1366	
B\$FTPT	001	1B0D	1365	
B\$FVME	001	15A2	1327	
B\$FVMP	001	15A4	1328	
B\$FVMS	001	15A6	1329	
B\$FVPE	001	15A8	1324	
B\$FVPP	001	15AA	1325	
B\$FVPS	001	15AC	1326	
B\$GBSW	001	08AF	1399	
B\$GBWK	001	0001	1400	
B\$GETC	001	0867	1276	
B\$GPTR	001	0878	1278	
B\$GTBF	001	1E00	1200	
B\$IFMK	001	0007	1418	
B\$IFSW	001	16E5	1417	
B\$INVT	001	1B38	1358	
B\$KWMK	001	0001	1412	
B\$KWSW	001	159E	1411	
B\$LBAS	001	185E	1349	
B\$LBSV	001	18E7	1347	
B\$LDRP	001	1A00	1197	
B\$LINE	001	07D0	1264	
B\$LIST	001	1853	1331	
B\$LRTN	001	18EB	1348	
B\$LSTR	001	1862	1346	
B\$LTYP	001	18F2	1332	
B\$MATR	001	18F3	1334	
B\$MBMK	001	0007	1433	
B\$MBSW	001	1903	1432	
B\$MFBK	001	1B8F	1360	
B\$MGMK	001	0007	1430	
B\$MGSW	001	18FF	1429	
B\$MPMK	001	0007	1436	
B\$MPSW	001	1981	1435	
B\$MRMK	001	0007	1427	
B\$MRSW	001	0DDE	1426	
B\$NUMC	001	0873	1277	
B\$NXMK	001	0007	1403	
B\$NXSW	001	071D	1402	
B\$PARP	001	0A41	1285	
B\$PBNL	001	0A01	1291	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B\$PCAD	001	0A40	1286	
B\$PCDL	001	09D3	1290	
B\$PCPG	001	0A35	1289	
B\$PECT	001	0A44	1293	
B\$PERC	001	0A39	1292	
B\$PFAE	001	0033	1283	
B\$PFCL	001	009D	1284	
B\$PFNC	001	094E	1281	
B\$PFWP	001	0015	1282	
B\$PNBY	001	0A41	1287	
B\$PPWA	001	0A35	1372	
B\$PRM1	001	1AF3	1376	
B\$PTBF	001	1F00	1201	
B\$PUTC	001	093A	1280	
B\$PVAD	001	0A43	1288	
B\$RMRK	001	1AE6	1341	
B\$RTRN	001	1AF5	1377	
B\$SABF	001	1C00	1198	
B\$SCAN	001	1514	1320	
B\$SCAT	001	13C8	1315	
B\$SCON	001	001B	1298	
B\$SCVT	001	12E0	1313	
B\$SDPL	001	07DA	1266	
B\$SFAB	001	0E48	1310	
B\$SFNT	001	143C	1316	
B\$SLDT	001	109C	1312	
B\$SLVT	001	1062	1311	
B\$SNAT	001	131A	1314	
B\$SPAT	001	07E0	1267	
B\$SSTA	001	1BAC	1362	
B\$STAS	001	061B	1251	
B\$STIF	001	0606	1253	
B\$STMA	001	061B	1252	
B\$STML	001	0600	1250	
B\$STRL	001	0600	1249	
B\$SVRB	001	0E46	1309	
B\$SYMB	001	0DBC	1304	
B\$TCD2	001	0001	1382	
B\$TLTH	001	0002	1383	1384
B\$TOD1	001	0000	1381	
B\$TOTB	001	1AF8	1384	
B\$TTAB	001	1AFA	1380	1384
B\$TYPE	001	0739	1265	
B\$WORK	001	15A0	1369	
B\$ZDBN	001	19F2	1336	
B@ABAS	001	0007	1969	
B@ACD1	001	0001	1966	1967
B@ACD2	001	0003	1967	1968
B@AFLG	001	0000	1961	
B@ALLA	001	005C	1786	
B@AMAX	001	0005	1968	1969
B@BLNK	001	0040	1795	
B@BLSZ	001	0100	1920	2059 2062 2065 2080 2083
B@BREQ	001	0084	1575	
B@BRHI	001	0088	1576	
B@BRLO	001	0082	1574	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@BRNE	001	0094	1578	
B@BRNH	001	0098	1579	
B@BRNL	001	0092	1577	
B@CADD	001	0006	1444	
B@CADF	001	0058	1485	
B@CBAS	001	0003	1972	
B@CBNX	001	004A	1478	
B@CBRA	001	0046	1476	
B@CBRC	001	0044	1475	
B@CBRD	001	0048	1477	
B@CBRS	001	004C	1479	
B@CCLS	001	005E	1488	
B@CCMC	001	0042	1474	
B@CCMF	001	0040	1473	
B@CCNT	001	001F	1898	
B@CCSA	001	003E	1472	
B@CDCA	001	006A	1494	
B@CDDL	001	006C	1495	
B@CDIV	001	000C	1447	
B@CDMN	001	0001	1971	1972
B@CDWA	001	006E	1496	
B@CEOF	001	0070	1497	
B@CEOP	001	0068	1493	
B@CFCI	001	0016	1452	
B@CFN0	001	0012	1450	
B@CFN1	001	0014	1451	
B@CFOR	001	004E	1480	
B@CGET	001	0052	1482	
B@CHAR	001	0000	1911	
B@CHLT	001	0004	1443	
B@CIEX	001	00C5	1871	
B@CIMH	001	0066	1492	
B@CINI	001	0056	1484	
B@CIPI	001	00D7	1874	
B@CIS2	001	00E2	1877	
B@CMF1	001	0018	1453	
B@CMF2	001	001A	1454	
B@CMF3	001	001C	1455	
B@CMA	001	006B	1806	
B@CMPY	001	000A	1446	
B@CMSM	001	001E	1456	
B@CNEG	001	0010	1449	
B@CNXT	001	0050	1481	
B@COLN	001	007A	1808	
B@CPMK	001	00FF	1716	1720 1724 1725 1759
B@CPRS	001	0060	1489	
B@CPRU	001	0062	1490	
B@CPUT	001	0054	1483	
B@CPWR	001	000E	1448	
B@CRSR	001	005A	1486	
B@CRST	001	005C	1487	
B@CSA1	001	0036	1468	
B@CSA2	001	0038	1469	
B@CSB1	001	003A	1470	
B@CSC1	001	002A	1462	
B@CSD0	001	002E	1464	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@CSD1	001	0030	1465	
B@CSD2	001	0032	1466	
B@CSF1	001	0022	1458	
B@CSF2	001	0024	1459	
B@CSTA	001	0034	1467	
B@CSTC	001	0028	1461	
B@CSTF	001	0020	1457	
B@CSTH	001	0064	1491	
B@CSTX	001	003C	1471	
B@CSUB	001	0008	1445	
B@CSV	001	0002	1442	
B@CTYP	001	0020	1896	
B@CUSC	001	002C	1463	
B@CUSF	001	0026	1460	
B@CVAR	001	005B	1785	
B@DAMK	001	0080	1964	
B@DASA	001	00FF	1725	
B@DASC	001	0040	1729	
B@DASM	001	0038	1727	
B@DCGT	001	0050	1735	
B@DCLS	001	0054	1741	
B@DDAT	001	0024	1721	
B@DDEF	001	0034	1722	
B@DDIM	001	0004	1723	
B@DDUM	001	00FF	1759	
B@DEC0	001	00F0	1854	
B@DEC1	001	00F1	1855	
B@DEC2	001	00F2	1856	
B@DEC3	001	00F3	1857	
B@DEC4	001	00F4	1858	
B@DEC5	001	00F5	1859	
B@DEC6	001	00F6	1860	
B@DEC7	001	00F7	1861	
B@DEC8	001	00F8	1862	
B@DEC9	001	00F9	1863	
B@DEND	001	0058	1757	1758
B@DEOF	001	0058	1758	
B@DFOR	001	0028	1730	
B@DGET	001	0040	1738	
B@DGSB	001	0020	1736	
B@DGTO	001	0044	1734	
B@DIFA	001	0048	1732	
B@DIFC	001	004C	1733	
B@DIGS	001	007B	1788	
B@DIMG	001	003C	1747	
B@DINP	001	0000	1742	
B@DIVD	001	0061	1805	
B@DLTA	001	00FF	1724	
B@DLTC	001	0040	1728	
B@DLTM	001	0038	1726	
B@DL01	001	0001	2039	2042
B@DL02	001	0003	2042	2045
B@DL03	001	0005	2045	2048
B@DL04	001	0007	2048	2051
B@DL05	001	0009	2051	2054
B@DL06	001	000B	2054	2057

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@DL07	001	0045	2057	2060
B@DL08	001	0145	2060	2063
B@DL09	001	0245	2063	2066
B@DL10	001	0289	2066	2069
B@DL11	001	02C3	2069	2072
B@DL12	001	02FD	2072	2075
B@DL13	001	0337	2075	2078
B@DL14	001	0371	2078	2081
B@DL15	001	0471	2081	2084
B@DL16	001	0507	2084	
B@DMAT	001	0008	1748	
B@DMGT	001	0044	1749	
B@DMIN	001	0038	1750	
B@DMPR	001	0048	1753	
B@DMPT	001	004C	1752	
B@DMPU	001	0054	1754	
B@DMRD	001	003C	1751	
B@DNXT	001	0044	1731	
B@DPNT	001	004B	1796	
B@DPRT	001	002C	1745	
B@DPRU	001	0030	1746	
B@DPSE	001	0050	1755	
B@DPUT	001	0040	1739	
B@DREA	001	000C	1743	
B@DREM	001	00FF	1720	
B@DRSR	001	005C	1744	
B@DRST	001	0050	1740	
B@DRTN	001	005C	1737	
B@DSCY	001	0004	1712	
B@DSIF	001	001C	1761	
B@DSLT	001	0010	1760	
B@DSML	001	0010	1762	
B@DSNS	001	0018	1714	
B@DSS1	001	0000	1713	
B@DSTP	001	0054	1756	
B@DTBN	001	0010	1778	
B@DTB1	001	0050	1777	
B@DTCY	001	0009	1774	
B@DTSN	001	0010	1776	
B@DTS1	001	0040	1775	
B@DTYP	001	0040	1890	
B@DVCY	001	0007	1771	
B@DVC1	001	0056	1772	
B@DWCY	001	0005	1768	
B@DWT1	001	0003	1769	
B@D1MK	001	0080	1962	
B@D2MK	001	00C0	1963	
B@EOST	001	001E	1784	
B@EQUL	001	007E	1810	
B@EXPC	001	00C5	1787	
B@FOFL	001	005C	1789	
B@FVAD	001	0001	1974	
B@GETC	001	0001	1913	
B@GETE	001	00FF	1914	
B@GETS	001	0000	1912	
B@GRTR	001	006E	1807	

CROSS REFERENCE															
SYMBOL	LEN	VALUE	DEFN	REFERENCES	VER 15, MOD 00 07/03/22 PAGE 72										
B@ICON	001	0050	1869												
B@LADD	001	0001	1513												
B@LADF	001	0002	1554												
B@LADV	001	0008	1998	2019											
B@LBIN	001	0002	1923	1924 1930											
B@LBNX	001	0003	1547												
B@LBRA	001	0003	1545												
B@LBRC	001	0004	1544												
B@LBRD	001	0003	1546												
B@LBRS	001	0001	1548												
B@LCCA	001	0004	1954												
B@LCCC	001	0001	1506	1544											
B@LCDV	001	0004	1999	2020											
B@LCER	001	0001	1504	1568											
B@LCFN	001	0004	1955												
B@LCLN	001	0002	1509	1560 1561 1568											
B@LCLS	001	0001	1557												
B@LCMC	001	0001	1543												
B@LCMF	001	0001	1542												
B@LCNA	001	0006	1953												
B@LCNN	001	0001	1507	1532 1541 1553 1565											
B@LCOP	001	0001	1503	1511 1512 1513 1514 1515 1516 1517 1518 1519 1520 1521 1522 1523 1524 1525 1526 1527 1528 1529 1530 1531 1532 1533 1534 1535 1536 1537 1538 1539 1540 1541 1542 1543 1544 1545 1546 1547 1548 1549 1550 1551 1552 1553 1554 1555 1556 1557 1558 1559 1560 1561 1562 1563 1564 1565 1566											
B@LCRV	001	0013	1997	2017											
B@LCSA	001	0002	1541												
B@LCVA	001	0002	1505	1519 1520 1521 1522 1523 1524 1525 1526 1527 1528 1530 1531 1533 1534 1535 1536 1537 1538 1539 1544 1545 1546 1547 1549 1550 1551 1563 1564											
B@LCXX	001	0001	1508	1540 1552 1554 1558 1559											
B@LDAT	001	0004	1667												
B@LDCA	001	0003	1563												
B@LDDL	001	0003	1564												
B@LDDM	001	0004	1927												
B@LDEF	001	0003	1668												
B@LDIM	001	0003	1669												
B@LDIN	001	0004	1926	1927 1928											
B@LDIV	001	0001	1516												
B@LDMN	001	0002	1924	1953 1954 1966 1967 1968 1971 1998 1999											
B@LDSN	001	0004	1928												
B@LDWA	001	0002	1565												
B@LELP	001	0010	1996												
B@LEND	001	0003	1696												
B@LEOF	001	0001	1566												
B@LEOP	001	0001	1562												
B@LERC	001	0003	1568												
B@LESP	001	0008	1995												
B@LESS	001	004C	1797												
B@LET\$	001	005B	1817												
B@LET#	001	007B	1818												
B@LET@	001	007C	1819												
B@LETA	001	00C1	1821												

CROSS REFERENCE

SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 07/03/22 PAGE 73

B@LETD	001	00C4	1825	
B@LETE	001	00C5	1826	
B@LETF	001	00C6	1827	
B@LETG	001	00C7	1828	
B@LETH	001	00C8	1829	
B@LETI	001	00C9	1830	
B@LETJ	001	00D1	1831	
B@LETK	001	00D2	1832	
B@LETL	001	00D3	1833	
B@LETM	001	00D4	1834	
B@LETN	001	00D5	1835	
B@LETO	001	00D6	1836	
B@LETP	001	00D7	1837	
B@LETQ	001	00D8	1838	
B@LETR	001	00D9	1839	
B@LETS	001	00E2	1840	
B@LETT	001	00E3	1841	
B@LETU	001	00E4	1842	
B@LETV	001	00E5	1843	
B@LETW	001	00E6	1844	
B@LETX	001	00E7	1845	
B@LETY	001	00E8	1846	
B@LETZ	001	00E9	1847	
B@LEXP	001	0008	1886	
B@LFCI	001	0003	1521	
B@LFNA	001	0002	2000	2021
B@LFN0	001	0003	1519	
B@LFN1	001	0003	1520	
B@LFOR	001	0003	1549	
B@LFRT	001	0004	1941	1942
B@LGET	001	0003	1551	
B@LGSB	001	0005	1675	
B@LGTO	001	0004	1674	2984
B@LHLT	001	0001	1512	
B@LIEX	001	0002	1872	
B@LIFN	001	0003	1935	
B@LILP	001	0009	1994	2012 2013 2014
B@LIMG	001	0001	1686	
B@LIMH	001	0003	1561	
B@LINI	001	0002	1553	
B@LINP	001	0005	1681	
B@LIPI	001	0003	1875	
B@LISP	001	0005	1993	2001 2007 2008 2009
B@LIS2	001	0005	1878	
B@LIVT	001	0001	1951	
B@LKCL	001	0005	1680	
B@LKFR	001	0003	1671	
B@LKGT	001	0003	1677	
B@LKIF	001	0002	1673	
B@LKON	001	0002	1706	
B@LKPT	001	0003	1678	
B@LKPU	001	000A	1685	2976
B@LKRR	001	0007	1683	
B@LKRT	001	0005	1679	
B@LKTO	001	0002	1700	
B@LLET	001	0003	1670	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@LL01	001	0002	2038	2039
B@LL02	001	0002	2041	2042
B@LL03	001	0002	2044	2045
B@LL04	001	0002	2047	2048
B@LL05	001	0002	2050	2051
B@LL06	001	0002	2053	2054
B@LL07	001	003A	2056	2057
B@LL08	001	0100	2059	2060
B@LL09	001	0100	2062	2063
B@LL10	001	0044	2065	2066
B@LL11	001	003A	2068	2069
B@LL12	001	003A	2071	2072
B@LL13	001	003A	2074	2075
B@LL14	001	003A	2077	2078
B@LL15	001	0100	2080	2081
B@LL16	001	0096	2083	2084
B@LMAT	001	0003	1687	
B@LMF1	001	0003	1522	
B@LMF2	001	0003	1523	
B@LMF3	001	0003	1524	
B@LMGT	001	0006	1688	
B@LMIN	001	0008	1689	
B@LMPR	001	0008	1692	
B@LMPT	001	0006	1691	
B@LMPU	001	000D	1693	2980
B@LMPY	001	0001	1515	
B@LMRD	001	0007	1690	
B@LMSM	001	0003	1525	
B@LNEG	001	0001	1518	
B@LNEX	001	0004	1672	
B@LNXT	001	0003	1550	
B@LPAR	001	004D	1798	
B@LPRS	001	0002	1558	
B@LPRT	001	0005	1684	
B@LPRU	001	0002	1559	
B@LPSE	001	0005	1694	
B@LPUT	001	0002	1552	
B@LPWR	001	0001	1517	
B@LREA	001	0004	1682	
B@LREM	001	0003	1666	
B@LRSR	001	0001	1555	
B@LRST	001	0001	1556	
B@LRTN	001	0006	1676	
B@LSA1	001	0003	1537	
B@LSA2	001	0003	1538	
B@LSB1	001	0003	1539	
B@LSC1	001	0003	1531	
B@LSDF	001	0004	1921	
B@LSD0	001	0003	1533	
B@LSD1	001	0003	1534	
B@LSD2	001	0003	1535	
B@LSF1	001	0003	1527	
B@LSF2	001	0003	1528	
B@LSKW	001	0002	1937	
B@LSNO	001	0002	1930	
B@LSPT	001	0003	1945	1948

CROSS REFERENCE										
SYMBOL	LEN	VALUE	DEFN	REFERENCES	VER	15,	MOD	00	07/03/22	PAGE 75
B@LSTA	001	0003	1536							
B@LSTC	001	0003	1530							
B@LSTE	001	0004	1701							
B@LSTF	001	0003	1526							
B@LSTH	001	0003	1560							
B@LSTP	001	0004	1695							
B@LSTX	001	0002	1540							
B@LSUB	001	0001	1514							
B@LSVC	001	0001	1511							
B@LTHN	001	0004	1702							
B@LTYP	001	0001	1931							
B@LUFN	001	0002	1938							
B@LUSC	001	0002	1532							
B@LUSF	001	0001	1529							
B@LVPG	001	0100	2025	2028						
B@MINS	001	0060	1804							
B@MULT	001	005C	1801							
B@NAAR	001	001D	1989	2019	2071					
B@NCAR	001	001D	1990	2020	2074					
B@NCRV	001	001D	1988	2017	2068					
B@NDGT	001	000A	1981	1987						
B@NEQL	001	007F	1811							
B@NFRT	001	000A	1940	1942						
B@NICN	001	0006	1983	1985						
B@NIEL	001	0007	1985	2001	2007	2012				
B@NIFN	001	0018	1934							
B@NIVR	001	0001	1984	1985						
B@NIVT	001	0057	1950							
B@NLDV	001	0122	1987	2009	2014	2065				
B@NLRV	001	001D	1986	2008	2013	2056				
B@NLTR	001	001D	1980	1986	1987	1988	1989	1990	1991	
B@NSKW	001	0004	1936							
B@NSPT	001	0028	1944							
B@NUFN	001	001D	1991	2021	2077					
B@NVPG	001	0100	2024	2028						
B@NXHI	001	00E3	1905							
B@NXLO	001	001E	1904							
B@NXZR	001	0080	1903	1904	1905					
B@PLUS	001	004E	1799							
B@POWR	001	005A	1800							
B@PREC	001	0020	1892							
B@PROD	001	0023	2001							
B@PRPL	001	0002	1588							
B@PRPN	001	0001	1587							
B@PRPR	001	0004	1590							
B@PRPS	001	0003	1589							
B@PRRC	001	0007	1593							
B@PRRL	001	0008	1594							
B@PRSL	001	0005	1591							
B@PRSS	001	0006	1592							
B@PTAB	001	0000	1946							
B@PTAD	001	0001	1947							
B@PTSA	001	0002	1948							
B@PUD1	001	0006	1604							

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@PUI1	001	0004	1599	
B@PUI2	001	0005	1600	
B@PUNL	001	0002	1602	
B@PUNS	001	0003	1603	
B@PURE	001	0020	1608	
B@PUTM	001	0010	1607	
B@RPAR	001	005D	1802	
B@SADV	001	00E8	2019	2022
B@SAVL	001	0B76	2015	2032
B@SAVS	001	065E	2010	2031
B@SCDV	001	0074	2020	2022
B@SCLN	001	005E	1803	
B@SCRV	001	0227	2017	2031 2032
B@SDMK	001	0080	1932	
B@SEXP	001	0004	1885	
B@SFAT	001	0196	2022	2031 2032 2083
B@SFNA	001	003A	2021	2022
B@SFRT	001	0028	1942	
B@SIEL	001	003F	2012	2015
B@SIES	001	0023	2007	2010
B@SIGN	001	0010	1894	
B@SLDL	001	0A32	2014	2015
B@SLDS	001	05AA	2009	2010
B@SLVL	001	0105	2013	2015
B@SLVS	001	0091	2008	2010
B@SQUO	001	007D	1809	
B@STAT	001	0000	1884	
B@TASA	001	0012	1619	
B@TASC	001	001E	1625	
B@TASM	001	0018	1621	
B@TASS	001	007B	1626	
B@TCGT	001	0030	1634	2987
B@TCLS	001	0042	1640	
B@TDAT	001	0006	1615	
B@TDEF	001	0009	1616	
B@TDIM	001	000C	1617	
B@TDUM	001	0078	1658	3088
B@TEND	001	0072	1656	
B@TEOF	001	0075	1657	
B@TFOR	001	0021	1628	
B@TGET	001	0039	1637	
B@TGSB	001	0033	1635	2959
B@TGTO	001	002D	1633	2985
B@TIFA	001	0027	1630	2961
B@TIFC	001	002A	1631	2965
B@TIFS	001	007D	1632	2963
B@TIMG	001	0054	1646	
B@TINP	001	0045	1641	
B@TLTA	001	000F	1618	
B@TLTC	001	001B	1622	
B@TLTM	001	0015	1620	
B@TLTS	001	0079	1623	
B@TMAS	001	007C	1627	
B@TMAT	001	0057	1647	
B@TMGT	001	005A	1648	
B@TMIN	001	005D	1649	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@TMLS	001	007A	1624	
B@TMPR	001	0066	1652	
B@TMPT	001	0063	1651	
B@TMPU	001	0069	1653	2981
B@TMRD	001	0060	1650	
B@TNXT	001	0024	1629	
B@TPRT	001	004E	1644	
B@TPRU	001	0051	1645	2977
B@TPSE	001	006C	1654	
B@TPUT	001	003C	1638	
B@TRAC	001	0080	1888	
B@TREA	001	0048	1642	
B@TREM	001	0003	1614	
B@TRSR	001	004B	1643	
B@TRST	001	003F	1639	
B@TRTN	001	0036	1636	
B@TSTP	001	006F	1655	
B@VMC1	001	0056	2027	
B@VMLB	001	F0CD	2032	
B@VMSB	001	F5E5	2031	
B@VMSZ	001	0000	2028	2030 2031 2032
B@VMTB	001	0000	2030	
B@ZNEG	001	00D0	1901	
B@ZPOS	001	00F0	1900	
C2DEC5	001	15F8	4373	3048 3077 4374 4376
C2DVAL	005	1636	4401	3051 3083 4386 4386 4386* 4388 4388
C2D020	003	160A	4381	4392 4393
C2D030	003	160D	4383	4380* 4381* 4389 4389* 4390 4392*
C2D040	004	1617	4388	4384
C2D050	004	1629	4394	4375*
C2D052	004	162D	4395	4377*
C2D901	001	1631	4399	4379 4379 4379
C2D902	001	1632	4400	4379
C2D903	005	163B	4402	4379 4379* 4386 4386 4386 4388 4388 4388 4388*
C4BCHC	001	0004	3807	
C4BCHR	001	13B2	3795	3763* 3764
C4BINI	001	13B1	3793	3740
C4BIN2	001	1346	3730	3000 3188 3731 3734
C4BLEN	002	13AE	3805	3189* 3201* 3211 3779* 3780*
C4BLNK	003	1361	3813	
C4BLOW	001	00F0	3809	3747
C4BLVL	002	0002	3811	3740 3755 3756 3757 3758 3759 3764
C4BNMC	004	135D	3817	
C4BNOP	001	0080	3819	
C4BSAV	002	13B4	3799	3738* 3780
C4BSPC	001	0087	3815	
C4BVAL	002	13B0	3791	3018 3027 3039 3740* 3755 3755* 3756 3757 3757* 3758 3758* 3759*
C4BWRK	002	13AE	3788	3756* 3759 3805 3811
C4BYT1	001	13AF	3790	3025* 3029*
C4B100	004	135C	3741	3817
C4B200	003	1360	3745	3187* 3190* 3767 3813
C4B300	003	1363	3747	3773
C4B590	003	1392	3771	3750 3774
C4B600	003	1395	3772	3745
C4B700	003	139E	3779	3748

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
C4B800	004	13A5	3782	3733* 3751
C4B850	004	13A9	3784	3736*
C4B900	001	13B5	3801	3741* 3750*
C4END	001	13B6	3820	
DL4CYL	001	119F	3475	3451*
DL4C01	002	11A5	3483	3438 3440 3451
DL4C05	002	11A7	3484	3444
DL4C24	003	1179	3486	3462
DL4C48	003	116C	3488	3458
DL4C96	003	115B	3485	3452
DL4DPL	006	11A3	3474	3445*
DL4EFD	001	0001	3480	3457
DL4END	001	11A8	3490	
DL4ETB	001	0080	3482	3461
DL4E01	001	0001	3479	
DL4E24	001	0018	3481	3459
DL4E48	001	0030	3478	3455
DL4E96	001	0060	3477	3449
DL4ICS	001	1135	3433	3656 4280
DL4LST	001	119E	3473	3468 3475 3476 3487
DL4SCD	001	11A0	3476	3449 3452* 3455 3458* 3459 3462* 3463 3463* 3464 3464* 3465*
DL4SCT	001	11A1	3487	
DL4010	001	1139	3436	3434 3437
DL4020	005	1149	3443	3439*
DL4030	005	1152	3445	3443* 3444*
DL4035	003	1157	3447	
DL4040	003	115A	3449	3453 3485
DL4050	003	116B	3455	3450 3488
DL4070	003	1178	3459	3456 3486
DL4080	004	1185	3463	3460
DL4100	003	118D	3465	3447* 3457* 3461*
DL4900	004	1196	3470	3435*
DL4920	004	119A	3471	3441*
GCPACK	001	10C4	3297	4042
GCPBFR	001	1A00	3274	3304 3305 3338* 3339* 3348
GCPMAX	001	001B	3353	3325
GCPONE	001	1132	3347	3327
GCPSTL	002	1134	3348	3339
GCPTWO	001	0002	3352	3313 3318 3320
GCP020	003	10D8	3309	3334
GCP050	003	10EF	3319	3328
GCP080	003	1108	3329	3326
GCP090	004	110E	3331	3312 3314
GCP100	003	1112	3332	3321
GCP110	004	111C	3338	3310
GCP120	004	1126	3340	3303*
GCP130	004	112A	3341	3302*
GCP140	004	112E	3342	3301*
GPUADR	001	1D00	3977	3978
GPUBFR	001	1467	4096	4011 4013 4308* 4310* 4311
GPUBF1	001	1800	3257	3259 4092
GPUBRK	001	0080	4121	4051 4053 4233 4325
GPUCBL	001	1486	4154	4171* 4172* 4173 4344* 4345* 4349*
GPUCLA	002	1485	4150	4011* 4029 4073* 4151
GPUCNT	002	147A	4114	4047* 4115
GPUCYL	001	1463	4094	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
GPUDBS	001	1478	4111	4044 4112 4302*
GPUDPL	001	1462	4089	3988 3991 4094 4095 4096 4281 4305*
GPUDSP	001	147C	4135	4136 4304* 4306
GPUDS0	001	0000	3958	
GPUDS1	001	0001	3959	4276*
GPUDS2	001	0002	3960	4275*
GPUDS3	001	0003	3961	4274*
GPUDS4	001	0004	3962	4268* 4346* 4347* 4348
GPUD11	001	000B	3963	3978
GPUECD	001	008A	3258	4045
GPUEOF	001	0040	4124	4064 4176 4252 4322
GPUERD	001	0020	4127	4175 4353
GPUERR	001	0FBE	3097	4076
GPUFIT	001	0001	4130	4283 4328
GPUFTS	001	1D0B	3978	4338*
GPUIDR	001	147B	4118	4051 4053* 4064 4119 4175* 4176* 4233* 4252 4283 4322 4325 4328
				4353
GPULIN	002	147E	4138	4139 4179* 4300*
GPULN1	001	0001	3951	4057
GPULN2	001	0002	3952	4047 4179 4271 4275 4295 4300 4342
GPULN3	001	0003	3953	4274
GPULN4	001	0004	3954	4231 4259 4268 4297
GPULUD	002	1481	4145	
GPULUE	002	1483	4146	4147 4294* 4295 4338 4342* 4343
GPUL12	001	000C	3955	4338
GPUMOV	002	1488	4157	4039
GPUNUL	001	146C	4104	4268 4274 4275
GPUON1	001	0001	3973	4306
GPURCD	001	1477	4109	4177
GPUSCT	001	1464	4095	
GPUSDF	001	1468	4099	4101 4191* 4195* 4201* 4226 4228* 4231 4238 4239 4242
GPUSMT	001	1A00	3259	3086* 3262 3266 3268 3270 3274 3285 4019* 4030* 4031 4038* 4039*
				4056 4057 4060 4062 4156 4172 4177* 4179 4181 4191 4193* 4199
				4200* 4212 4215 4300
GPUSTR	001	147F	4141	4048 4057* 4142 4173 4181 4193 4195 4198* 4239* 4254 4259 4269
				4271 4297 4303*
GPUSTT	002	1488	4156	4061 4157 4213
GPUTIT	001	13B6	3989	2951 3092
GPUXBC	001	00BC	3967	4344
GPUXFF	001	00FF	3965	4059 4211 4241 4303
GPUX08	001	0008	3975	4048 4254
GPU001	002	148A	4159	4047 4302 4304 4305 4308 4310 4347 4349
GPU003	002	148C	4160	4342
GPU004	002	148E	4161	4228 4294
GPU005	001	0005	4097	
GPU008	001	0008	3971	4171 4177
GPU050	004	13BE	3992	
GPU100	003	13C6	4003	4017*
GPU150	004	13C9	4011	
GPU188	001	00BC	3969	4044
GPU200	003	13DB	4029	4003
GPU210	004	13FE	4042	4034
GPU215	003	1402	4044	4041
GPU220	004	140C	4047	4174 4178
GPU230	003	1416	4051	4323 4326
GPU240	004	1422	4055	4183 4352

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
GPU245	005	1444	4063	4059* 4060* 4061* 4062*
GPU247	003	1449	4064	4244
GPU250	003	144F	4073	
GPU260	004	1452	4074	3992* 4354 4356
GPU270	004	1456	4075	3990*
GPU275	004	145A	4076	4355*
GPU280	004	145E	4077	3993*
GPU300	003	148F	4171	4046
GPU320	003	149F	4175	
GPU340	003	14A2	4176	4032
GPU360	005	14AE	4179	4052
GPU380	005	14BC	4191	
GPU390	005	14E9	4217	4211* 4212* 4213* 4215* 4225 4229
GPU395	005	14FE	4231	4229*
GPU396	003	1509	4238	4054
GPU398	005	1517	4243	4225* 4226* 4241* 4242*
GPU400	003	1520	4252	4050
GPU405	003	1538	4259	4065 4253 4255
GPU410	003	1542	4269	4260
GPU420	004	1555	4275	4273
GPU430	003	1559	4276	4272
GPU450	004	155C	4280	4234 4270
GPU455	005	1571	4297	4295*
GPU457	003	1576	4299	4257*
GPU460	004	157E	4302	4284 4299
GPU470	004	159A	4310	4307
GPU475	003	159E	4311	4309
GPU480	003	15B8	4330	4256* 4351*
GPU490	004	15CE	4346	4350
GPU500	004	15E1	4351	4329 4330
GPU502	004	15E5	4352	4055* 4258*
GRABIT	001	11A8	3522	2854 2880 2936 2944
GRABOA	002	1331	3687	3616 3629 3634
GRABSE	004	1286	3713	3521 3524
GRACCA	002	1322	3664	
GRACFN	001	1321	3662	
GRACPL	001	1321	3661	
GRACSC	001	1324	3667	3543*
GRAEBS	001	00FF	3695	3542 3658
GRAEDB	001	0002	3681	3550 3653
GRAEDC	001	0001	3712	
GRAEDL	001	0006	3700	3567 3585
GRAEDS	001	0005	3714	3648
GRAEDT	001	0007	3701	3557 3586 3588
GRAEET	001	0075	3703	3557 3588
GRAEFG	001	0004	3694	3579
GRAEFI	001	0000	3690	2850 2934 3526
GRAEFR	001	0001	3692	2938 3531 3577
GRAEFS	001	0002	3693	2856 3533
GRAEFW	001	0003	3691	
GRAELK	001	0000	3697	3548 3551 3651 3654
GRAELL	001	0002	3702	3585
GRAELN	001	0000	3698	3548 3651
GRAELP	001	0007	3708	3600
GRAELS	001	0004	3709	3613
GRAEMR	001	001B	3710	3620

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
GRAENC	001	0001	3711	3620 3625* 3631 3633
GRAERR	004	133A	3719	3546* 3562 3574 3578
GRAESC	001	0001	3696	
GRAES0	001	0001	3704	3564 3573
GRAES1	001	0002	3705	3559 3560 3597 3598* 3599 3610 3611* 3612
GRAES2	001	0003	3706	3575 3594 3607
GRAETP	001	0002	3707	3575
GRAEW2	001	0006	3715	
GRAEXA	001	0001	3699	3700 3701 3704 3705 3706
GRANCA	002	132C	3675	3540* 3547* 3648 3649*
GRANDA	002	1329	3671	3541* 3550* 3551* 3552* 3653* 3654* 3655*
GRANPB	002	1331	3680	3552 3655 3686 3687 3688
GRANPL	001	1327	3669	3657
GRANXC	002	1331	3688	
GRAONE	002	1331	3686	3625
GRAPSG	002	1336	3684	3598
GRASAR	004	1229	3571	3525*
GRASBR	004	1225	3569	3523*
GRASEG	001	1339	3689	3599* 3612* 3634*
GRASIZ	001	1332	3682	3542* 3559* 3561 3597* 3610* 3658*
GRASSG	002	1338	3685	3611
GRASSZ	002	132F	3679	3547
GRASVC	003	12AA	3615	3605*
GRATND	005	12C4	3624	3622* 3627 3629*
GRATXT	002	1334	3683	3587
GRA020	004	11BA	3530	3566*
GRA100	003	11CD	3539	3527
GRA140	003	11EB	3548	
GRA150	004	11F8	3552	3549
GRA200	003	11FF	3557	3534
GRA210	004	1205	3559	3535 3581
GRA220	003	120C	3561	3602 3604
GRA230	004	121B	3566	3558 3576 3580 3591
GRA240	004	1222	3568	3569
GRA245	004	1226	3570	3571
GRA250	003	122A	3572	3563 3565
GRA260	003	122D	3573	3553
GRA300	005	124B	3585	3532
GRA303	003	1268	3593	3589
GRA305	004	1274	3597	3595
GRA310	004	1286	3602	3593* 3596* 3603 3609* 3635 3713
GRA313	004	129A	3610	3608
GRA315	003	12A9	3614	3615
GRA316	004	12AC	3616	3636
GRA317	001	12B0	3617	3601
GRA320	005	12C1	3623	3624 3630
GRA330	004	12D4	3629	3626
GRA350	005	12DB	3631	3619 3621 3632
GRA360	003	12E0	3633	3628
GRA5SA	004	1320	3660	3640*
GRA500	003	12ED	3640	3572 3606
GRA600	001	12F6	3643	
GRA620	004	1310	3655	3652
GRA640	004	1314	3656	
GRA660	003	131A	3658	
GRA680	004	131D	3659	3660

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
GRBFRA	002	1326	3668	2935* 3539 3647 3648* 3650
GRBFR1	001	1B00	3262	3111 3668
GRLINE	001	1A05	3266	3061 3069* 3280 3585*
GRSCTR	001	132A	3672	3543
GRSRDA	002	1323	3663	2849* 2933* 3541 3664
GRTEND	005	12DE	3632	2968 3084 3207 3208* 3219 3229 3241* 3242* 3243 3246* 3587* 3616*
				3622 3627* 4038
GRTEXT	001	1A07	3270	2949 2997 3079 3590* 3683
GRTYPE	001	1A06	3268	2957 3088* 3586*
GRWHAT	001	132D	3676	2850* 2856* 2934* 2938* 3526 3531 3533 3577 3579
KROBFR	002	1005	3168	3218
KROBIT	001	00C0	3278	
KROBSB	001	0FD2	3107	2842 2846 2924
KROBT0	001	0080	3283	2926 3029
KROBT1	001	0040	3282	3023 3025
KROBYT	001	1A04	3280	3023
KROCAL	002	0FF9	3153	3034* 3038* 3042* 3045*
KROCAS	001	0FF8	3152	3047
KRODAB	001	0080	3260	2958
KRODAD	002	0FF3	3147	2849 2933
KRODC2	002	0FFD	3157	2863 3250
KRODP\$	001	0FD2	3108	2844 2931 2935
KROENC	002	0FE1	3123	2884 3054
KROEOF	002	0FD9	3113	2926* 3043
KROERR	001	0FEB	3137	3100
KROER1	001	0FEA	3136	3100
KROER2	001	0FEC	3138	3100 3101 3101*
KROER4	001	0FF0	3142	3101 3101*
KROHLN	002	0FDB	3117	2889 3045
KROINC	002	0FDF	3122	3005 3042 3087 3201
KROIND	001	0FF1	3144	2953 3087* 3098 3101
KROIN3	001	0003	3289	
KROLCT	002	0FE3	3125	2868* 2881* 2888* 2889
KROLNT	001	0601	3272	2883* 3033
KROMAX	001	00FA	3287	3084 3086* 3243 3246
KROMGP	002	0FF7	3149	2925* 3027
KROMN1	002	0FF5	3148	2969 3200
KRONLN	002	0FE5	3130	3064* 3068* 3069
KRONLS	001	0FE4	3129	3076
KROPR1	002	0FFF	3159	2860 2868 3034 3064
KROPR2	002	1001	3162	2857 3018 3061
KROPR3	002	1003	3165	2847* 2881 2888 3038 3068
KROSAV	002	0FDD	3118	2853* 2860 2863
KROSQU	001	1700	3276	3168
KROTLL	001	0004	3264	3051 3083 3210
KROTYP	001	1006	3170	2957* 2958* 2959 2961 2963 2965 2977 2981 2985 2987
KROWR1	002	0FE9	3134	3209* 3210* 3211* 3227 3236 3242 3249
KROWR2	001	0FEE	3140	2976* 2980* 2984* 3005*
KROWR3	002	0FFB	3155	3206* 3208 3241
KROXR1	001	1A00	3285	2946 2947
KROZER	002	0FE7	3132	
KRO200	004	0D22	2853	2858
KRO210	004	0D26	2854	2851
KRO230	004	0D4C	2868	2861 2864
KRO235	004	0DBE	2880	2887
KRO250	005	0DC9	2883	2869 2884*

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TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY = 0

```
OL105 I THE CODE LENGTH OF #KROVL IS 5888 DECIMAL.
OL103 I TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS 18
      NAME-#KROVL,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-R,CATEGORY-000
```

START ADDRESS	CATEGORY	NAME AND ENTRY	CODE	LENGTH	HEXADECIMAL	DECIMAL
---------------	----------	----------------	------	--------	-------------	---------

0D00	0	#KROVL	1700	5888
------	---	--------	------	------

```

OL100 I THE TOTAL CORE USED BY #KROVL IS 5888 DECIMAL.
OL101 I THE START CONTROL ADDRESS OF THIS MODULE IS 0D00.
OL104 I TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS 24
      NAME-#KROVL,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-O

```

E3B 2948 3097

KRO320 004 0E5C 2961 2954

KRO340 004 0E7B 2972 2964 2966 2968

KR0350 003 0E7F 2973 2978

KRO360 004 0E8E 2978 2975

KRO370 003 0E92 2980 2970

KRO400 003 0EBB 3001 2982 2986 2990

KRO410 003 0EC2 3006 3008 3010

KR0420 003 0ED4 3012 2977 3023

KRO430 004 0ED7 3017 3059

KRO440 005 0EE9 3022 3019

KRO450 004 0EEE 3023 2996* 3020*

KR0500 005 0F07 3031 3028

KR0520 004 0F13 3037 3030 3032

KR0530 003 0F1E 3041 3044

KR0540 005 0F25 3043 3039

KR0550 003 0F40 3051 3045 3048

KR0560 004 0F47 3053 3025*

KRO600 003 0F54 3057 2997* 3021* 3251*

KR0700 003 0F5E 3064 2992 3024 3057 3069*

KRO720 004 0F74 3072 3064

KRO730 005 0F78 3073 3070

KRO740 003 0F8B 3080 3076

KRO850	004	0FB6	3096	3066	3078	3089
--------	-----	------	------	------	------	------

KRO860 004 0FCE 3106 3103

KRO900 003 1007 3182 3017 3084

KRO905 003 100A 3183 3187

KRO910 004 1016 3189 3184

KRO912 004 1021 3192 3190

KRO915 004 102D 3195 3182*

KR0920 003 1031 3203 3054 3086

KRO925 003 1034 3204 3207

KRO930 004 1072 3230 3218

[illegible]

KR0937 003 1085 3236 3224* 3243*

KR0938 006 1098 3242 3238* 3239* 3240* 3241*

KR0940 005 10A1 3245 3217 3236

KR0945 003 10BA 3253 3248

KR0990 004 10C0 3256 3203*

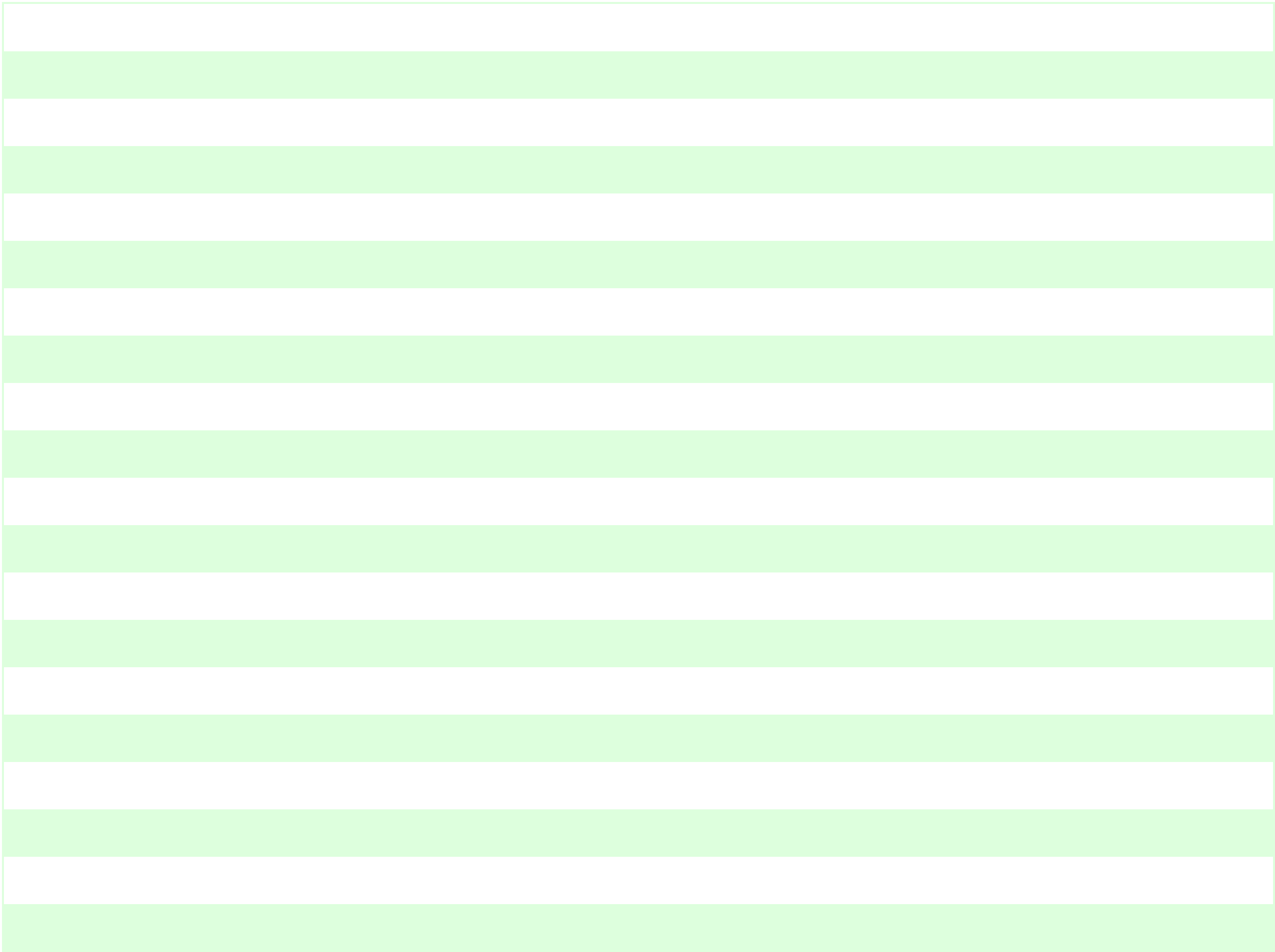
TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY = 1

OL105 I THE CODE LENGTH OF #KROVL IS 5761 DECIMAL.
* 3239* 3240* 3241*

KR0940 005 109E 3245 3217 3236

KR0945 003 10B7 3253 3248

KR0990 004 10BD 3256 3203*



TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY = 4

	3238*	3239*	3240*	3241*	
KRO940	005	109E	3245	3217	3236
KRO945	003	10B7	3253	3248	
KRO990	004	10BD	3256	3203*	

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY = 7

30*	3231*	3233*	3238	3239	3241
KRO937	003	1082	3236	3224*	3243*
KRO938	006	1095	3242	3238*	3239* 3240* 3241*
KRO940	005	109E	3245	3217	3236
KRO945	003	10B7	3253	3248	
KRO990	004	10BD	3256	3203*	

CROSS REFERENCE

SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 07/03/22 PAGE 84

MR UNDEFINED SYMBOL 4211

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY = 11

3217 3236

CROSS REFERENCE

SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 07/03/22 PAGE 84

KRO945 003 10B7 3253 3248
KRO990 004 10BD 3256 3203*
MR UNDEFINED SYMBOL 4211

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY = 16

OL105 I THE CODE LENGTH OF #KROVL IS 5758 DECIMAL.
OL103 I TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS 18
 NAME-#KROVL,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-R,CATEGORY-000

START ADDRESS	CATEGORY	NAME AND ENTRY	CODE LENGTH	HEXADECIMAL	DECIMAL
---------------	----------	----------------	-------------	-------------	---------

1200	0	#KROVL	167E	5758
------	---	--------	------	------

```

OL100 I THE TOTAL CORE USED BY #KROVL IS 5758 DECIMAL.
OL101 I THE START CONTROL ADDRESS OF THIS MODULE IS 1200.
OL104 I TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS 23
      NAME-#KROVL,PACK-F1F1F1,UNIT-F1,RETAIN-T,LIBRARY-O

```

69*

KR0720 004 0F71 3072 3064

KRO730 005 0F75 3073 3070

KRO740 003 0F88 3080 3076

KR0850 004 0FB3 3096 3066 3078 3089

KR0860 004 0FCB 3106 3103

KRO900 003 1000 3182 3017 3084

KR0905 003 1003 3183 3187

KR0910 004 100F 3189 3184

KR0912 004 101A 3192 3190

KR0915 004 1026 3195 3182*

KR0920 UNDEFINED SYMBOL 3054 3086

KR0925 003 102A 3204 3207

KR0930 004 1069 3230 3218

KR0933 005 106D 3233 3225

KR0935 006 1072 3234 3211* 3222* 3223* 3230 3230* 3233* 3238 3239 3241

KR0937 003 1078 3236 3224* 3243*

KR0938 006 108B 3242 3238* 3239* 3240* 3241*

KRO940 005 1094 3245 3217 3236

CROSS REFERENCE

SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 07/03/22 PAGE 84

KRO945 003 10A9 3253 3248
KRO990 004 10AF 3256
MR UNDEFINED SYMBOL 4211
SCAERR UNDEFINED SYMBOL 2956*

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY = 49

MGP 002 0FF2 3153 2929* 3031
KROMN1 002 0FF0 3152 2973 3204
KRONLN 002 0FE0 3134 3068* 3072* 3073
KRONLS 001 0FDF 3133 3080
KROPR1 002 0FF8 3163 2864 2872 3038 3068
KROPR2 002 0FFA 3166 2861 3022 3065
KROPR3 002 0FFC 3169 2851* 2885 2892 3042 3072

CROSS REFERENCE													
SYMBOL	LEN	VALUE	DEFN	REFERENCES	VER 15, MOD 00 07/03/22 PAGE 84								
KROSAV	002	0FDA	3122	2857*	2864	2867							
KROSOU	UNDEFINED SYMBOL			3172									
KROSQU	001	1700	3280										
KROTLI	001	0004	3268	3055	3087	3214							
KROTP	001	0FFF	3174	2961*	2962*	2963	2965	2967	2969	2981	2985	2989	2991
KROWR1	002	0FE4	3138	3213*	3214*	3215*	3240	3246	3253				
KROWR2	001	0FE9	3144	2980*	2984*	2988*	3009*						
KROWR3	002	0FF6	3159	3210*	3212	3245							
KROXR1	UNDEFINED SYMBOL			2950	2951								
KROZER	002	0FE2	3136										
KRO200	004	0D22	2857	2862									
KRO210	004	0D26	2858	2855									
KRO230	004	0D4C	2872	2865	2868								
KRO235	004	0DBE	2884	2891									
KRO250	005	0DC9	2887	2873	2888*								
KRO260	004	0DE5	2895	2886									
KRO300	004	0E13	2934	2894									
KRO310	004	0E3B	2948	3097									
KRO320	004	0E5C	2961	2954									
KRO340	004	0E7B	2972	2964	2966	2968							
KRO350	003	0E7F	2973	2978									
KRO360	004	0E8E	2978	2975									
KRO370	003	0E92	2980	2970									
KRO400	003	0EBB	3001	2982	2986	2990							
KRO410	003	0EC2	3006	3008	3010								
KRO420	003	0ED4	3012	2977	3023								
KRO430	004	0ED7	3017	3059									
KRO440	005	0EE9	3022	3019									
KRO450	004	0EEE	3023	2996*	3020*								
KRO500	005	0F04	3031	3028									
KRO520	004	0F10	3037	3032									
KRO530	003	0F1B	3041	3044									
KRO540	005	0F22	3043	3039									
KRO550	003	0F3D	3051	3045	3048								
KRO560	004	0F44	3053	3025*									
KRO600	003	0F51	3057	2997*	3021*	3251*							
KRO700	003	0F5B	3064	2992	3024	3057	3069*						
KRO720	004	0F71	3072	3064									
KRO730	005	0F75	3073	3070									
KRO740	003	0F88	3080	3076									
KRO850	004	0FB3	3096	3066	3078	3089							
KRO860	004	0FCB	3106	3103									
KRO900	003	1000	3182	3017	3084								
KRO905	003	1003	3183	3187									
KRO910	004	100F	3189	3184									
KRO912	004	101A	3192	3190									
KRO915	004	1026	3195	3182*									
KRO920	UNDEFINED SYMBOL			3054	3086								
KRO925	003	102A	3204	3207									
KRO930	004	1069	3230	3218									
KRO933	005	106D	3233	3225									
KRO935	006	1072	3234	3211*	3222*	3223*	3230	3230*	3233*	3238	3239	3241	
KRO937	003	1078	3236	3224*	3243*								
KRO938	006	108B	3242	3238*	3239*	3240*	3241*						

CROSS REFERENCE

SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 07/03/22 PAGE 85

KRO990 004 10AF 3256
MR UNDEFINED SYMBOL 4210
SCAERR UNDEFINED SYMBOL 2956*

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY = 93