

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	04/07/20	PAGE	2
0000			1	#BCOMP	START 0				
			2		PRINT ON,NODATA				
			3	*	@SYS EXP-N				
			214+		PRINT ON				
			215	*	@FXD EXP-N				
			620+		PRINT ON				
			621	*	@B@E EXP-N				
			1521+		PRINT ON				
			1522	*	@ERM EXP-N				
			2144+		PRINT ON				
			2145	*	\$V\$E EXP-N				
			2567+		PRINT ON				
		00A0	2568	\$\$\$NLN	EQU X 'A0 '		TEMP HJS 2020		

#BCOMP -- S/3 BASIC COMPILER CORE-RESIDENT SECTION

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/07/20	PAGE	3
		2570		*****				
		2571	*	5703-XM1 COPYRIGHT IBM CORP. 1970				*
		2572	*	REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083				*
		2573	*					*
		2574		*****				*
		2575	*	STATUS				*
		2576	*	VERSION 1 MODIFICATION 0				*
		2577	*					*
		2578	*	FUNCTION				*
		2579	*	* BGINIT IS THE FIRST PROGRAM TO BE EXECUTED IN THE CORE-RESIDENT				*
		2580	*	BASIC COMPILER (#BCOMP). THIS ROUTINE MODIFIES THE CORE-				*
		2581	*	RESIDENT COMPILER FOR AN EXPANDED CORE CONFIGURATION, MODIFIES				*
		2582	*	APPROPRIATE COMPILER CORE-RESIDENT ROUTINES FOR LONG PRECISION				*
		2583	*	PROCESSING. ESTABLISHES THE COMPILER FILENAME TABLE, AND SETS				*
		2584	*	COMPILE-TIME INDICATORS PRIOR TO THE START OF BASIC STATEMENT				*
		2585	*	PROCESSING.				*
		2586	*	* PRECISION MODIFICATIONS - WHEN LONG PRECISION EXECUTION HAS				*
		2587	*	BEEN SPECIFIED, THE FOLLOWING CORE-RESIDENT ROUTINES ARE MODI-				*
		2588	*	FIED FOR LONG PRECISION DATA GENERATION AND VIRTUAL MEMORY				*
		2589	*	VARIABLE ALLOCATION -				*
		2590	*	* BBPUTC - VIRTUAL MEMORY OUTPUT ROUTINE				*
		2591	*	* BCFCN - CONSTANT GENERATOR ROUTINE				*
		2592	*	* BDSYMB - SYMBOL TRANSLATOR ROUTINE				*
		2593	*	* BFSCAN - ARITHMETIC EXPRESSION SCAN ROUTINE.				*
		2594	*	* CORE EXPANSION MODIFICATIONS - WHEN THE SYSTEM HAS BEEN CONFI-				*
		2595	*	GURED BEYOND 8K (I.E. \$EXFTR IS NOT ZERO), ALL POSSIBLE DISK-				*
		2596	*	RESIDENT STATEMENT PROCESSORS ARE LOADED INTO THIS ADDITIONAL				*
		2597	*	CORE REGION. THE STATEMENT PROCESSOR DISTRIBUTOR TABLE IN				*
		2598	*	BHDIST IS MODIFIED TO INDICATE CORE (RATHER THAN DISK) ADDRES-				*
		2599	*	SING FOR STATEMENT PROCESSORS OCCUPYING THE EXPANSION REGION.				*
		2600	*	* PROGRAM 'DATA' FILE POINTER - THE COMPILE-TIME 'DATA' FILE				*
		2601	*	POINTER (\$INLNO) IS INITIALIZED TO BINARY ZEROS.				*
		2602	*	* PRIMARY INPUT BUFFER CLEAR SWITCH - THIS SWITCH (BIT \$CLBFR IN				*
		2603	*	SYSTEM INDICATOR \$INDR3) IS SET ON TO INDICATE BUFFER CLEARING				*
		2604	*	WHEN CONTROL IS RETURNED TO THE SYSTEM AFTER EXECUTION.				*
		2605	*					*
		2606	*	ENTRY POINTS				*
		2607	*	THIS ROUTINE HAS A SINGLE ENTRY POINT - BGINIT - WHOSE FUNCTION				*
		2608	*	IS DEFINED ABOVE. SINCE THIS IS ALSO THE ENTRY POINT FOR THE				*
		2609	*	CORE-RESIDENT BASIC COMPILER (#BCOMP), THE NORMAL CALLING				*
		2610	*	SEQUENCE FOR PROGRAM LOADING AND EXECUTION IS				*
		2611	*	B \$RLOAD				*
		2612	*	DC AL2(DPLADR)				*
		2613	*	WHERE DPLADR IS THE LABEL ASSOCIATED WITH THE #BCOMP-LOADING DISK				*
		2614	*	PARAMETER LIST. BGINIT ENTRY IS SUBJECT TO THE INPUT CONDITIONS				*
		2615	*	DESCRIBED BELOW.				*
		2616	*					*
		2617	*	INPUT				*
		2618	*	* \$XIND1 - 1 BYTE, FOR SYSTEM EXECUTION INDICATOR 1. THIS CON-				*
		2619	*	TAINS AN INDICATOR BIT (\$XPREC) WHICH SPECIFIES CURRENT EXECU-				*
		2620	*	TION PRECISION AS FOLLOWS -				*
		2621	*	* INDICATOR BIT \$XPREC = 0 FOR STANDARD PRECISION.				*
		2622	*	* INDICATOR BIT \$XPREC = 1 FOR LONG PRECISION.				*
		2623	*	* \$EXFTR - 1 BYTE, FOR THE SYSTEM CORE EXTENSION FACTOR. THIS				*
		2624	*	CONTAINS A VALUE OF ZERO WHEN CORE IS CONFIGURED AT 8K, OR THE				*
		2625	*	NUMBER OF CORE 'PAGES' AVAILABLE BEYOND 8K WHEN CORE HAS BEEN				*

#BCOMP -- S/3 BASIC COMPILER CORE-RESIDENT SECTION

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 4
		2626	*	EXPANDED.	*
		2627	*	* WORK FILE I/O RECORD - 256 BYTES, FOR THE RUN-TIME FILE	*
		2628	*	DIRECTORY 1. THIS I/O RECORD, WHICH IS LOADED BY THE SYSTEM	*
		2629	*	INTO THE COMPILER PMC OUTPUT BUFFER PRIOR TO BGINIT EXECUTION,	*
		2630	*	CONTAINS EIGHT 32-BYTE SUB-RECORDS WHICH DEFINE THE FILES TO BE	*
		2631	*	OPERATED ON BY THE PROGRAM BEING COMPILED. EACH SUB-RECORD	*
		2632	*	OBEYS THE FOLLOWING PARTIAL FORMAT -	*
		2633	*	* BYTE 0 - THE FILE DEVICE CODE. WHEN THIS BYTE CONTAINS	*
		2634	*	CODE X'00', A NULL RECORD (I.E. END OF THE I/O RECORD) IS	*
		2635	*	INDICATED.	*
		2636	*	* BYTES 1-8 - THESE CONTAIN THE 8-BYTE 'GET'/'PUT' FILENAME	*
		2637	*	WHEN THE SUB-RECORD IS NOT NULL.	*
		2638	*	* SYSTEM (DISK) WORK AREA - DISK CYLINDER 4. THIS CONTAINS 24	*
		2639	*	SECTORS (AN ENTIRE DISK TRACK) OF DISK-RESIDENT BASIC STATEMENT	*
		2640	*	PROCESSING ROUTINES. WHEN \$EXFTR IS NOT ZERO, SOME OR ALL OF	*
		2641	*	THESE PROCESSOR MODULES ARE LOADED TO REMAIN IN CORE DURING	*
		2642	*	COMPILATION.	*
		2643	*	* STATEMENT PROCESSOR ADDRESS TABLE (SEE BHDIST) - THIS CONTAINS	*
		2644	*	40 3-BYTE ENTRIES, ONE FOR EACH BASIC STATEMENT TYPE. EACH	*
		2645	*	ENTRY HAS THE FOLLOWING FORMAT -	*
		2646	*	* BYTES 0,1 - STATEMENT PROCESSOR CORE ENTRY ADDRESS.	*
		2647	*	* BYTE 2 - PHYSICAL DISK SECTOR ADDRESS (WITHIN A SINGLE	*
		2648	*	TRACK), OR CODE X'FF' WHEN THE PROCESSOR IS NORMALLY A	*
		2649	*	CORE-RESIDENT ROUTINE.	*
		2650	*		*
		2651	*	*OUTPUT	*
		2652	*	* \$INDR3 - 1 BYTE, FOR SYSTEM INDICATOR 3. INDICATOR BIT \$CLBFR	*
		2653	*	* SINLNO - 2 BYTES, FOR THE COMPILE-TIME PROGRAM 'DATA' FILE	*
		2654	*	POINTER. THIS IS CLEARED TO BINARY ZEROS.	*
		2655	*	* BBPUTC PRECISION DEPENDENT AREAS - THE VIRTUAL MEMORY BASE	*
		2656	*	ADDRESS FOR CONSTANT ALLOCATION IS MODIFIED WHEN LONG PRECISION	*
		2657	*	IS INDICATED.	*
		2658	*	* BCFCON PRECISION DEPENDENT AREAS - FLOATING POINT DATA LENGTH	*
		2659	*	AND PRECISION PARAMETERS, AS WELL AS THE VIRTUAL MEMORY BASE	*
		2660	*	ADDRESS FOR CONSTANT ALLOCATION, ARE MODIFIED WHEN LONG PRECI-	*
		2661	*	SION IS INDICATED.	*
		2662	*	* BDSYMB PRECISION DEPENDENT AREAS - FLOATING POINT DATA LENGTH	*
		2663	*	AND THE VIRTUAL MEMORY BASE ADDRESS FOR VARIABLE ALLOCATION ARE	*
		2664	*	MODIFIED WHEN LONG PRECISION IS INDICATED.	*
		2665	*	* BFSCAN PRECISION DEPENDENT AREAS - VIRTUAL ADDRESSES ASSOCIATED	*
		2666	*	WITH EACH INTERNAL CONSTANT OR INTERNAL VARIABLE ARE MODIFIED	*
		2667	*	WHEN LONG PRECISION IS INDICATED.	*
		2668	*	* STATEMENT PROCESSOR ADDRESS TABLE (SEE INPUT) - WHEN \$EYFNR IS	*
		2669	*	NOT ZERO, THIS TABLE IS MODIFIED FOR EACH STATEMENT PROCESSOR	*
		2670	*	LOADED INTO THE EXPANDED CORE REGION. EACH ENTRY ASSOCIATED	*
		2671	*	WITH SUCH A PROCESSING ROUTINE IS UPDATED TO CONTAIN THE NEW	*
		2672	*	CORE ENTRY ADDRESS, AND TABLE ENTRY BYTE 2 IS SET TO CODE X'FF'	*
		2673	*	TO INDICATE CORE-RESIDENCY.	*
		2674	*	* EXPANDED CORE REGION - WHEN \$EXFTR IS NOT ZERO, UP TO 24 PAGES	*
		2675	*	(256-BYTE BLOCKS) IN THIS REGION ARE LOADED WITH NORMALLY DISK-	*
		2676	*	RESIDENT COMPILER STATEMENT PROCESSORS. LOADING SEQUENCE IS	*
		2677	*	THE SAME AS THE PROCESSOR STORAGE SEQUENCE ON DISK (I.E, THE	*
		2678	*	ASSEMBLY SEQUENCE FOR COMPILER OVERLAY MODULE GROUP #BOVLY).	*
		2679	*		*
		2680	*	EXTERNAL REFERENCES	*
		2681	*	* BHDIST - ENTRY POINT FOR COMPILER STMT PROCESSOR DISTRIBUTOR.	*

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		2682	*	* \$DISKN - ENTRY POINT FOR THE SYSTEM PHYSICAL DISK 10CS.	*	
		2683	*	* \$WAITF - CORE ADDRESS OF 'WAIT' FUNCTION DISK PARAMETER LIST.	*	
		2684	*	* \$XIND1 - 1 BYTE, FOR SYSTEM EXECUTION INDICATOR 1.	*	
		2685	*	* \$XPREC - PRECISION INDICATOR BIT IN \$XIND1.	*	
		2686	*	* \$XIND1 - 1 BYTE, FOR SYSTEM INDICATOR 3.	*	
		2687	*	* \$CLBFR - PRIMARY BUFFER CLEAR INDICATOR BIT IN \$INDR3.	*	
		2688	*	* \$INLNO - 2 BYTES, FOR THE SYSTEM LINE NUMBER PARAMETER. THIS IS	*	
		2689	*	USED IN BGINIT AS A PROCESSOR COMMUNICATION PARAMETER.	*	
		2690	*	* \$EXFTR - 1 BYTE, FOR THE SYSTEM CORE EXTENSION FACTOR.	*	
		2691	*	* B\$PTBF - CORE ADDRESS OF THE COMPILER PMC OUTPUT BUFFER LEFT-	*	
		2692	*	MOST BYTE.	*	
		2693	*	* B\$CSBF - CORE ADDRESS OF THE COMPILER STATEMENT PROCESSOR	*	
		2694	*	TRANSIENT BUFFER LEFTMOST BYTE.	*	
		2695	*	* B\$CSXA - CORE ADDRESS OF THE FIRST BYTE AVAILABLE BEYOND 8K IN	*	
		2696	*	AN EXPANDED CORE CONFIGURATION SYSTEM.	*	
		2697	*	* BZFILT - CORE ADDRESS OF THE COMPILER FILENAME TABLE LEFTMOST	*	
		2698	*	BYTE.	*	
		2699	*	* BZSPAT - CORE ADDRESS OF THE STATEMENT PROCESSOR TABLE FIRST	*	
		2700	*	ENTRY LOCATION.	*	
		2701	*	* BZPPWA - CORE ADDRESS OF BBPUTC PRECISION PARAMETER AREA RIGHT-	*	
		2702	*	MOST BYTE.	*	
		2703	*	* BZCPWA - CORE ADDRESS OF BCFCON PRECISION PARAMETER AREA RIGHT-	*	
		2704	*	MOST BYTE.	*	
		2705	*	* BZDPWA - CORE ADDRESS OF BDSYMB PRECISION PARAMETER AREA RIGHT-	*	
		2706	*	MOST BYTE.	*	
		2707	*	* BZFPWA - CORE ADDRESS OF BFSCAN PRECISION PARAMETER AREA RIGHT-	*	
		2708	*	MOST BYTE.	*	
		2709	*		*	
		2710	*	*EXITS, NORMAL	*	
		2711	*	CONTROL IS ALWAYS PASSED TO THE COMPILER DISTRIBUTOR, BHDIST.	*	
		2712	*		*	
		2713	*	*EXITS, ERROR	*	
		2714	*	N/A	*	
		2715	*		*	
		2716	*	* TABLES/WORK AREAS	*	
		2717	*	* RBPUTC MODIFICATION CONSTANTS - 1 BYTE, FOR THE BASE VIRTUAL	*	
		2718	*	MEMORY PAGE NUMBER FOR LONG PRECISION CONSTANTS.	*	
		2719	*	* BCFCON MODIFICATION CONSTANTS - 5 BYTES, FOR LONG PRECISION	*	
		2720	*	FLOATING POINT ELEMENT PARAMETERS AND THE STARTING VIRTUAL	*	
		2721	*	ADDRESS FOR LONG PRECISION CONSTANT STORAGE.	*	
		2722	*	* BDSYMB MODIFICATION CONSTANTS - 4 BYTES, FOR LONG PRECISION	*	
		2723	*	FLOATING POINT ELEMENT PARAMETERS AND THE STARTING VIRTUAL	*	
		2724	*	ADDRESS FOR SCALAR VARIABLE ALLOCATION.	*	
		2725	*	* BFSCAN MODIFICATION CONSTANTS - 14 BYTES, FOR LONG PRECISION	*	
		2726	*	VIRTUAL ADDRESSES ASSOCIATED WITH EACH (SIGNED) BASIC INTERNAL	*	
		2727	*	CONSTANT AND THE SINGLE INTERNAL VARIABLE.	*	
		2728	*	* BGISDP - 3 BYTES, FOR THE VIRTUAL MEMORY SEEK DISK PARAMETERS	*	
		2729	*	USED TO MOVE THE DISK UNIT READ/WRITE HEADS TO THE VIRTUAL	*	
		2730	*	MEMORY BASE CYLINDER ADDRESS PREPARATION FOR COMPILER OPERATIONS.	*	
		2731	*	* BGIPDL - A BYTES, FOR THE STATEMENT PROCESSOR CORELOAD DISK	*	
		2732	*	PARAMETERS USED TO LOAD PROCESSOR MODULES INTO AN AVAIL-	*	
		2733	*	ABLE CORE EXPANSION REGION.	*	
		2734	*	* PROCESSOR TRANSIENT AREA - 256 BYTES, FOR COMPILE-TIME STATE-	*	
		2735	*	NENT PROCESSOR EXECUTION. THIS AREA IS USED TO LOAD AND EXE-	*	
		2736	*	CUTE STATEMENT PROCESSORS WHICH CANNOT BE KEPT CORE-RESIDENT.	*	
		2737	*		*	

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 6
		2738	*	THE TRANSIENT AREA BEGINS AT THE LOAD ADDRESS FOR #BCOMP. AND	*
		2739	*	OVERLAYS BGINIT AS WELL AS THE 7-BYTE COMPILER PROGRAM HEADER.	*
		2740	*		*
		2741	*	*ATTRIBUTES	*
		2742	*	* * RELOCATABLE	*
		2743	*		*
		2744	*	*CHARACTER CODE DEPENDENCY	*
		2745	*	THE OPERATION OF THIS MODULE DEPENDS UPON AN INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET WHICH IS EQUIVALENT TO THE	*
		2746	*	ONE USED AT ASSEMBLY TIME. THE CODING HAS BEEN ARRANGED SO THAT	*
		2747	*	REDEFINITION OF CHARACTER CONSTANTS, BY REASSEMBLY, WILL RESULT	*
		2748	*	IN A CURRENT MODULE FOR THE NEW DEFINITIONS.	*
		2749	*		*
		2750	*		*
		2751	*	*NOTES	*
		2752	*	ERROR PROCEDURES	*
		2753	*	N/A	*
		2754	*		*
		2755	*	REGISTER USAGE	*
		2756	*	* REGISTER @BR IS NOT SAVED. IT IS USED AS A BASE REGISTER	*
		2757	*	AND ALSO AS A GENERAL PURPOSE INDEX REGISTER.	*
		2758	*	* REGISTER @XR IS NOT SAVED. IT IS USED AS A GENERAL PURPOSE	*
		2759	*	INDEX REGISTER.	*
		2760	*		*
		2761	*	SAVED/RESTORE AREAS	*
		2762	*	N/A	*
		2763	*		*
		2764	*	MODIFICATION CONSIDERATIONS	*
		2765	*	BGINIT PERFORMS SPECIFIC PRECISION DIRECTED MODIFICATIONS CO	*
		2766	*	COMPILER ROUTINES BBPULT, BCFCN, BDSYMB, AND BFSCAN. CHANGES	*
		2767	*	TO PRECISION SENSITIVE CODING IN ANY OF THESE ROUTINES OR TO	*
		2768	*	THE MODIFICATION CODING IN BGINIT MUST BE CONDUCTED SUCH THAT	*
		2769	*	A CONSISTENT RELATIONSHIP IS MAINTAINED.	*
		2770	*		*
		2771	*	REQUIRED MODULES	*
		2772	*	* @SYSEQ - COMMON SYSTEM EQUATES.	*
		2773	*	* @FXDEQ - SYSTEM NUCLEUS ADDRESSES AND INDICATOR EQUATES.	*
		2774	*	* @VMDEQ - VIRTUAL MEMORY DIRECTORY EQUATES.	*
		2775	*	* \$B\$EQU - COMPILER FIXED LOCATION ADDRESS EQUATES.	*
		2776	*	* \$B@EQU - COMPILER PARAMETER AND CONSTANT EQUATES.	*
		2777	*	* BBPUTC - COMPILER VIRTUAL MEMORY OUTPUT ROUTINE.	*
		2778	*	* BCFCN - COMPILER CONSTANT GENERATOR ROUTINE.	*
		2779	*	* BDSYMB - COMPILER SYMBOL TRANSLATOR ROUTINE.	*
		2780	*	* BFSCAN - COMPILER ARITHMETIC EXPRESSION PROCESSING ROUTINE.	*
		2781	*	* BHDIST - COMPILER STATEMENT PROCESSOR DISTRIBUTOR.	*
		2782	*	* BZCOMN - COMPILER COMMON AREAS AND ADDRESS REFERENCE EQUATES.	*
		2783	*		*
		2784	*	OTHER	*
		2785	*	N/A	*
		2786	*	*****	*
		2788	*	HDR #BCOMP	*
		2789	*	*****	*
		2790	*	PROGRAM HEADER FOR DISK LOAD	*
		2791	*	*****	*
0080	2792	\$B\$COM EQU	X'0080'	DISK ADDR OF #BCOMP	
0600	2793	\$B\$BCO EQU	X'0600'	CORE LOAD ADDRESS OF #BCOMP	

#BCOMP -- S/3 BASIC COMPILER CORE-RESIDENT SECTION

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/07/20	PAGE	7
				0018	2794	#\$@BCO EQU	024				SECTOR CNT OF #BCOMP
0600					2795	ORG	\$\$\$BCO				CORE LOAD ADDRESS
				0600	2796	\$\$\$\$\$\$ EQU	*				FIRST LOCATION IN PROGRAM
0600	7BC2C3D6D4D7			0605	2797	DC	CL6 '#BCOMP'				PROGRAM NAME
0606	04			0606	2798	DC	IL1 '004'				PROGRAM NUMBER OF #BCOMP
				0607	2799	#BCOM EQU	*				ENTRY POINT TO PROGRAM
				2800		***	END OF EXPANSION ***				
				2802		*****					
				2803		* COMPILER ENTRY - INITIALIZE CORE RESIDENT COMPILER					
				2804		*****					
				2805		*					
				2806		* ENTER BGINIT - BEGIN DISK SEEK TO VIRTUAL MEMORY					
				2807		*					
				0607	2808	BGINIT EQU	*				BGINIT ENTRY POINT
				0611	2809	USING	BGI010,@BR				DEFINE BGINIT BASE ADDRESS
0607	3A 10 03D6				2810	SBN	\$INDR3,\$CLBFR				SET SYSTEM I/P BUFF CLEAR SW ON
060B	C0 87 0025				2811	B	\$DISKN				LINK TO INITIATE A DISK SEEK
060F	06A0			0610	2812	DC	AL(@CADDR)(BGISDP)				DISK SEEK PARAMETER LIST CADDR
				0611	2814	BGI010 EQU	*				BGINIT BASE ADDRESS
				2815		*					
				2816		* ESTABLISH ADDRESSABILITY FOR THE INITIATOR					
				2817		*					
0611	C2 01 0611			2818	BGI040 LA	BGI010,@BR					LOAD BGINIT BASE REGISTER
				2819		*					
				2820		* INITIALIZE THE PROGRAM DATA FILE POINTER (FOR 'DATA' STATEMENT)					
				2821		*					
0615	0F 01 03CF 03CF			2822	BGI045 SLC	\$INLNO,\$INLNO(@VADDR)					CLEAR THE 'DATA' FILE POINTER
				2823		*					
				2824		* TEST SYSTEM EXECUTION INDICATOR-1 FOR LONG PRECISION PROCESSING					
				2825		*					
061B	38 40 03D0			2826	BGI050 TBN	\$XIND1,\$XPREC					TEST FOR LONG PRECISION
061F	F2 90 14			2827		JF	BGI070				BRANCH IF STANDARD PRECISION
				2828		*					
				2829		* INITIALIZE COMPILER CORE RESIDENT ROUTINES FOR LONG PRECISION					
				2830		*					
0622	1C 00 0A35 98			2831	BGI060 MVC	BZPPWA,BGIPPA(BGIPPL,@BR)					SET OUTPUT ROUTINE FOR LP
0627	1C 04 0CA6 9D			2832		MVC	BZCPWA,BGICPA(BGICPL,@BR)				SET CONSTANT ROUTINE FOR LP
062C	1C 03 0E46 A1			2833		MVC	BZDPWA,BGISPA(BGISPL,@BR)				SET SYMBOL ROUTINE FOR LP
0631	1C 0D 15AC AF			2834		MVC	BZFPWA,BGIAPA(BGIAPL,@BR)				SET ARITH EXPR SCAN RTN FOR LP
				2835		*					
				2836		* TEST SYSTEM EXTENSION FACTOR FOR AVAILABLE CORE IN EXCESS OF 8K					
				2837		*					
0636	3D 00 043B			2838	BGI070 CLI	\$EXFTR,@ZERO					TEST FOR CORE AVAILABILITY
063A	D0 81 8A			2839		BE	BGI200(,@BR)				BRANCH IF NO CORE BEYOND 8K
				2840		*****					
				2841		* ROUTINE TO UTILIZE EXTENDED CORE FOR STATEMENT PROCESSORS					
				2842		*****					
				2843		*					
				2844		* ESTABLISH NUMBER OF PROCESSOR SECTORS TO BE CORELOADED					
				2845		*					
063D	4C 00 95 043B			2846	BGI100 MVC	BGIDCT(,@BR),\$EXFTR(1)					MOVE EXTRA CORE SCTR CNT TO DPL
0642	7D 18 95			2847		CLI	BGIDCT(,@BR),B@DSNS				TEST FOR MORE CORE THAN NEEDED
0645	F2 04 03			2848		JNH	BGI110				BRANCH IF NOT TOO MUCH CORE
0648	7C 18 95			2849		MVI	BGIDCT(,@BR),B@DSNS				SET SCTR CNT FOR ALL PROCESSORS

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					2850	*					
					2851	*	BEGIN TO CORELOAD THE SELECTED STATEMENT PROCESSORS				
					2852	*					
064B	C0	87	0025		2853	BGI110	B \$DISKN LINK TO READ STMT PROCESSORS				
064F	06A3			0650	2854		DC AL(@CADDR)(BGIDPL) CADDR FOR STMT PROCESSOR DPL				
					2855	*					
					2856	*	INITIALIZE FOR STATEMENT PROCESSOR ADDRESS TABLE MODIFICATION				
					2857	*					
0651	C2	02	07DD		2858	BGI120	LA BZSPAT-B@LSPT,@XR LOAD STMT PROCESSOR TABLE BASE				
0655	7C	28	B0		2859		MVI BGICNT(,@BR),B@NSPT INITIALIZE TABLE ENTRY COUNTER				
					2860	*					
					2861	*	INCREMENT STATEMENT PROCESSOR TABLE POINTER AND TEST FOR A NORMALLY				
					2862	*	CORE RESIDENT PROCESSOR ENTRY				
					2863	*					
0658	E2	02	03		2864	BGI130	LA B@LSPT(,@XR),@XR INCR STMT PROC TABLE POINTER				
065B	BD	FF	02		2865		CLI B@PTSA(,@XR),B@CPMK IF TABLE ENTRY NORMALLY CORE				
065E	F2	81	2D		2866		JE BGI180 * RESIDENT. GO CONTINUE LOOP				
					2867	*					
					2868	*	CURRENT TABLE ENTRY REFERENCES NORMALLY DISK RESIDENT PROCESSOR -				
					2869	*	INITIALIZE FOR SECTOR ADDRESS CONVERSION AND ANALYSIS				
					2870	*					
0661	6C	00	B2 02		2871	BGI140	MVC BGIPSA(,@BR),B@PTSA(1,@XR) ESTABLISH TABLE ENTRY SECTOR				
0665	7C	00	B1		2872		MVI BGIPSA-1(,@BR),@ZERO * ADDR IN SECTOR ADDR BUCKET				
					2873	*					
					2874	*	CONVERT THE PHYSICAL SECTOR ADDRESS TO A DISPLACEMENT RELATIVE TO				
					2875	*	THE ADDRESS OF THE 1ST SECTOR RESERVED FOR STATEMENT PROCESSORS -				
					2876	*	IT IS ASSUMED THAT ALL STATEMENT PROCESSORS ARE CONTAINED WITHIN				
					2877	*	A SINGLE DISK TRACK				
					2878	*					
0668	5F	00	B2 94		2879	BGI150	SLC BGIPSA(,@BR),BGIDSA(1,@BR) REDUCE SCTR ADDR TO 4 * DISP				
066C	5E	01	B2 B2		2880		ALC BGIPSA(,@BR),BGIPSA(BGISBL,@BR) SHIFT REDUCED SCTR ADDR				
0670	5E	01	B2 B2		2881		ALC BGIPSA(,@BR),BGIPSA(BGISBL,@BR) * LEFT TO MAKE 16 * DISP				
0674	58	02	B2 B2		2882		MNZ BGIPSA(,@BR),BGIPSA(,@BR) MOVE BOTH HALVES OF RESULT				
0678	58	01	B2 B1		2883		MZN BGIPSA(,@BR),BGIPSA-1(,@BR) * RIGHT TO FORM FINAL DISP				
					2884	*					
					2885	*	TEST IS DETERMINE WHETHER PROCESSOR REFERENCED BY THIS TABLE ENTRY				
					2886	*	IS INCLUDED IN PROCESSOR GROUP BEING CORELOADED.				
					2887	*					
067C	5D	00	B2 95		2888	BGI160	CLC BGIPSA(,@BR),BGIDCT(1,@BR) COMPARE SECTOR DISP WITH MD.				
					2889	*	* OF SECTORS CORELOADED				
0680	F2	02	0B		2890		JNL BGI180 GO CONTINUE LOOP WHEN THIS				
					2891	*	* PROCESSOR NOT CORELOADED				
					2892	*					
					2893	*	CURRENT TABLE ENTRY REFERENCES A PROCESSOR BEING CORELOADED -				
					2894	*	MODIFY THE TABLE ENTRY TO SUPPORT THIS CONDITION				
					2895	*					
0683	9C	00	00 96		2896	BGI170	MVC B@PTAB(,@XR),BGIDCA-1(1,@BR) MODIFY PROCESSOR ENTRY POINT				
0687	9E	00	00 B2		2897		ALC B@PTAB(,@XR),BGIPSA(1,@BR) * FOR THE NEW CORE LOCATION				
068B	BC	FF	02		2898		MVI B@PTSA(,@XR),B@CPMK INDICATE A CORE RESIDENT PROC				
					2899	*					
					2900	*	TEST FOR END OF PROCESSOR ADDRESS TABLE MODIFICATION				
					2901	*					
068E	5F	00	B0 8E		2902	BGI180	SLC BGICNT(,@BR),BGIBN1(1,@BR) DECREMENT TABLE ENTRY COUNTER				
0692	D0	84	47		2903		BH BGI130(,@BR) GO CONTINUE MODIFICATION LOOP				
					2904	*	* IF MORE TABLE ENTRIES REMAIN				
					2905	*					

[illegible]

#BCOMP -- S/3 BASIC COMPILER CORE-RESIDENT SECTION

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/07/20	PAGE	10
		2913		*****				
		2914		* COMPILER INITIATOR EXIT ROUTINE				
		2915		*****				
		2916		*				
		2917		* BRANCH TO PROCESS BASIC PROGRAM STATEMENTS				
		2918		*				
069B	C0 87 0700	2919	BGI200 B	BHDIST			BRANCH TO DISTIBUTOR	
		2920		*				
		2921		*****				

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/07/20	PAGE	11
				2923	*****				
				2924	* INITIATOR PROGRAM CONSTANTS				
				2925	*****				
				2926	*				
069F	01		069F	2927	BGIBN1 DC IL1'1'				BINARY INTEGER +1
				2928	*				
				2929	*****				
				2930	* INITIATOR DISK PARAMETER LISTS				
				2931	*****				
				2932	*				
			06A0	2933	BGISDP EQU *				VM SEEK DISK PARAM LIST CADDR
06A0	00		06A0	2934	BGISFN DC AL1(@DPOS)				DISK IOCR 'SEEK' FUNCTION
06A1	07		06A1	2935	BGISCY DC AL1(B@DVCY)				1ST VIRTUAL MEMORY CYLINDER
06A2	00		06A2	2936	BGISSA DC XL1'00'				DUMMY SECTOR ADDRESS PARAM
				2937	*				
			06A3	2938	BGIDPL EQU *				STMT PROC CORELOAD DPL CADDR
06A3	01		06A3	2939	BGIDFN DC AL1(@DGET)				DISK IOCR 'READ' FUNCTION
06A4	04		06A4	2940	BGIDCY DC AL1(B@DSCY)				STATEMENT PROCESSOR CYLINDER
06A5	00		06A5	2941	BGIDSA DC AL1(B@DSS1)				SECTOR ADDR FOR 1ST STMT PROC
06A6			06A6	2942	BGIDCT DS CL1				NO. OF SECTORS TO CORELOAD
06A7	2000		06A8	2943	BGIDCA DC AL(@CADDR)(B\$CSXA)				PROC CORELOAD STARTING CADDR

#BCOMP -- S/3 BASIC COMPILER CORE-RESIDENT SECTION

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/07/20 PAGE 12
		2945		*****		
		2946		* LONG PRECISION MODIFICATION CONSTANTS FOR OUTPUT ROUTINE		
		2947		*****		
		2948		*		
		06A9	2949	BGIPPS EQU *	START OF OUTPUT RTN PREC CONS	
		2950		*		
06A9 F0CD		06A9	2951	BGIWSA EQU *	LOGICAL SECTOR ADDR (VH PAGE)	
06AA		06AA	2952	DC AL (@VADDR) (B@VMLB)	* REFERENCING PAGE PRECEDING	
		2953		ORG *-1	* 1ST PAGE SET FOR CONSTANTS	
		2954		*		
		06A9	2955	BGIPPA EQU *-1	CADDR OF OUTPUT RTN PREC CONS	
		0001	2956	BGIPPL EQU BGIPPA-BGIPPS+1	LENGTH OF OUTPUT RTN PREC CONS	

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/07/20 PAGE 13
			2958	*****	*****	
			2959	* LONG PRECISION MODIFICATION CONSTANTS FOR CONSTANT GENERATOR		
			2960	*****	*****	
			2961	*		
		06AA	2962	BGICPS EQU *	START OF CON GEN RTN PREC CONS	
			2963	*		
06AA	20	06AA	2964	BGIPRC DC	AL1(B@PREC)	ARITH PRECISION STATUS INDR
			2965	*		
06AB	0F	06AB	2966	BGIMNL DC	AL1(B@LELP-1)	UNPACKED FLOATING MANTISSA LNG
			2967	*		
06AC	09	06AC	2968	BGICFL DC	AL1(B@LILP)	PACKED FLOATING ELEMENT LENGTH
			2969	*		
06AD	EFCD	06AE	2970	BGICVA DC	AL(@VADDR)(B@VMLB-B@LVPG)	VIRTUAL ADDRESS OF RIGHTMOST
06AE			2971	ORG	*-1	* BYTE IN FIRST (HIGHEST) PAGE
06AE	FF	06AE	2972	DC	AL1(B@LVPG-1)	* ALLOCATED FOR CONSTANTS
			2973	*		
		06AE	2974	BGICPA EQU	*-1	CADDR OF CON GEN RTN PREC CONS
		0005	2975	BGICPL EQU	BGICPA-BGICPS+1	LENGTH OF CON GEN RTN PREC CONS

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/07/20 PAGE 14
		2977		*****		
		2978		* LONG PRECISION MODIFICATION CONSTANTS FOR SYMBOL ROUTINE		
		2979		*****		
		2980		*		
		06AF	2981	BGISPS EQU *	START OF SYMBOL RTN PREC CONS	
		2982		*		
06AF	0009	06B0	2983	BGISFL DC	AL(@VADDR)(B@LILP)	PACKED FLOATING ELEMENT LENGTH
		2984		*		
06B1	F0CD	06B2	2985	BGIVRB DC	AL(@VADDR)(B@VMLB)	VIRTUAL ADDRESS OF LEFTMOST
06B2		2986		ORG *-1		* BYTE IN FIRST VM LOCATION
06B2	52	06B2	2987	DC	AL1(B@NIEL*B@LILP+B@LCRV)	* ALLOCATED FOR VARIABLES 1-4
		2988		*		
		06B2	2989	BGISPA EQU *-1		CADDR OF SYMBOL RTN PREC CONS
		0004	2990	BGISPL EQU	BGISPA-BGISPS+1	LENGTH OF SYMBOL RTN PREC CONS

#BCOMP -- S/3 BASIC COMPILER CORE-RESIDENT SECTION

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/07/20	PAGE 15
				2992	*****				
				2993	* LONG PRECISION MODIFICATION CONSTANTS FOR ARITHMETIC SCAN ROUTINE				
				2994	*****				
				2995	*				
			06B3	2996	BGIAPS EQU	* START OF ARITH SCAN PREC CONS			
				2997	*				
06B3	F0CD		06B4	2998	BGIAIW DC	AL (@VADDR) (B@VMLB) VIRTUAL ADDRESS OF			
06B4				2999	ORG	*-1 * INTERNAL VARIABLE &WRK			
06B4	49		06B4	3000	DC	AL1 (B@NIEL*B@LILP-1*B@LILP+B@LCRV) 1-4			
				3001	*				
06B5	F0CD		06B6	3002	BGIAME DC	AL (@VADDR) (B@VMLB) VIRTUAL ADDRESS OF			
06B6				3003	ORG	*-1 * INTERNAL CONSTANT -&E			
06B6	40		06B6	3004	DC	AL1 (B@NIEL*B@LILP-2*B@LILP+B@LCRV) 1-4			
				3005	*				
06B7	F0CD		06B8	3006	BGIAMP DC	AL (@VADDR) (B@VMLB) VIRTUAL ADDRESS OF			
06B8				3007	ORG	*-1 * INTERNAL CONSTANT -&PI			
06B8	37		06B8	3008	DC	AL1 (B@NIEL*B@LILP-3*B@LILP+B@LCRV) 1-4			
				3009	*				
06B9	F0CD		06BA	3010	BGIAMS DC	AL (@VADDR) (B@VMLB) VIRTUAL ADDRESS OF			
06BA				3011	ORG	*-1 * INTERNAL CONSTANT -&SQR2			
06BA	2E		06BA	3012	DC	AL1 (B@NIEL*B@LILP-4*B@LILP+B@LCRV) 1-4			
				3013	*				
06BB	F0CD		06BC	3014	BGIAIE DC	AL (@VADDR) (B@VMLB) VIRTUAL ADDRESS OF			
06BC				3015	ORG	*-1 * INTERNAL CONSTANT &E			
06BC	25		06BC	3016	DC	AL1 (B@NIEL*B@LILP-5*B@LILP+B@LCRV) 1-4			
				3017	*				
06BD	F0CD		06BE	3018	BGIAIP DC	AL (@VADDR) (B@VMLB) VIRTUAL ADDRESS OF			
06BE				3019	ORG	*-1 * INTERNAL CONSTANT &PI			
06BE	1C		06BE	3020	DC	AL1 (B@NIEL*B@LILP-6*B@LILP+B@LCRV) 1-4			
				3021	*				
06BF	F0CD		06C0	3022	BGIAIS DC	AL (@VADDR) (B@VMLB) VIRTUAL ADDRESS OF			
06C0				3023	ORG	*-1 * INTERNAL CONSTANT @SQR2			
06C0	13		06C0	3024	DC	AL1 (B@NIEL*B@LILP-7*B@LILP+B@LCRV) 1-4			
				3025	*				
			06C0	3026	BGIAPA EQU	*-1 CADDR OF ARITH VAN PREC CONS			
			000E	3027	BGIAPL EQU	BGIAPA-BGIAPS+1 LENGTH OF ARITH SCAN PREC CONS			

#BCOMP -- S/3 BASIC COMPILER CORE-RESIDENT SECTION

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 16
		3029		*****	
		3030		* INITIATOR PROGRAM WORK AREAS	
		3031		*****	
06C1		3032		*	
	06C1	3033	BGICNT DS CL1	GENERAL PURPOSE COUNTER	
		3034		*	
	0002	3035	BGISBL EQU 2	LENGTH OF SECTOR ADDR CONY BKT	
06C2	06C3	3036	BGIPSA DS CL(BGISBL)	SECTOR ADDR CONVERSION BUCKET	
		3037		*	
		3038		*****	
		3039		*	
		3040		* END OF COMPILER INITIATOR CODING	
		3041		*	

#BCOMP -- S/3 BASIC COMPILER CORE-RESIDENT SECTION

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 17
		3043		*****	
		3044		* COMPILER STATEMENT PROCESSOR TRANSIENT AREA	
		3045		*****	
		3046		*	
0600		3047		ORG B\$CSBF	DEFINE COMPILER TRANSIENT AREA
0600		06FF 3048		DS CL(B@BLSZ)	* TO OVERLAY THE INITIATOR

S/3 BASIC COMPILER STMT PROCESSING DISTRIBUTOR

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/07/20	PAGE 18
		3050		*****			
		3051	*	5703-XM1 COPYRIGHT IBM CORP. 1970			*
		3052	*	REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083			*
		3053	*				*
		3054		*****			*
		3055	*	*STATUS			*
		3056	*	VERSION 1 MODIFICATION 0			*
		3057	*				*
		3058	*	*FUNCTION			*
		3059	*	* BHDIST ACCESSES EACH BASIC SOURCE STATEMENT AND PASSES CONTROL			*
		3060	*	TO SPECIFIC STATEMENT PROCESSING ROUTINES DEPENDING ON THE TYPE			*
		3061	*	OF STATEMENT BEING CONSIDERED. ESSENTIAL COMPILER OPERATIONS			*
		3062	*	ARE ALSO PERFORMED USING THE STATEMENT LINE NUMBER.			*
		3063	*	* BASIC STATEMENT ACCESSING - THE TEXT CHARACTER POINTER IS			*
		3064	*	ADVANCED TO REFERENCE THE FIRST CHARACTER FOLLOWING THE LINE			*
		3065	*	NUMBER OF THE NEXT PROGRAM STATEMENT WHICH IS ACTIVE AND NOT			*
		3066	*	TRUNCATED.			*
		3067	*	* STATEMENT LINE NUMBER PROCESSING - A STATEMENT HEADER (STH)			*
		3068	*	PSEUDO INSTRUCTION IS GENERATED IN VIRTUAL MEMORY FOR EACH			*
		3069	*	ACTIVE STATEMENT, AND AN ASSOCIATED ENTRY IS ADDED TO THE			*
		3070	*	COMPILER STATEMENT ADDRESS TABLE.			*
		3071	*	* BRANCH ADDRESS RESOLUTION - AN ENTRY IS ADDED TO THE BRANCH			*
		3072	*	ADDRESS TABLE (SEE BRATAB) WHENEVER RESOLUTION IS REQUIRED FOR			*
		3073	*	THE VIRTUAL ADDRESS OPERAND OF A PREVIOUSLY GENERATED PSEUDO			*
		3074	*	INSTRUCTION WHICH REFERENCES THE CURRENT STATEMENT WITHOUT			*
		3075	*	PRIOR RECOGNITION OF THE CURRENT STATEMENT LINE NUMBER.			*
		3076	*	* STATEMENT PROCESSOR EXECUTION - THE TYPE CODE OF THE CURRENT			*
		3077	*	STATEMENT IS USED TO DETERMINE WHETHER THE STATEMENT IS TO BE			*
		3078	*	PROCESSED BY A CORE-RESIDENT OR DISK-RESIDENT STATEMENT PROCES-			*
		3079	*	SOR. BHDIST ENSURES THAT THE PROCESSOR IS IN CARE. THEN TRANS-			*
		3080	*	FERS CONTROL TO THIS ROUTINE FOR ACTUAL STATEMENT HANDLING.			*
		3081	*	* COMPILER ERROR GENERATION - WHENEVER PROCESSING IS ATTEMPTED			*
		3082	*	FOR A TRUNCATED STATEMENT, THE COMPILER IS SET FOR ERROR MODE			*
		3083	*	AND AN ERROR ENTRY IS PLACED IN VIRTUAL MEMORY.			*
		3084	*	* EACH STATEMENT PROCESSOR EXECUTED THROUGH BHDIST, EXCEPT FOR			*
		3085	*	THE COMPILER TERMINATOR (BTRMNT), RETURNS CONTROL TO BHDIST TO			*
		3086	*	COMPLETE THE STATEMENT PROCESSING CYCLE.			*
		3087	*				*
		3088	*	*ENTRY POINTS			*
		3089	*	THIS ROUTINE HAS TWO ENTRY POINTS - BHDIST AND BHDST2 - WHICH			*
		3090	*	PERFORM THE FUNCTIONS DEFINED ABOVE.			*
		3091	*	* THE FIRST ENTRY POINT, WITH CALLING SEQUENCE			*
		3092	*	B BHDIST			*
		3093	*	IS USED TO BEGIN THE STATEMENT PROCESSING CYCLE, AND IS THE			*
		3094	*	'COMPILER SUPERVISOR' RETURN ADDRESS FROM THE VARIOUS STATE-			*
		3095	*	MENT PROCESSORS. ENTRY POINT BHDIST MAY ALSO BE SPECIFIED			*
		3096	*	AS B\$DIST WHEN CALLED FROM ONE OF THE DISK-RESIDENT STATE-			*
		3097	*	MENT PROCESSORS.			*
		3098	*	* THE SECOND ENTRY POINT, WITH CALLING SEQUENCE			*
		3099	*	B BHDST2			*
		3100	*	IS USED TO ACCESS AND EXECUTE SECONDARY SEGMENTS OF 'MULTI-			*
		3101	*	SECTOR' STATEMENT PROCESSORS, AND IS USED BY THE CURRENT			*
		3102	*	PROCESSOR SEGMENT TO LINK TO THE NEXT. ENTRY POINT BHDST2			*
		3103	*	IS ALWAYS SPECIFIED AS B\$DST2 SINCE IT IS NEVER USED EXCEPT			*
		3104	*	WHEN CALLED FROM ONE OF THE DISK-RESIDENT STATEMENT			*
		3105	*	PROCESSORS.			*

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 19
		3106	*	THESE CALLING SEQUENCES ARE SUBJECT TO THE INPUT CONDITIONS	*
		3107	*	DESCRIBED BELOW.	*
		3108	*		*
		3109	*	INPUT (ENTRY POINT BHDIST)	*
		3110	*	* TEXT CHARACTER POINTER (BZGPTR) - 2 BYTES, FOR THE CORE ADDRESS	*
		3111	*	OF THE CURRENTLY REFERENCED SOURCE TEXT CHARACTER. THIS IS	*
		3112	*	EXPECTED TO REFERENCE A TEXT CHARACTER LOCATED RELATIVE TO THE	*
		3113	*	STATEMENT TO BE PROCESSED.	*
		3114	*	* NORMAL PROCESSING - THE TEXT POINTER REFERENCES THE 'EOS'	*
		3115	*	CHARACTER WHICH TERMINATES THE PREVIOUS PROGRAM STATEMENT.	*
		3116	*	THE CALLING PROGRAM IS EXPECTED TO ENSURE THAT INPUT	*
		3117	*	ROUTINE BAGETC PARAMETER BZNUMC = 1.	*
		3118	*	* EXCEPTION PROCESSING - THE TEXT POINTER REFERENCES THE	*
		3119	*	FIRST CHATACTER IN THE CURRENT STATEMENT. THE CALLING	*
		3120	*	PROGRAM IS EXPECTED TO ENSURE THAT BAGETC PARAMETER	*
		3121	*	BZNUMC = 0.	*
		3122	*	* COMPILER INPUT BUFFER - 256 BYTES, BEGINNING AT CORE ADDRESS	*
		3123	*	B\$GTBF. THIS CONTAINS SOURCE PROGRAM TEXT IN ADDITION TO THE	*
		3124	*	STATEMENT BINARY LINE NUMBER AND TYPE CODE.	*
		3125	*	* BHDNSW (EXTERNAL BZNXSW, B\$NXSW) - 1 BYTE, FOR THE 'NEXT ADDR'	*
		3126	*	SWITCH. THIS SWITCH, NORMALLY OFF, IS SET USING MASK BHDNMK	*
		3127	*	(EXTERNAL BZNXMK, B\$NXMK).	*
		3128	*	* SWITCH ON - THIS CONDITION CAUSES AN ENTRY, CONTAINING THE	*
		3129	*	CURRENT STATEMENT LINE NUMBER AND A VIRTUAL ADDRESS ESTAB-	*
		3130	*	LISHED BY THE PREVIOUS STATEMENT PROCESSOR. TO BE ADDED	*
		3131	*	TO THE COMPILER BRANCH ADDRESS TABLE.	*
		3132	*	* SWITCH OFF - THIS CONDITION CAUSES NORMAL PROCESSING WITH-	*
		3133	*	OUT BRANCH ADDRESS TABLE UPDATING.	*
		3134	*	* BZBRVA - 2 BYTES, FOR THE BRATAB VIRTUAL ADDRESS PARAMETER.	*
		3135	*	WHEN SWITCH BHDNSW IS SET ON, THIS PARAMETER CONTAINS THE	*
		3136	*	VIRTUAL ADDRESS TO BE COMBINED WITH THE CURRENT STATEMENT LINE	*
		3137	*	NUMBER AS A BRANCH ADDRESS TABLE ENTRY.	*
		3138	*		*
		3139	*	INPUT (ENTRY POINT BHDST2)	*
		3140	*	* REGISTER @XR - THIS CONTAINS THE CORE ADDRESS OF THE LEFTMOST	*
		3141	*	BYTE OF A SIMULATED PROCESSOR ADDRESS TABLE ENTRY. THIS SIMU-	*
		3142	*	LATED TABLE ENTRY CONTAINS PARAMETERS INDICATING THE LOCATION	*
		3143	*	AND ENTRY POINT OF A SECONDARY STATEMENT PROCESSOR SEGMENT.	*
		3144	*	JUST AS THE STATEMENT PROCESSOR ADDRESS TABLE (BELOW) CONTAINS	*
		3145	*	PARAMETERS FOR THE ATTRIBUTES OF A PRIMARY STATEMENT PROCESSOR	*
		3146	*	SEGMENT.	*
		3147	*		*
		3148	*	OUTPUT (ENTRY POINT BHDIST)	*
		3149	*	* TEXT CHARACTER POINTER (REGISTER @XR AND BZGPTR) - THIS CON-	*
		3150	*	TAINS THE CORE ADDRESS OF THE FIRST CHARACTER IN THE LEADING	*
		3151	*	KEYWORD OF THE STATEMENT BEING PROCESSED.	*
		3152	*	* BHDNSW (EXTERNAL BZNXSW, B\$NXSW) - THIS SWITCH IS ALWAYS SET OFF*	*
		3153	*	DURING BHDIST EXECUTION (SEE INPUT).	*
		3154	*	BHDLNO (EXTERNAL BZLINE, B\$LINE) - 2 BYTES, FOR THE COMPILE-TIME*	*
		3155	*	STATEMENT LINE NUMBER. AS A CONSEQUENCE OF BAGETC EXECUTION	*
		3156	*	WITHIN BHDIST, THIS PARAMETER IS SET TO CONTAIN THE BINARY LINE	*
		3157	*	NUMIER OF THE CURRENT STATEMENT.	*
		3158	*	* BHDTYP (EXTERNAL BZTYPE, B\$TYPE) - 1 BYTE, FOR THE COMPILE-TIME*	*
		3159	*	STATEMENT TYPE CODE. AS A CONSEQUENCE OF BAGETC EXECUTION	*
		3160	*	WITHIN BHDIST, THIS PARAMETER IS SET TO CONTAIN THE TYPE CODE	*
		3161	*	OF THE CURRENT STATEMENT.	*

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT VER 15, MOD 00 04/07/20 PAGE 20

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3162 * * VIRTUAL MEMORY - BHDIST CAUSES A STATEMENT HEADER (STH) PSEUDO *
3163 * INSTRUCTION (CONTAINING THE CURRENT STATEMENT LINE NUMBER AS *
3164 * OPERAND) TO BE GENERATED IN VIRTUAL MEMORY FOR EACH ACTIVE *
3165 * STATEMENT ENCOUNTERED. *
3166 * * STATEMENT ADDRESS TABLE BUFFER - 256 BYTES, BEGINNING AT CORE *
3167 * ADDRESS B$SABF. BHDIST CAUSES A 4-BYTE ENTRY TO BE ADDED TO *
3168 * THIS TABLE BUFFER WHENEVER AN ACTIVE STATEMENT IS PROCESSED. *
3169 * THIS ENTRY HAS THE FOLLOWING FORMAT - *
3170 * * BYTES 0,1 - CONTAINS THE VIRTUAL ADDRESS OF THE OPCODE *
3171 * BYTE FOR THE 'STH' PSEUDO INSTRUCTION GENERATED *
3172 * IN VIRTUAL MEMORY. *
3173 * * BYTES 2,3 - CONTAINS THE BINARY LINE NUMBER ASSOCIATED *
3174 * THE CURRENT STATEMENT. *
3175 * * STATEMENT ADDRESS TABLE FILE - THIS 16-SECTOR DISK FILE IS *
3176 * UPDATED WHENEVER THE STATEMENT ADDRESS TABLE BUFFER IS FILLED *
3177 * WITH STATEMENT HEADER INFORMATION. NOTE THAT THIS FILE CAN *
3178 * NEVER BE FILLED OVER CAPACITY, SINCE THERE WILL NEVER BE MORE *
3179 * THAN 990 TABLE ENTRIES (THIS IS A SYSTEM WORK FILE LIMIT) AND *
3180 * THE STATEMENT ADDRESS TABLE FILE HAS A CAPACITY OF 1024 ENTRIES. *
3181 * * BRANCH ADDRESS TABLE BUFFER - 256 BYTES, BEGINNING AT CORE *
3182 * ADDRESS B$BABF. BHDIST CAUSES AN ENTRY TO BE ADDED TO THIS *
3183 * TABLE BUFFER, USING BRANCH ADDRESS TABLE ROUTINE BRATAB, WHEN- *
3184 * EVER SWITCH BHDNSH IS SET ON AT BHDIST ENTRY (SEE INPUT). *
3185 * *
3186 * OUTPUT (ENTRY POINTS BHDIST, BHDST2) *
3187 * * PROCESSOR OVERLAY BUFFER - 256 BYTES, BEGINNING AT CORE ADDRESS *
3188 * B$CSBF. WHEN THE REQUIRED STATEMENT PROCESSOR OR PROCESSOR *
3189 * SEGMENT IS NOT ALREADY IN CORE, THE DISK SECTOR CONTAINING THIS *
3190 * PROGRAM CODING IS LOADED FROM THE SYSTEM WORK AREA INTO THIS *
3191 * TRANSIENT REGION. *
3192 * * REGISTER @BR - THIS IS SET TO CONTAIN THE 'PAGE BOUNDARY' BASE *
3193 * CORE ADDRESS FOR STATEMENT PROCESSOR EXECUTION. *
3194 * *
3195 * EXTERNAL REFERENCES *
3196 * * $DISKN - ENTRY POINT FOR THE SYSTEM PHYSICAL DISK IOCS. *
3197 * * $WAITF - CORE ADDRESS OF 'WAIT' FUNCTION DISK PARAMETER LIST. *
3198 * * BAGETC - ENTRY POINT FOR COMPILER SOURCE TEXT INPUT ROUTINE. *
3199 * * BBPUTC - ENTRY POINT FOR COMPILER VIRTUAL MEMORY OUTPUT ROUTINE. *
3200 * * BRATAB - ENTRY POINT FOR COMPILER BRANCH ADDRESS TABLE ROUTINE. *
3201 * * BVDL4T - ENTRY POINT FOR COMPILER 4-TRACK LOGICAL DISK IOCR. *
3202 * * BPAASN - ENTRY POINT FOR SIMPLE ARITHMETIC ASSIGNMENT STATEMENT *
3203 * PROCESSOR ROUTINE. *
3204 * * BPALET - ENTRY POINT FOR SIMPLE ARITHMETIC 'LET' STATEMENT *
3205 * PROCESSOR ROUTINE. *
3206 * * BNRMRK - ENTRY POINT FOR THE 'REM' STATEMENT PROCESSOR ROUTINE. *
3207 * * BZGPTR - 2 BYTES, FOR COMPILER SOURCE TEXT CHARACTER POINTER. *
3208 * * BZPFNC - 1 BYTE, FOR THE BBPUTC OUTPUT FUNCTION CODE. *
3209 * * BZPARP - 3 BYTES, FOR THE BBPUTC 'ADD RECORD' PARAMETERS. *
3210 * * BZPVAD - 2 BYTES, FOR THE VIRTUAL ADDRESS OF THE NEXT AVAILABLE *
3211 * VIRTUAL MEMORY PMC LOCATION. *
3212 * * BZPCDL - 1 BYTE, FOR THE LENGTH OF THE LAST GENERATED PSEUDO *
3213 * INSTRUCTION SEQUENCE. *
3214 * * BZPERC - 1 BYTE, FOR THE BBPUTC 'ADD ERROR' ERROR MESSAGE CODE *
3215 * PARAMETER. *
3216 * * BZBRLN - 2 BYTES, FOR THE BRATAB LINE NUMBER PARAMETER. *
3217 * * B$CSBF - CORE ADDRESS OF THE COMPILER STATEMENT PROCESSOR *

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3218 *          TRANSIENT BUFFER LEFTMOST BYTE. *
3219 *      * B$SABF - CORE ADDRESS OF THE COMPILER STATEMENT ADDRESS TABLE *
3220 *          BUFFER LEFTMOST BYTE. *
3221 *      * BZSBFR - CORE ADDRESS OF THE COMPILER STATEMENT ADDRESS TABLE *
3222 *          BUFFER RIGHTMOST BYTE. *
3223 * * * * *
3224 *EXITS, NORMAL *
3225 *      * IN GENERAL, CONTROL IS PASSED FROM BHDIST TO A STATEMENT *
3226 *          PROCESSOR WHICH IS SELECTED USING THE CURRENT STATEMENT TYPE *
3227 *          CODE AS A PROCESSOR ADDRESS TABLE INDEXING VALUE. *
3228 *      * WHENEVER A DEACTIVATED STATEMENT IS ENCOUNTERED, CONTROL IS *
3229 *          PASSED INSTEAD TO STATEMENT PROCESSOR MARK. THIS ROUTINE *
3230 *          CAUSES THE TEXT CHARACTER POINTER TO BE ADVANCED TO THE END OF *
3231 *          THE DEACTIVATED STATEMENT, THEN RESTORES CONTROL TO THE DISTRI- *
3232 *          BUTOR AT ENTRY POINT BHDIST. *
3233 * * * * *
3234 *EXITS, ERROR *
3235 *      ERROR CONDITIONS ENCOUNTERED DURING BHDIST EXECUTION (SEE ERROR *
3236 *          PROCEDURES) ARE LOGGED IN VIRTUAL MEMORY, AND THE COMPILER IS *
3237 *          PLACED IN ERROR MODE (BZERSW IS SET ON). CONTROL IS PASSED TO *
3238 *          STATEMENT PROCESSOR BNRMRK, WHICH CAUSES THE TEXT POINTER TO BE *
3239 *          ADVANCED TO THE END OF THE CURRENT STATEMENT, THEN RESTORES *
3240 *          CONTROL TO THE DISTRIBUTOR AT ENTRY POINT BHDIST. *
3241 * * * * *
3242 *TABLES/WORK AREAS *
3243 *      * BHDLNO (EXTERNAL BZLINE, B$LINE) - 2 BYTES, FOR THE COMPILE-TIME *
3244 *          STATEMENT LINE NUMBER. *
3245 *      * BHDTYP (EXTERNAL BZTYPE, B$TYPE) - 1 BYTE, FOR THE COMPILE-TIME *
3246 *          STATEMENT TYPE CODE. *
3247 *      * BHDNSW (EXTERNAL BZWXS, B$NXSW) - 1 BYTE, FOR THE NEXT ADDRESS *
3248 *          SWITCH. THIS IS INITIALIZED AT COMPILER ENTRY TO THE OFF CON- *
3249 *          DITION (SEE INPUT). *
3250 *      * BHDDPL - 6 BYTES, FOR THE PROCESSOR OVERLAY DISK PARAMETER LIST. *
3251 *          THIS CONTAINS PARAMETERS INDICATING THE CURRENT PROCESSOR *
3252 *          RESIDING IN THE PROCESSOR OVERLAY BUFFER (SEE OUTPUT). THE *
3253 *          SECTOR ADDRESS PARAMETER (BHDDSA) IN THIS LIST IS INITIALIZED *
3254 *          TO X'FF' AT COMPILER ENTRY TO FORCE THE FIRST REQUIRED STATE- *
3255 *          MEAT PROCESSOR OVERLAY TO BE READ INTO CORE. THEREAFTER, OVER- *
3256 *          LAYS ARE PERFORMED ONLY WHEN BHDDSA DOES NOT CONTAIN THE SECTOR *
3257 *          ADDRESS OF THE NEXT REQUIRED PROCESSOR. *
3258 *      * BHDSPL (EXTERNAL BZSDPL, B$SDPL) - 6 BYTES, FOR THE STATEMENT *
3259 *          ADDRESS TABLE FILE DISK PARAMETER LIST. THIS CONTAINS PARAME- *
3260 *          TERS INDICATING THE NEXT AVAILABLE STATEMENT ADDRESS TABLE FILE *
3261 *          SECTOR, AND IS INITIALIZED AT COMPILER ENTRY TO REFERENCE THE *
3262 *          FIRST SECTOR IN THIS FILE. *
3263 *      * BHDSPT - 1 BYTE, FOR THE STATEMENT ADDRESS TABLE BUFFER POINTER. *
3264 *          THIS CONTAINS THE DISPLACEMENT VALUE INDICATING THE NEXT AVAIL- *
3265 *          ABLE ENTRY LOCATION IN THE TABLE BUFFER (B$SABF), AND IS *
3266 *          INITIALIZED AT COMPILER ENTRY TO REFERENCE THE FIRST ENTRY *
3267 *          LOCATION IN THIS BUFFER. *
3268 *      * STATEMENT HEADER PMC IMAGE AND PARAMETERS - USED TO GENERATE *
3269 *          'STH' PSEUDO INSTRUCTIONS USING THE OUTPUT ROUTINE (BBPUTC) *
3270 *          'ADD RECORD' FUNCTION. *
3271 *      * BHDPAT (EXTERNAL BZSPAT, B$SPAT) - CORE ADDRESS OF THE STATEMENT *
3272 *          PROCESSOR ADDRESS TABLE. THIS TABLE CONTAINS 40 3-BYTE ENTRIES. *
3273 *          ONE FOR EACH BASIC STATEMENT TYPE. EACH ENTRY CONTAINS THE *

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 22
		3274	*	FOLLOWING COMPONENTS -	*
		3275	*	* BYTES 0,1 - STATEMENT PROCESSOR CORE ENTRY ADDRESS.	*
		3276	*	* BYTE 2 - PROCESSOR PHYSICAL DISK SECTOR ADDRESS (WITHIN	*
		3277	*	A TRACK), OR CODE X'FF' WHEN THE PROCESSOR IS	*
		3278	*	CORE-RESIDENT DURING COMPILATION.	*
		3279	*	SEE BGINIT FOR A DESCRIPTION OF TABLE MODIFICATIONS CAUSED BY	*
		3280	*	A CORE CONFIGURATION GREATER THAN 8K.	*
		3281	*		*
		3282	*	*ATTRIBUTES	*
		3283	*	* REUSABLE	*
		3284	*	* RELOCATABLE	*
		3285	*		*
		3286	*	*CHARACTER CODE DEPENDENCY	*
		3287	*	THE OPERATION OF THIS MODULE DEPENDS UPON AN INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET WHICH IS EQUIVALENT TO THE	*
		3288	*	ONE USED AT ASSEMBLY TIME. THE CODING HAS BEEN ARRANGED SO THAT	*
		3289	*	REDEFINITION OF CHARACTER CONSTANTS, BY REASSEMBLY, WILL RESULT	*
		3290	*	IN A CURRENT MODULE FOR THE NEW DEFINITIONS.	*
		3291	*		*
		3292	*		*
		3293	*	*NOTES	*
		3294	*	ERROR PROCEDURES	*
		3295	*	A SINGLE ERROR CONDITION IS DETECTED, REFERENCING AN INVALID	*
		3296	*	PROGRAM STATEMENT.	*
		3297	*	* ERROR - THE STATEMENT TO BE PROCESSED HAS BEEN TRUNCATED	*
		3298	*	DURING PROGRAM STATEMENT MODIFICATION (E.G. 'RENUMBERING'	*
		3299	*	OR 'RELABELING'), AND IS RECOGNIZED THROUGH A 'TRUNCATED	*
		3300	*	STATEMENT' TYPE CODE.	*
		3301	*	THE COMPILER IS PLACED IN ERROR MODE (OUTPUT ROUTINE BBPUTC IS	*
		3302	*	CALLED USING FUNCTION 'ADD ERROR'). AN ERROR CODE FOR THE	*
		3303	*	MESSAGE 'FILE LINE PREVIOUSLY TRUNCATED' IS LOGGED IN VIRTUAL	*
		3304	*	MEMORY, AND CONTROL IS PASSED TO BNRMRK (SEE ERROR EXITS).	*
		3305	*		*
		3306	*	REGISTER USAGE	*
		3307	*	* REGISTER @BR IS NOT SAVED. IT IS USED AS A BASE REGISTER	*
		3308	*	DURING BHDIST EXECUTION, THEN ESTABLISHED AS A STATEMENT	*
		3309	*	PROCESSOR BASE REGISTER BEFORE CONTROL IS TRANSFERRED TO THE	*
		3310	*	APPROPRIATE PROCESSOR ROUTINE.	*
		3311	*	* REGISTER @XR IS NOT SAVED. IT IS USED AS A GENERAL PURPOSE	*
		3312	*	REGISTER, AND CONTAINS AN OUTPUT PARAMETER AT BHDIST EXIT.	*
		3313	*		*
		3314	*	SAVED/RESTORED AREAS	*
		3315	*	N/A	*
		3316	*		*
		3317	*	MODIFICATION CONSIDERATIONS	*
		3318	*	BHDIST OPERATION IS BASED UPON THE SEQUENCE AND LENGTH OF THE	*
		3319	*	ENTRIES IN THE PROCESSOR ADDRESS TABLE. TABLE ENTRIES ARE	*
		3320	*	SELECTED BY DIRECT INDEXING USING STATEMENT TYPE CODES, AND	*
		3321	*	THESE TYPE CODES ARE KEYED TO THE TABLE CONFIGURATION. ANY	*
		3322	*	CHANGES TO STATEMENT TYPE CODES OR PROCESSOR ADDRESS TABLE	*
		3323	*	ENTRY CHARACTERISTICS MUST TAKE FULL CONSIDERATION OF THIS	*
		3324	*	RELATIONSHIP.	*
		3325	*		*
		3326	*	REQUIRED MODULES	*
		3327	*	* @SYSEQ - COMMON SYSTEM EQUATES.	*
		3328	*	* @FWDEQ - SYSTEM NUCLEUS ADDRESSES AND INDICATOR EQUATES.	*
		3329	*	* \$BERMQ - SYSTEM ERROR MESSAGE CODE EQUATES.	*

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/07/20	PAGE	23
		3330	*	*	\$B\$EQU - COMPILER FIXED LOCATION ADDRESS EQUATES.				*
		3331	*	*	\$B@EQU - COMPILER PARAMETER AND CONSTANT EQUATES.				*
		3332	*	*	BAGETC - COMPILER SOURCE TEXT INPUT ROUTINE.				*
		3333	*	*	BBPUTC - COMPILER VIRTUAL MEMORY OUTPUT ROUTINE.				*
		3334	*	*	BRATAB - COMPILER BRANCH ADDRESS TABLE ROUTINE.				*
		3335	*	*	BVDL4T - COMPILER 4-TRACK LOGICAL DISK IOCS INTERFACE.				*
		3336	*	*	BPALET - SIMPLE ARITHMETIC ASSIGNMENT STATEMENT PROCESSOR.				*
		3337	*	*	BNRMRK - 'REM' STATEMENT PROCESSOR.				*
		3338	*	*	BZCOMN - COMPILER COMMON AREAS AND ADDRESS REFERENCE EQUATES.				*
		3339	*						*
		3340	*	OTHER					*
		3341	*	N/A					*
		3342	*	*****	*****				*

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT VER 15, MOD 00 04/07/20 PAGE 24

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3344 *****
3345 * COMPILER STATEMENT PROCESSOR DISTRIBUTOR ENTRY POINT
3346 *****
3347 *
3348 * ENTER BHDIST - ESTABLISH DISTRIBUTOR ADDRESSABILITY
3349 *
0700 0700 BHDIST EQU * BHDIST ENTRY POINT
0708 0708 3351 USING BHD010,@BR DEFINE BHDIST BASE ADDRESS
0700 C2 01 0708 3352 LA BHD010,@BR LOAD BHDIST BASE REGISTER
3353 *
3354 * ACCESS NEXT SOURCE TEXT NON-NUMERIC CHARACTER - THIS SHOULD BE
3355 * THE FIRST CHARACTER FOLLOWING A STATEMENT LINE NUMBER
3356 *
0704 C0 87 048D 3357 B $UNMSK GO CHECK FOR INQUIRY REQUEST
0708 C0 87 0867 3358 BHD010 B BAGETC LINK TO GET NEXT CHARACTER
070C BD F0 00 3359 CLI B@CHAR(,@XR),B@DEC0 IF THE CHARACTER IS A DIGIT
070F D0 02 00 3360 BNL BHD010(,@BR) * GO GET THE NEXT CHARACTER
3361 *
3362 * TEST FOR A DEACTIVATED SOURCE PROGRAM STATEMENT
3363 *
0712 78 80 31 3364 BHD020 TBN BHD010(,@BR),B@SDMK IF STATEMENT IS DEACTIVATED
0715 C0 10 1AE6 3365 BT BNRMRK * GO SKIP TO END OF STATEMENT
3366 *
3367 * BRANCH TO ESTABLISH THE STATEMENT HEADER - GENERATE A STATEMENT
3368 * HEADER PSEUDO INSTRUCTION, ADD AN APPROPRIATE ENTRY TO THE STATEMENT
3369 * ADDRESS TABLE, THEN RETURN TO CONTINUE PROCESSING.
3370 *
0719 D0 87 66 3371 BHD030 B BHD200(,@BR) LINK TO PROCESS STMT LINE NO.
3372 *
3373 * TEST 'NEXT' SWITCH FOR AN UNRESOLVED PSEUDO INSTRUCTION OPERAND
3374 *
071C D0 00 A5 3375 BHD040 BC BHD300(,@BR),*-* LINK TO UPDATE BRANCH ADDRESS
071D 3376 ORG BHD040+@Q * TABLE IF 'NEXT' SWITCH ON -
071D 80 071D 3377 DC AL1(@NOP) * INITIALIZE THE SWITCH TO
071F 3378 ORG BHD040+@INST3 * THE 'OFF' CONDITION
3379 *
3380 * REFERENCE THE STATEMENT PROCESSOR ADDRESS TABLE
3381 *
071F D2 02 D5 3382 BHD050 LA BHD050+@D1(,@BR),@XR LOAD PROCESSOR TABLE BASE ADDR
0722 7D 78 31 3383 CLI BHD060+@D1(,@BR),B@TDUM IF TYPE CODE =< 120 THEN 1-4
0725 F2 04 0F 3384 JNH BHD060 * PROCEED NORMALLY 1-4
3385 *****
3386 * TYPE CODE IS ONE OF THE TYPE CODES DEFINED FOR 1-4
3387 * SUBSTRING SO CONVERT TO STATEMENT PROCESSOR TABLE 1-4
3388 * DISPLACEMENT. 1-4
3389 *****
0728 5C 00 C5 31 3390 MVC BHDWRK(@B1,@BR),BHD060+@D1(,@BR) SAVE TYPE CODE 1-4
072C 7B 78 C5 3391 SBF BHDWRK(,@BR),B@TDUM SET UP TO COMPUTE TABLE DISP 1-4
072F 5E 00 C5 C5 3392 ALC BHDWRK(@B1,@BR),BHDWRK(,@BR) DOUBLE BITS 5-7 OF TCDE 1-4
0733 5E 00 31 C5 3393 ALC BHD060+@D1(@B1,@BR),BHDWRK(,@BR) ADD BACK TO TOE 1-4
0737 E2 02 00 3394 BHD060 LA *-*(,@XR),@XR SELECT TABLE ENTRY BY TYPE CODE

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S/3 BASIC COMPILER STMT PROCESSING DISTRIBUTOR

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT VER 15, MOD 00 04/07/20 PAGE 25

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3396 *****
3397 * DISTRIBUTOR ENTRY POINT FOR LOADING STATEMENT PROCESSOR SEGMENTS
3398 *****
3399 *
3400 * ENTER BHDST2 - ESTABLISH DISTRIBUTOR ADDRESSABILITY
3401 *
073A C2 01 0708 073A 3402 BHDST2 EQU * BHDIST SECONDARY ENTRY POINT
3403 LA BHD010,@BR LOAD BHDIST BASE REGISTER
3404 *
3405 * SET UP ADDRESSABILITY AND BRANCH INSTRUCTIONS FOR THE PROCESSOR
3406 *
073E 6C 00 5D 00 3407 BHD070 MVC BHD110+@OP1-1(,@BR),B@PTAB(1,@XR) SET UP ADDRESSABILITY
3408 * * FOR CORE PAGE BOUND
0742 6C 00 65 01 3409 MVC BHD130+@D1(,@BR),B@PTAD(1,@XR) SET UP BRANCH INST DISP
3410 *
3411 * TEST FOR A PERMANENTLY CORE RESIDENT STATEMENT PROCESSOR
3412 *
0746 B8 FF 02 3413 RHD080 TBN B@PTSA(,@XR),B@CPMK IF CORE RESIDENT PROC INDICATED
0749 F2 10 17 3414 JT BHD110 * GO START PROCESSOR EXECUTION
3415 *
3416 * TEST FOR A DISK RESIDENT PROCESSOR ALREADY CORELOADED
3417 *
074C 9D 00 02 CE 3418 BHD090 CLC B@PTSA(,@XR),BHDDSA(1,@BR) IT, PROCESSOR ALREADY IN CORE
0750 F2 81 10 3419 JE BHD110 * GO START PROCESSOR EXECUTION
3420 *
3421 * CORELOAD THE PROCESSOR DEFINED BY THE STATEMENT TYPE CODE
3422 *
0753 6C 00 CE 02 3423 BHD100 MVC BHDDSA(,@BR),B@PTSA(1,@XR) MOVE SECTOR ADDRESS TO DPL
3424 *
0757 C0 87 0025 3425 B $DISKN LINK TO READ THE PROCESSOR
075B 07D4 075C 3426 DC AL(@CADDR)(BHDDPL) CADDR OF PROCESSOR INPUT DPL
3427 *
075D C0 87 0025 3428 B $DISKN LINK TO WAIT INPUT COMPLETED
0761 057F 0762 3429 DC AL(@CADDR)($WAITF) CADDR OF DISK IOCR 'WAIT' DPL
3430 *
3431 * ESTABLISH ADDRESSABILITY FOR THE STATEMENT PROCESSOR - THE BASE
3432 * REGISTER IS SET TO REFERENCE A CORE 'PAGE' BOUNDARY (EG. X'0600')
3433 * APPROPRIATE FOR THE CORE LOCATION OF THE PROCESSOR ENTRY POINT.
3434 *
0763 C2 01 0000 3435 BHD110 LA *-*,@BR LOAD THE PROCESSOR BASE ADDR -
0766 3436 ORG BHD110+@OP1-0 * INITIALIZE THE LOAD INST
0766 00 0766 3437 DC XL(@CADDR-1)'00' * OPERAND TO CONTAIN A CORE
0767 3438 ORG BHD110+@INST4 * ADDRESS DISP OF X'00'
3439 *
3440 * RESTORE THE CHARACTER POINTER AND BRANCH TO EXECUTE THE PROCESSOR
3441 *
0767 35 02 0878 3442 BHD120 L BZGPTR,@XR LOAD TEXT CHARACTER POINTER
076B D0 87 00 3443 BHD130 B *-*(,@BR) GO EXECUTE STATEMENT PROCESSOR

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/07/20 PAGE 26
				3445	*****	*****	
				3446	* STATEMENT LINE NUMBER PROCESSING ROUTINE		
				3447	* * GENERATES A STATEMENT HEADER INSTRUCTION IN VIRTUAL MEMORY		
				3448	* * ADDS A CORRESPONDING ENTRY TO THE STATEMENT ADDRESS TABLE		
				3449	*****	*****	
				3450	*		
				3451	* GENERATE A STATEMENT HEADER IN VIRTUAL MEMORY		
				3452	*		
076E	1C	02 0A41 CB		3453	BHD200 MVC	BZPARP,BHDSHP(@CADDR+1,@BR) SET PUT RTN FOR '5TH' INST	
0773	C0	87 093A		3454	B	BBPUTC LINK TO OUTPUT THE '5TH' INST	
				3455	*		
				3456	* INITIALIZE TO UPDATE THE STATEMENT ADDRESS TABLE		
				3457	*		
0777	75	02 D7		3458	BHD210 L	BHDSCA(,@BR),@XR LOAD STMT TABLE BUFFER ADDR	
				3459	*		
				3460	* MOVE CURRENT DATA INTO STATEMENT TABLE BUFFER HIGH ENTRY LOCATION		
				3461	*		
077A	8C	01 FD 0A43		3462	BHD220 MVC	BHDSVA(,@XR),BZPVAD(@VADDR) MOVE VADDR OF CURRENT TABLE	
077F	8F	00 FD 09D3		3463	SLC	BHDSVA(,@XR),BZPCDL(1) * INST TO STMT ADDR TABLE	
0784	9C	01 FF C8		3464	MVC	BHDSLN(,@XR),BHDLNO(B@LSNO,@BR) MOVE CURRENT STATEMENT	
				3465	*	* NO, TO STMT ADDR TABLE	
				3466	*		
				3467	* MOVE CURRENT DATA INTO STATEMENT TABLE BUFFER CONSECUTIVE POSITION		
				3468	*		
0788	AC	03 00 FF		3469	BHD230 MVC	*-(,@XR),BHDSN(BHDSEL,@XR) MOVE DATA TO CURRENT TABLE	
078A				3470	ORG	BHD230+@D1 * ENTRY - INITLZ STMT ADDRESS	
078A	03		078A	3471	DC	AL1(BHDSEL-1) * TABLE BUFFER POINTER TO 1ST	
078C				3472	ORG	BHD230+@INST4 * ENTRY POSITION	
				3473	*		
				3474	* ADVANCE THE TABLE POINTER AND TEST FOR A FULL BUFFER		
				3475	*		
078C	5E	00 82 C4		3476	BHD240 ALC	BHDSPT(,@BR),BHDTL(1,@BR) INCREMENT TABLE BUFF POINTER	
0790	D0	82 14		3477	BL	BHD040(,@BR) * AND RETURN IF BUFF NOT FULL	
				3478	*		
				3479	* THE STATEMENT ADDRESS TABLE BUFFER IS FULL AND THE POINTER HAS BEEN		
				3480	* AUTOMATICALLY RESET TO REFERENCE THE FIRST ENTRY LOCATION - DUMP THE		
				3481	* BUFFER TO THE STATEMENT ADDRESS TABLE DISK FILE		
				3482	*		
0793	D2	02 D2		3483	BHD250 LA	BHDSPL(,@BR),@XR LOAD STATEMENT TABLE DPL ADDR	
0796	C0	87 1A6B		3484	B	BVDL4T LINK TO WRITE THE TABLE BUFFER	
079A	C0	87 0025		3485	B	\$DISKN LINK TO WAIT OUTPUT COMPLETED	
079E	057F		079F	3486	DC	AL(@CADDR)(\$WAITF) CADDR OF DISK IOCR 'WAIT' DPL	
				3487	*		
				3488	* INCREMENT THE STATEMENT ADDRESS TABLE SECTOR ADDRESS		
				3489	*		
07A0	5E	00 D4 D5		3490	BHD260 ALC	BHDSSA(,@BR),BHDSSC(1,@BR) INCR STMT TABLE SECTOR ADM	
				3491	*		
				3492	* CLEAR THE STATEMENT ADDRESS TABLE BUFFER AND RETURN		
				3493	*		
07A4	0F	FF 1CFF 1CFF		3494	BHD270 SLC	BZSBFR,BZSBFR(B@BLSZ) ZERO THE STMT TABLE BUFFER	
07AA	D0	87 14		3495	B	BHD040(,@BR) RETURN TO THE DISTRIBUTOR	

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 27
		3497		*****	
		3498	*	'NEXT' UNRESOLVED BRANCH ADDRESS TABLE ROUTINE	
		3499		*****	
		3500	*		
		3501	*	ADD THE 'NEXT' BRANCH ENTRY TO BRANCH ADDRESS TABLE - THE VIRTUAL	
		3502	*	ADDRESS PARAMETER HAS ALREADY BEEN ESTABLISHED BY THE ROUTINE WHICH	
		3503	*	SET THE 'NEXT' SWITCH ON	
		3504	*		
07AD 1C 01 19F1 C8		3505	BHD300 MVC	BZBRLN,BHDLNO(B@LSNO,@BR)	SET LINE NO. FOR BRANCH TABLE
07B2 C0 87 1996		3506	B	BRATAB	LINK TO UPDATE THE BRANCH TABLE
		3507	*		
		3508	*	RESET THE 'NEXT' BRANCH SWITCH AND RETURN	
		3509	*		
07B6 7B 07 15		3510	BHD310 SBF	BHDNSW(,@BR),BHDNMK	SET 'NEXT' BRANCH SWITCH OFF
07B9 D0 87 17		3511	B	BHD050(,@BR)	RETURN TO THE DISTRIBUTOR

ERR LOC		OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/07/20	PAGE 28
				3513	*****			
				3514	* DUMMY PROCESSOR FOR A TRUNCATED PROGRAM STATEMENT			
				3515	*****			
				3516	*			
				3517	* GENERATE A 'TRUNCATED PROGRAM STATEMENT' ERROR MESSAGE CODE			
				3518	*			
07BC	3C	B3	0A39	3519	BHD400 MVI BZPERC,@@E614	SET THE ERROR MESSAGE CODE		
07C0	3C	33	094E	3520	MVI BZPFNC,BZPFAE	SET PUT ROUTINE FOR ERRORS		
07C4	C0	87	093A	3521	B BBPUTC	LINK TO OUTPUT THE ERROR CODE		
				3522	*			
				3523	* BRANCH TO ADVANCE TEXT POINTER TO END OF TRUNCATED STATEMENT			
				3524	*			
07C8	C0	87	1AE6	3525	BHD410 B BNRMRK	GO ACCESS END OF STATEMENT		

S/3 BASIC COMPILER STMT PROCESSING DISTRIBUTOR

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT VER 15, MOD 00 04/07/20 PAGE 29

3527 *****
3528 * COMPILER DISTRIBUTOR CONSTANTS
3529 *****
3530 *
07CC 04 07CC 3531 BHDTEL DC AL1(BHDSEL) STATEMENT TABLE ENTRY LENGTH
07CD 07CD 3532 BHDWRK DS CL1 BHDIST WKAREA FOR TYPE CODE 1-4
3533 *
3534 *****
3535 * PSEUDO MACHINE CODE SEQUENCES AND STORAGE PARAMETERS
3536 *****
3537 *
07CE 64 07CE 3538 BHDSHC DC AL(B@LCOP)(B@CSTH) 'STATEMENT HEADER' OPCODE
07CF 07D0 3539 BHDSHO DS CL(B@LCLN) 'STATEMENT HEADER' OPERAND
3540 *
07D1 07CE 07D2 3541 DC AL(@CADDR)(BHDSHC) 'STN' INSTRUCTION CORE ADDRESS
07D3 02 07D3 3542 BHDSHP DC AL1(B@LSTH-1) 'STH' INSTRUCTION LENGTH CODE
3543 *
3544 *****
3545 * COMPILER DISTRIBUTOR DISK PARAMETER LISTS
3546 *****
3547 *
07D4 01 07D4 3548 BHDDPL EQU * STMT PROCESSOR CORELOAD DPL
07D5 04 07D4 3549 BHDDFN DC AL1(@DGET) DISK IOCR 'READ' FUNCTION
07D6 07D5 3550 BHDDCY DC AL1(B@DSCY) PROCESSOR SUBR BASE CYLINDER
07D6 07D6 3551 BHDDSA DS CL1 PROCESSOR SECTOR ADDRESS
07D6 3552 ORG BHDDSA INITIALIZE SECTOR ADDRESS
07D6 FF 07D6 3553 DC AL1(B@CPMK) * TO INDICATE NO PROC IN CORE
07D7 01 07D7 3554 BHDDSC DC IL1'1' PROCESSOR SECTOR COUNT
07D8 0600 07D9 3555 BHDDCA DC AL(@CADDR)(B\$CSBF) COMPILER TRANSIENT AREA CADDR
3556 *
07DA 02 07DA 3557 BHDSPL EQU * STATEMENT ADDRESS TABLE DPL
07DB 09 07DA 3558 BHDSFN DC AL1(@DPUT) DISK IOCR 'WRITE' FUNCTION
07DC 07DB 3559 BHDSCY DC AL1(B@DTCY) COMPILER TABLE BASE CYLINDER
07DC 07DC 3560 BHDSSA DS CL1 STMT TABLE LOGICAL SCTR ADDR
07DC 3561 ORG BHDSSA INITIALIZE SECTOR ADDRESS
07DC 40 07DC 3562 DC AL1(B@DTS1) * TO 1ST STMT TABLE SECTOR
07DD 01 07DD 3563 BHDSSC DC IL1'1' TABLE BLOCK SECTOR COUNT
07DE 1C00 07DF 3564 BHDSKA DC AL(@CADDR)(B\$SABF) STMT TABLE BUFFER CORE ADDR

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/07/20 PAGE 30
				3566	*****		
				3567	* COMPILER STATEMENT PROCESSOR ADDRESS TABLE		
				3568	*****		
				3569	*		
			07E0	3570	BHDPAT EQU *	ADDRESS OF PROCESSOR TABLE	
07E0			0857	3571	DS CL(B@NSPT*B@LSPT)	PROCESSOR ADDRESS TABLE AREA	
07E0				3572	ORG BHDPAT	INITIALIZE PROCESSOR ADDRESS	
				3573	*	* TABLE ENTRIES FOR 8K SYSTEM	
07E0	1AE6		07E1	3574	DC AL(@CADDR)(BNRMRK)	TYPE 003 - REM	
07E2	FF		07E2	3575	DC AL1(B@DREM)	PHYSICAL SECTOR ADDRESS	
				3576	*		
07E3	0600		07E4	3577	DC AL(@CADDR)(B\$CDAT)	TYPE 006 - DATA	
07E5	24		07E5	3578	DC AL1(B@DDAT)	PHYSICAL SECTOR ADDRESS	
				3579	*		
07E6	0600		07E7	3580	DC AL(@CADDR)(B\$CDEF)	TYPE 009 - DEF	
07E8	34		07E8	3581	DC AL1(B@DDEF)	PHYSICAL SECTOR ADDRESS	
				3582	*		
07E9	0673		07EA	3583	DC AL(@CADDR)(B\$CDIM)	TYPE 012 - DIM	
07EB	04		07EB	3584	DC AL1(B@DDIM)	PHYSICAL SECTOR ADDRESS	
				3585	*		
07EC	1AC4		07ED	3586	DC AL(@CADDR)(BPALET)	TYPE 015 - LET (ARITH, SIMPLE)	
07EE	FF		07EE	3587	DC AL1(B@DLTA)	PHYSICAL SECTOR ADDRESS	
				3588	*		
07EF	1ACC		07F0	3589	DC AL(@CADDR)(BPAASN)	TYPE 018 - ASSIGNMENT (A, S)	
07F1	FF		07F1	3590	DC AL1(B@DASA)	PHYSICAL SECTOR ADDRESS	
				3591	*		
07F2	0600		07F3	3592	DC AL(@CADDR)(B\$CLTM)	TYPE 021 - LET (ARITH, MULTIPLE)	
07F4	38		07F4	3593	DC AL1(B@DLTM)	PHYSICAL SECTOR ADDRESS	
				3594	*		
07F5	0608		07F6	3595	DC AL(@CADDR)(B\$CASM)	TYPE 024 - ASSIGNMENT (A, M)	
07F7	38		07F7	3596	DC AL1(B@DASM)	PHYSICAL SECTOR ADDRESS	
				3597	*		
07F8	0669		07F9	3598	DC AL(@CADDR)(B\$CLTC)	TYPE 027 - LET (CHARACTER)	
07FA	40		07FA	3599	DC AL1(B@DLTC)	PHYSICAL SECTOR ADDRESS	
				3600	*		
07FB	0671		07FC	3601	DC AL(@CADDR)(B\$CASC)	TYPE 030 - ASSIGNMENT (CHAR)	
07FD	40		07FD	3602	DC AL1(B@DASC)	PHYSICAL SECTOR ADDRESS	
				3603	*		
07FE	0600		07FF	3604	DC AL(@CADDR)(B\$CFOR)	TYPE 033 - FOR	
0800	28		0800	3605	DC AL1(B@DFOR)	PHYSICAL SECTOR ADDRESS	
				3606	*		
0801	0600		0802	3607	DC AL(@CADDR)(B\$CNXT)	TYPE 036 - NEXT	
0803	44		0803	3608	DC AL1(B@DNXT)	PHYSICAL SECTOR ADDRESS	
				3609	*		
0804	0600		0805	3610	DC AL(@CADDR)(B\$CIFA)	TYPE 039 - IF (ARITHMETIC)	
0806	48		0806	3611	DC AL1(B@DIFA)	PHYSICAL SECTOR ADDRESS	
				3612	*		
0807	0600		0808	3613	DC AL(@CADDR)(B\$CIFC)	TYPE 042 - IF (CHARACTER)	
0809	4C		0809	3614	DC AL1(B@DIFC)	PHYSICAL SECTOR ADDRESS	
				3615	*		
080A	06B3		080B	3616	DC AL(@CADDR)(B\$CGTO)	TYPE 045 - GO TO (SIMPLE)	
080C	44		080C	3617	DC AL1(B@DGTO)	PHYSICAL SECTOR ADDRESS	
				3618	*		
080D	0600		080E	3619	DC AL(@CADDR)(B\$CCGT)	TYPE 048 - GO TO (COMPUTED)	
080F	50		080F	3620	DC AL1(B@DCGT)	PHYSICAL SECTOR ADDRESS	
				3621	*		

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/07/20	PAGE 31
	0810	0690	0811	3622	DC	AL (@CADDR) (B\$CGSB)			TYPE 051 - GO SUB
	0812	20	0812	3623	DC	AL1 (B@DGSB)			PHYSICAL SECTOR ADDRESS
				3624	*				
	0813	06CF	0814	3625	DC	AL (@CADDR) (B\$CRTN)			TYPE 054 - RETURN
	0815	5C	0815	3626	DC	AL1 (B@DRTN)			PHYSICAL SECTOR ADDRESS
				3627	*				
	0816	06A3	0817	3628	DC	AL (@CADDR) (B\$CGET)			TYPE 057 - GET
	0818	40	0818	3629	DC	AL1 (B@DGET)			PHYSICAL SECTOR ADDRESS
				3630	*				
	0819	0600	081A	3631	DC	AL (@CADDR) (B\$CPUT)			TYPE 060 - PUT
	081B	40	081B	3632	DC	AL1 (B@DPUT)			PHYSICAL SECTOR ADDRESS
				3633	*				
	081C	06A6	081D	3634	DC	AL (@CADDR) (B\$CRST)			TYPE 063 - RESET
	081E	50	081E	3635	DC	AL1 (B@DRST)			PHYSICAL SECTOR ADDRESS
				3636	*				
	081F	0695	0820	3637	DC	AL (@CADDR) (B\$CCLS)			TYPE 066 - CLOSE
	0821	54	0821	3638	DC	AL1 (B@DCLS)			PHYSICAL SECTOR ADDRESS
				3639	*				
	0822	0600	0823	3640	DC	AL (@CADDR) (B\$CINP)			TYPE 069 - INPUT
	0824	00	0824	3641	DC	AL1 (B@DINP)			PHYSICAL SECTOR ADDRESS
				3642	*				
	0825	06CF	0826	3643	DC	AL (@CADDR) (B\$CREA)			TYPE 072 - READ
	0827	0C	0827	3644	DC	AL1 (B@DREA)			PHYSICAL SECTOR ADDRESS
				3645	*				
	0828	06E3	0829	3646	DC	AL (@CADDR) (B\$CRSR)			TYPE 075 - RESTORE
	082A	5C	082A	3647	DC	AL1 (B@DRSR)			PHYSICAL SECTOR ADDRESS
				3648	*				
	082B	0600	082C	3649	DC	AL (@CADDR) (B\$CPRT)			TYPE 078 - PRINT
	082D	2C	082D	3650	DC	AL1 (B@DPRT)			PHYSICAL SECTOR ADDRESS
				3651	*				
	082E	0600	082F	3652	DC	AL (@CADDR) (B\$CPRU)			TYPE 081 - PRINT USING
	0830	30	0830	3653	DC	AL1 (B@DPRU)			PHYSICAL SECTOR ADDRESS
				3654	*				
	0831	0600	0832	3655	DC	AL (@CADDR) (B\$CIMG)			TYPE 084 - IMAGE
	0833	3C	0833	3656	DC	AL1 (B@DIMG)			PHYSICAL SECTOR ADDRESS
				3657	*				
	0834	0600	0835	3658	DC	AL (@CADDR) (B\$CMAT)			TYPE 087 - MAT (ASSIGNMENT)
	0836	08	0836	3659	DC	AL1 (B@DMAT)			PHYSICAL SECTOR ADDRESS
				3660	*				
	0837	0665	0838	3661	DC	AL (@CADDR) (B\$CMGT)			TYPE 090 - MAT GET
	0839	44	0839	3662	DC	AL1 (B@DMGT)			PHYSICAL SECTOR ADDRESS
				3663	*				
	083A	06D3	083B	3664	DC	AL (@CADDR) (B\$CMIN)			TYPE 093 - MAT INPUT
	083C	38	083C	3665	DC	AL1 (B@DMIN)			PHYSICAL SECTOR ADDRESS
				3666	*				
	083D	06D0	083E	3667	DC	AL (@CADDR) (B\$CMRD)			TYPE 096 - MAT READ
	083F	3C	083F	3668	DC	AL1 (B@DMRD)			PHYSICAL SECTOR ADDRESS
				3669	*				
	0840	069B	0841	3670	DC	AL (@CADDR) (B\$CMPT)			TYPE 099 - MAT PUT
	0842	4C	0842	3671	DC	AL1 (B@DMPT)			PHYSICAL SECTOR ADDRESS
				3672	*				
	0843	069B	0844	3673	DC	AL (@CADDR) (B\$CMPR)			TYPE 102 - MAT PRINT
	0845	48	0845	3674	DC	AL1 (B@DMPR)			PHYSICAL SECTOR ADDRESS
				3675	*				
	0846	0600	0847	3676	DC	AL (@CADDR) (B\$CMPU)			TYPE 105 - MAT PRINT USING
	0848	54	0848	3677	DC	AL1 (B@DMPU)			PHYSICAL SECTOR ADDRESS

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/07/20	PAGE	32
				3678	*					
0849	06E7		084A	3679	DC	AL(@CADDR)(B\$CPSE)			TYPE 108 - PAUSE	
084B	50		084B	3680	DC	AL1(B@DPSE)			PHYSICAL SECTOR ADDRESS	
				3681	*					
084C	06D6		084D	3682	DC	AL(@CADDR)(B\$CSTP)			TYPE 111 - STOP	
084E	54		084E	3683	DC	AL1(B@DSTP)			PHYSICAL SECTOR ADDRESS	
				3684	*					
084F	0600		0850	3685	DC	AL(@CADDR)(B\$CEND)			TYPE 114 - END	
0851	58		0851	3686	DC	AL1(B@DEND)			PHYSICAL SECTOR ADDRESS	
				3687	*					
0852	0600		0853	3688	DC	AL(@CADDR)(B\$CEOF)			TYPE 117 - END-OF-FILE	
0854	58		0854	3689	DC	AL1(B@DEOF)			PHYSICAL SECTOR ADDRESS	
				3690	*					
0855	07BC		0856	3691	DC	AL(@CADDR)(BHD400)			TYPE 120 - TRUNCATED STMT	
0857	FF		0857	3692	DC	AL1(B@DDUM)			PHYSICAL SECTOR ADDRESS	
				3693	*					
0858	0600		0859	3694	DC	AL(@CADDR)(B\$STRL)			TYPE 121 - LET(C,S,SUBSTRING)	1-4
085A	10		085A	3695	DC	AL1(B@DSLTL)			PHYSICAL SECTOR ADDRESS	1-4
				3696	*					1-4
085B	0600		085C	3697	DC	AL(@CADDR)(B\$STML)			TYPE 122 - LET(C,M,SUBSTRING)	1-4
085D	10		085D	3698	DC	AL1(B@DSML)			PHYSICAL SECTOR ADDRESS	1-4
				3699	*					1-4
085E	061B		085F	3700	DC	AL(@CADDR)(B\$STAS)			TYPE 123 - ASN(C,S,SUBSTRING)	1-4
0860	10		0860	3701	DC	AL1(B@DSLTL)			PHYSICAL SECTOR ADDRESS	1-4
				3702	*					1-4
0861	061B		0862	3703	DC	AL(@CADDR)(B\$STMA)			TYPE 124 - ASN(C,M,SUBSTRING)	1-4
0863	10		0863	3704	DC	AL1(B@DSML)			PHYSICAL SECTOR ADDRESS	1-4
				3705	*					1-4
0864	0606		0865	3706	DC	AL(@CADDR)(B\$STIF)			TYPE 125 - IF(C,SUBSTRING)	1-4
0866	1C		0866	3707	DC	AL1(B@DSIF)			PHYSICAL SECTOR ADDRESS	1-4
				3708	*					
				3709	*****					

S/3 BASIC COMPILER STMT PROCESSING DISTRIBUTOR

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 33
			3711	*****	
			3712	* COMPILER DISTRIBUTOR PROGRAM SWITCH EQUATES	
			3713	*****	
			3714	*	
071D			3715	BHDNSW EQU BHD040+@Q	'NEXT' BRANCH ADDRESS SWITCH
0007			3716	BHDNMK EQU @UCB-@NOP	'NEXT' BRANCH ADDR SWITCH MASK
			3718	*****	
			3719	* COMPILER DISTRIBUTOR EQUATES REFERENCING CONSTANTS	
			3720	*****	
			3721	*	
0004			3722	BHDSEL EQU @VADDR+B@LSNO	STMT ADDR TABLE ENTRY LENGTH
00FD			3723	BHDSVA EQU B@BLSZ-B@LSNO-1	STMT TABLE BUFF FINAL VADDR DISP
00FF			3724	BHDSL N EQU B@BLSZ-1	STMT TABLE BUFF FINAL LINE DISP
00FF			3725	BHDSEN EQU B@BLSZ-1	STMT TABLE BUFF FINAL ENTRY DISP
			3727	*****	
			3728	* COMPILER DISTRIBUTOR EQUATES REFERENCING THE PROGRAM	
			3729	*****	
			3730	*	
07D0			3731	BHDLNO EQU BHDSHO	SOURCE STATEMENT LINE NUMBER
0739			3732	BHDTYP EQU BHD060+@D1	SOURCE STATEMENT TYPE CODE
076D			3733	BHDBRD EQU BHD130+@D1	PROCESSOR ENTRY POINT DISE
078A			3734	BHDSPT EQU BHD230+@D1	STMT TABLE BUFF POINTER
			3735	*	
			3736	*****	
			3737	*	
			3738	* END OF COMPILER DISTRIBUTOR CODING	
			3739	*	

S/3 BASIC COMPILER TEXT CHARACTER INPUT RTN.

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 34
		3741		*****	
		3742	*	5703-XM1 COPYRIGHT IBM CORP. 1970	*
		3743	*	REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083	*
		3744	*		*
		3745		*****	
		3746	*	*STATUS	*
		3747	*	VERSION 1 MODIFICATION 0	*
		3748	*		*
		3749	*	*FUNCTION	*
		3750	*	* BAGETC LOCATES SEQUENTIAL CHARACTERS OF BASIC SOURCE TEXT AND	*
		3751	*	RETURNS CHARACTER ADDRESSES TO THE CALLING PROGRAM FOR TEXT	*
		3752	*	STATEMENT PROCESSING.	*
		3753	*	* LOGICALLY CONSECUTIVE BLOCKS OF SEGMENTED, PACKED BASIC SOURCE	*
		3754	*	TEXT ARE READ INTO THE COMPILER INPUT BUFFER FROM THE SYSTEM	*
		3755	*	WORK FILE, AND CORE ADDRESSES OF SEQUENTIAL TEXT CHARACTERS	*
		3756	*	WITHIN THESE BLOCKS ARE DETERMINED.	*
		3757	*	* EACH BAGETC CALL RETURNS A CHARACTER CORE ADDRESS STORED IN	*
		3758	*	REGISTER @XR. BLANK CHARACTERS EMBEDDED IN THE TEXT ARE NORM-	*
		3759	*	ALLY IGNORED, BUT CAN BE PROCESSED USING A SPECIAL SWITCH.	*
		3760	*	* TEXT CHARACTERS MAY BE BYPASSED BY INCREMENTS SPECIFIED IN AN	*
		3761	*	INPUT PARAMETER, EXCEPT THAT STATEMENT TERMINATOR CHARACTERS	*
		3762	*	(E.G, CARRIER RETURN) ARE NEVER BYPASSED.	*
		3763	*	* BAGETC MAY BE DISABLED FROM ADVANCING TO SUCCESSIVE CHARACTERS	*
		3764	*	BY SETTING THE 'SKIP' INPUT PARAMETER EQUAL ZERO. THE 'SKIP'	*
		3765	*	INPUT PARAMETER IS ALWAYS RESTORED TO GET THE NEXT SUCCESSIVE	*
		3766	*	CHARACTER AT BAGETC EXIT.	*
		3767	*	* TEXT STATEMENT LINE NUMBERS AND TYPE CODES ARE STORED AS OUTPUT	*
		3768	*	PARAMETERS. THESE VALUES ARE MODIFIED ONLY AS NEW PROGRAM	*
		3769	*	STATEMENTS ARE PROCESSED.	*
		3770	*		*
		3771	*	*ENTRY POINTS	*
		3772	*	* THIS ROUTINE HAS A SINGLE ENTRY POINT - BAGETC WHOSE FUNCTION	*
		3773	*	IS DEFINED ABOVE. CALLING SEQUENCE IS	*
		3774	*	B BAGETC	*
		3775	*	SUBJECT TO INPUT CONDITIONS DESCRIBED BELOW.	*
		3776	*	* ENTRY POINT BAGETC MAY ALSO BE SPECIFIED AS BSGETC WHEN CALLED	*
		3777	*	FROM ONE OF THE DISK-RESIDENT STATEMENT PROCESSORS.	*
		3778	*		*
		3779	*	*INPUT	*
		3780	*	* BAGCSC (EXTERNAL BZNUM, B\$NUMC) - 1 BYTE, FOR THE CHARACTER	*
		3781	*	SKIP COUNT PARAMETER. DEFINES THE POSITION OF THE SOURCE TEXT	*
		3782	*	CHARACTER TO BE ACCESSED RELATIVE TO THE CURRENT VALUE IN DE	*
		3783	*	TEXT CHARACTER POINTER.	*
		3784	*	* VALUE IS 1 (B\$GETC) WHEN TEXT POINTER IS TO REFERENCE THE	*
		3785	*	NEXT STATEMENT CHARACTER. WHEN NOT EXPLICITLY SET, THIS	*
		3786	*	PARAMETER IS ASSIGNED VALUE OF 1 BY DEFAULT.	*
		3787	*	* VALUE IS 255 (B@GETC) WHEN TEXT POINTER IS TO REFERENCE	*
		3788	*	THE CURRENT STATEMENT TERMINATOR (EOS OR EOF).	*
		3789	*	* VALUE IS 0 (B@GETS) WHEN THE TEXT POINTER IS NOT TO BE	*
		3790	*	ADVANCED.	*
		3791	*	* BAGCPT (EXTERNAL BZGPTR, B\$GPTR) - 2 BYTES, FOR THE TEXT CHAR-	*
		3792	*	ACTER POINTER. CONTAINS THE CORE ADDRESS OF THE CHARACTER LAST	*
		3793	*	ACCESSED WINS BAGETC, AND USED AS A STARTING REFERENCE POINT	*
		3794	*	FOR THE CHARACTER SKIP COUNT PARAMETER. BAGCPT IS MAINTAINED	*
		3795	*	BY BAGETC AND IS NOT CONSIDERED AS A CONTROLLABLE PARAMETER.	*
		3796	*	* BAGBSW (EXTERNAL BZGBSW, R\$GBSW) - 1 BYTE, FOR THE BLANK CHAR-	*

S/3 BASIC COMPILER TEXT CHARACTER INPUT RTN.

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 35
		3797	*	ACTER BYPASS SWITCH. THIS SWITCH, NORMALLY ON, IS SET USING	*
		3798	*	MASK BAGBMK (EXTERNAL BZGBMK, B\$GBMK).	*
		3799	*	* SWITCH ON - CAUSES BLANK TEXT CHARACTERS TO BE BYPASSED	*
		3800	*	AS THE TEXT POINTER IS ADVANCED.	*
		3801	*	* SWITCH OFF - CAUSES BLANK TEXT CHARACTERS TO BE PROCESSED	*
		3802	*	AS SIGNIFICANT CHARACTERS.	*
		3803	*	* SYSTEM WORK FILE - TWO 4-TRACK DISK CYLINDERS CONTAINING SOURCE	*
		3804	*	TEXT IN PACKED-CHARACTER SEGMENTED RECORD FORMAT. BAGETC READS	*
		3805	*	DISK BLOCKS (SECTORS) FROM THIS FILE INTO THE COMPILER INPUT	*
		3806	*	BUFFER (B\$GTBF) FOR STATEMENT PROCESSING. THE INPUT BUFFER IS	*
		3807	*	PRIMED WITH THE 1ST WORK FILE DISK BLOCK AT COMPILER ENTRY.	*
		3808	*		*
		3809	*	*OUTPUT	*
		3810	*	* REGISTER @XR - CONTAINS THE CORE ADDRESS OF THE TEXT CHARACTER	*
		3811	*	SELECTED BY THE VALUE IN BAGCSC.	*
		3812	*	* BAGCPT (EXTERNAL BZGPTR, B\$GPTR) - 2 BYTES, FOR THE TEXT CHAR-	*
		3813	*	ACTER POINTER. CONTAINS THE CORE ADDRESS OF THE TEXT CHARACTER	*
		3814	*	SELECTED BY THE VALUE IN BAGCSC, AND EQUIVALENT TO THE ADDRESS	*
		3815	*	RETURNED IN REGISTER @XR.	*
		3816	*	* BAGCSC (EXTERNAL BZNUNC, B\$NUMC) - 1 BYTE, FOR THE CHARACTER	*
		3817	*	SKIP COUNT PARAMETER. THIS IS ALWAYS RESET TO A VALUA OF 1	*
		3818	*	(B\$GETC) BEFORE CONTROL IS RETURNED TO THE CALLING PROGRAM.	*
		3819	*	* BZLINE - 2 BYTES, FOR THE TEXT STATEMENT LINE NUMBER. CONTAINS	*
		3820	*	THE BINARY LINE NUMBER OF THE STATEMENT BEING PROCESSED.	*
		3821	*	* BZTYPE - 1 BYTE, FOR THE TEXT STATEMENT TYPE CODE. CONTAINS	*
		3822	*	THE SYNTAX CHECKER TYPE CODE FOR THE STATEMENT BEING PROCESSED.	*
		3823	*		*
		3824	*	*EXTERNAL REFERENCES	*
		3825	*	* \$DISKR - ENTRY POINT FOR THE SYSTEM PHYSICAL DISK IOCS.	*
		3826	*	* \$MAITF - CORE ADDRESS OF 'WAIT' FUNCTION DISK PARAMETER LIST.	*
		3827	*	* BVDL4T - ENTRY POINT FOR COMPILER 4-TRACK LOGICAL DISK IOCR.	*
		3828	*	B\$GTBF - CORE ADDRESS OF THE LEFTMOST BYTE IN THE 256-BYTE	*
		3829	*	COMPILER INPUT BUFFER.	*
		3830	*	* BZLINE - 2 BYTES, FOR THE COMPILER STATEMENT LINE NUMBER.	*
		3831	*	* BZTYPE - 1 BYTE, FOR THE COMPILER STATEMENT TYPE CODE.	*
		3832	*		*
		3833	*	*EXITS, NORMAL	*
		3834	*	CONTROL IS ALWAYS RETURNED TO THE NEXT INSTRUCTION FOLLOWING THE	*
		3835	*	BAGETC CALLING SEQUENCE.	*
		3836	*		*
		3837	*	*EXITS, ERROR	*
		3838	*	N/A	*
		3839	*		*
		3840	*	*TABLES/WORK AREAS	*
		3841	*	* BAGCSP (EXTERNAL BZNUMC, B\$NUMC) - 1 BYTE, FOR THE BAGETC	*
		3842	*	CHARACTER SKIP COUNT PARAMETER, THIS IS INITIALIZED AT COMPT-	*
		3843	*	LER ENTRY TO A VALUE OF 1 (B@GETC).	*
		3844	*	* BAGCPT (EXTERNAL BZGPTR, B\$GPTR) - 2 BYTES, FOR THE SOURCE TEXT	*
		3845	*	CHARACTER POINTER. THIS IS INITIALIZED AT CIMPILER ENTRY TO	*
		3846	*	REFERENCE THE CORE ADDRESS OF THE LEFTMOST BYTE IN THE COMPILER	*
		3847	*	RING BUFFER (B\$GTBF).	*
		3848	*	* BAGBSW (EXTERNAL SZGBSW, B\$GBSW) - 1 BYTE, FOR THE BAGETC BLANK	*
		3849	*	BYPASS SWITCH. THIS IS INITIALIZED AT COMPILER ENTRY TO THE	*
		3850	*	*ON* CONDITION (SEE INPUT).	*
		3851	*	* BAGSBC - 1 BYTE, FOR THE BAGETC SEGMENT BYTE COUNTER. THIS	*
		3852	*	COUNTER IS INITIALIZED AT COMPILER ENTRY TO A VALUE OF 1 TO	*

S/3 BASIC COMPILER TEXT CHARACTER INPUT RTN.

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 36
		3853	*	FORCE END-OF-SEGMENT PROCESSING DURING THE FIRST ENTRY TO THIS	*
		3854	*	ROUTINE.	*
		3855	*	* BAGSGL - 1 BYTE, FOR THE BAGETC CURRENT SEGMENT LENGTH. THIS	*
		3856	*	IS INITIALIZED AT COMPILER ENTRY TO A VALUE OF 0 TO PERFORM	*
		3857	*	PROPERLY DURING END-OF-SEGMENT PROCESSING.	*
		3858	*	* BAGSGP - 1 BYTE, FOR THE SEGMENT DESCRIPTOR FIELD POINTER.	*
		3859	*	THIS POINTER IS INITIALIZED AT COMPILER ENTRY TO A VALUE OF 1	*
		3860	*	TO REFERENCE THE FIRST DISK BLOCK SEGMENT DURING INITIAL BAGETC	*
		3861	*	EXECUTION.	*
		3862	*	* BAGDPL - 6 BYTES, FOR THE COMPILER SOURCE TEXT INPUT DISK	*
		3863	*	PARAMETER LIST. THIS CONTAINS 4-TRACK LOGICAL DISK PARAMETERS	*
		3864	*	INDICATING THE DISK ADDRESS OF THE WORK FILE SECTOR CURRENTLY	*
		3865	*	BEING PROCESSED. THE 1-BYTE SECTOR ADDRESS PARAMETER (BAGDSA)	*
		3866	*	IS INITIALIZED AT COMPILER ENTRY TO CONTAIN THE LOGICAL SECTOR	*
		3867	*	ADDRESS. RELATIVE TO THE FIRST SECTOR OF THE WORK FILE AS 0,	*
		3868	*	OF THE FIRST SOURCE TEXT DISK BLOCK.	*
		3869	*		*
		3870	*	*ATTRIBUTES	*
		3871	*	* REUSABLE	*
		3872	*	* RELOCATABLE	*
		3873	*		*
		3874	*	*CHARACTER CODE DEPENDENCY	*
		3875	*	THE OPERATION OF THIS MODULE DEPENDS UPON AN INTERNAL REPRES-	*
		3876	*	TATION OF THE EXTERNAL CHARACTER SET WHICH IS EQUIVALENT TO THE	*
		3877	*	ONE USED AT ASSEMBLY TIME. THE CODING HAS BEEN ARRANGED SO THAT	*
		3878	*	REDEFINITION OF CHARACTER CONSTANTS. BY REASSEMBLY, WILL RESULT	*
		3879	*	IN A CURRENT MODULE FOR THE NEW DEFINITIONS.	*
		3880	*		*
		3881	*	*NOTES	*
		3882	*	ERROR PROCEDURES	*
		3883	*	N/A	*
		3884	*	REGISTER USAGE	*
		3885	*	* REGISTER @BR IS SAVED, USED AS A BASE REGISTER, THEN	*
		3886	*	RESTORED AT BAGETC EXIT.	*
		3887	*	* REGISTER @XR IS NOT SAVED, AND IS USED TO CONTAIN AN OUTPUT	*
		3888	*	PARAMETER AT BAGETC EXIT.	*
		3889	*	SAVED/RESTORED AREAS	*
		3890	*	N/A	*
		3891	*	MODIFICATION CONSIDERATIONS	*
		3892	*	BAGETC INTERPRETS ANY CHARACTER CODE WITH VALUE LESS THAN	*
		3893	*	X'1C' AS A COUNT FIELD DEFINING A PACKED CHARACTER SEQUENCE.	*
		3894	*	ANY EXTERNAL CHARACTER SET CODE CHANGES MUST TAKE THIS PACKING	*
		3895	*	COUNT REQUIREMENT INTO CONSIDERATION.	*
		3896	*	REQUIRED MOOULES	*
		3897	*	* @SYSEQ - COMMON SYSTEM EQUATES.	*
		3898	*	* @FXDEO - SYSTEM NUCLEUS ADDRESSES AND INDICATOR EQUATES.	*
		3899	*	* \$B\$EQU - COMPILER FIXED LOCATION ADDRESS EQUATES.	*
		3900	*	* \$B@EQU - COMPILER PARAMETER AND CONSTANT EQUATES.	*
		3901	*	* BVDL4T - COMPILER 4-TRACK LOGICAL DISK IOCS INTERFACE.	*
		3902	*	* BZCOMN - COMPILER COMMON AREAS AND ADDRESS REFERENCE EQUATES.	*
		3903	*	OTHER	*
		3904	*	N/A	*
		3905	*	*****	*

S/3 BASIC COMPILER TEXT CHARACTER INPUT RTN.

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT VER 15, MOD 00 04/07/20 PAGE 37

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3907 *****
3908 * COMPILER INPUT ROUTINE ENTRY POINT
3909 *****
3910 *
3911 * ENTER BAGETC - PERFORM REGISTER OPERATIONS
3912 *
0867 3913 BAGETC EQU * BAGETC ENTRY POINT
0872 3914 USING BAG010,@BR DEFINE BAGETC BASE ADDRESS
0867 34 01 0888 3915 ST BAG050+@OP1,@BR SAVE CALLING PROGRAM BASE
086B C2 01 0872 3916 LA BAG010,@BR LOAD BAGETC BASE REGISTER
086F 74 08 1A 3917 ST BAG060+@OP1(,@BR),@ARR SAVE THE RETURN ADDRESS
3918 *
3919 * SET CHARACTER SKIP COUNTER WITH SKIP INPUT PARAMETER
3920 *
0872 7C 00 C4 3921 BAG010 MVI BAGCSC(,@BR),*- * SET CHARACTER SKIP COUNTER
0873 3922 ORG BAG010+@Q INITIALIZE THE CHARACTER SKIP
0873 01 0873 3923 DC AL1(B@GETC) * PARAMETER TO GET SINGLE
0875 3924 ORG BAG010+@INST3 * BASIC CHARACTERS
3925 *
3926 * RESTORE THE TEXT CHARACTER POINTER
3927 *
0875 C2 02 0000 3928 BAG020 LA *-*,@XR LOAD TEXT CHARACTER POINTER
0877 3929 ORG BAG020+@OP1-1 INITIALIZE CHARACTER POINTER
0877 1E00 0878 3930 DC AL(@CADDR)(B$GTBF) * TO REFERENCE LEFTMOST BYTE
0879 3931 ORG BAG020+@INST4 * OF THE INPUT BUFFER
3932 *
3933 * BRANCH TO GET CHARACTER IF ROUTINE IS ENABLED
3934 *
0879 7D 00 01 3935 BAG030 CLI BAGCSP(,@BR),B@GETS IF TEXT POINTER TO BE ADVANCED
087C D0 01 1B 3936 BNE BAG100(,@BR) * GO GET SPECIFIED TEXT CHAR
3937 *
3938 * EXIT ROUTINE - ESTABLISH CONDITIONS FOR NEXT BAGETC PASS
3939 *
087F 74 02 06 3940 BAG040 ST BAGCPT(,@BR),@XR SAVE TEXT CHARACTER POINTER
0882 7C 01 01 3941 MVI BAGCSP(,@BR),B@GETC RESET PARAM FOR SINGLE CHAR
3942 *
3943 * RESTORE BASE REGISTER AND RETURN TO CALLING PROGRAM
3944 *
0885 C2 01 0000 3945 BAG050 LA *-*,@BR RESTORE CALLING PROGRAM BASE
0889 C0 87 0000 3946 BAG060 B *- * RETURN TO CALLING PROGRAM

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S/3 BASIC COMPILER TEXT CHARACTER INPUT RTN.

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 38
		3948		*****	
		3949		* RECORD SEGMENT CHARACTER ACCESSING ROUTINE	
		3950		*****	
		3951		*	
		3952		* TEST FOR END OF CURRENT SEGMENT	
		3953		*	
088D 5F 00 C5 24		3954	BAG100 SLC	BAGSBC(,@BR),BAGN01(1,@BR) DECREMENT SEGMENT BYTE COUNTER	
0891 D0 81 4F		3955	BE	BAG200(,@BR) IF SEG END, GO ACCESS NEXT SEG	
		3956		*	
		3957		* ADVANCE POINTER AND TEST FOR REPEAT COUNTER	
		3958		*	
0894 E2 02 01		3959	BAG110 LA	BAGB01(,@XR),@XR INCR POINTER TO NEXT BFR BYTE	
0897 BD 1B 00		3960	CLI	B@CHAR(,@XR),BAGCID IF BYTE NOT A REPEAT COUNTER	
089A F2 84 0E		3961	JH	BAG130 * SKIP TO PROCESS CHARACTER	
		3962		*	
		3963		* ACCESS PREVIOUS CHARACTER UNDER REPEAT COUNTER CONTROL	
		3964		*	
089D 9F 00 00 24		3965	BAG120 SLC	BAGRCT(,@XR),BAGN01(1,@BR) DECREMENT REPEAT COUNTER	
08A1 D0 82 1B		3966	BL	BAG100(,@BR) GO PROC NEXT CHAR IF NO REPEAT	
		3967		*	
08A4 76 02 BD		3968	A	BAGM01(,@BR),@XR DECR POINTER TO REPEATED CHAR	
08A7 5E 00 C5 24		3969	ALC	BAGSBC(,@BR),BAGN01(1,@BR) INCR BYTE COUNT TO COMPENSATE	
		3970		*	
		3971		* TEST FOR A BLANK CHARACTER EXCEPTION	
		3972		*	
08AB BD 40 00		3973	BAG130 CLI	B@CHAR(,@XR),B@BLNK IF CHARACTER IS A 'BLANK'	
08AE D0 00 1B		3974	BAG140 BC	BAG100(,@BR),*- * AND 'BLANK' BYPASS SW IS ON	
08AF		3975	ORG	BAG140+@Q * GO PROCESS NEXT CHARACTER	
08AF 81	08AF	3976	DC	AL1(@BE) INITIALIZE BRANCH CONDITION	
08B1		3977	ORG	BAG140+@INST3 * TO BYPASS SWITCH = ON	
		3978		*	
		3979		* TEST FOR AN END-OF-STATEMENT OR END-OF-FILE DELIMITER	
		3980		*	
08B1 BD 1E 00		3981	BAG150 CLI	B@CHAR(,@XR),B@EOST IF CHARACTER IS EOS OR EOF	
08B4 D0 04 0D		3982	BNH	BAG040(,@BR) * GO EXIT LIE INPUT ROUTINE	
		3983		*	
		3984		* RETURN CHARACTER TO CALLING PROGRAM UNDER SKIP COUNTER CONTROL	
		3985		*	
08B7 5F 00 C4 24		3986	BAG160 SLC	BAGCSC(,@BR),BAGN01(1,@BR) DECREMENT CHAR SKIP COUNTER	
08BB D0 81 0D		3987	BE	BAG040(,@BR) IF SKIP COMPLETE, GO EXIT	
08BE D0 87 1B		3988	B	BAG100(,@BR) * ELSE PROCESS NEXT CHARACTER	

S/3 BASIC COMPILER TEXT CHARACTER INPUT RTN.

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 39
		3990		*****	
		3991	*	NEXT DISK BLOCK SEGMENT ACCESSING ROUTINE	
		3992		*****	
		3993	*		
		3994	*	ADJUST POINTERS TO NEXT SEGMENT DESCRIPTOR FIELD	
		3995	*		
08C1	6C 00 6C 00	3996	BAG200 MVC	BAGCSV(,@BR),B@CHAR(1,@XR) SAVE CURRENT SEG LAST CHAR	
08C5	5E 00 C7 C6	3997	ALC	BAGSGP(,@BR),BAGSGL(1,@BR) ADD CURB SEG LNG TO 'SOF' PT	
08C9	D0 02 8F	3998	BNL	BAG300(,@BR) IF BLOCK LENGTH EXCEEDED	
		3999	*	* GO INPUT NEXT DISK BLOCK	
08CC	E2 02 01	4000	LA	BAGB01(,@XR),@XR * ELSE INCREMENT TEXT CHARACTER	
		4001	*	* POINTER TO THE NEW SEGMENT	
		4002	*		
		4003	*	TEST SEGMENT VALIDITY AND BRANCH IF NULL	
		4004	*		
08CF	B8 80 00	4005	BAG210 TBN	BAGSDF(,@XR),BAGNUL IF NULL SEGMENT DESCRIPTOR	
08D2	D0 10 8F	4006	BT	BAG300(,@BR) * GO INPUT NEXT DISK BLOCK	
		4007	*		
		4008	*	SET SEGMENT LENGTH CONTROLS AND FORCE SEGMENT CONTINUITY	
		4009	*		
08D5	6C 00 C6 01	4010	BAG220 MVC	BAGSGL(,@BR),BAGSDL(1,@XR) SAVE THE NEW SEGMENT LENGTH	
08D9	6C 00 C5 01	4011	MVC	BAGSBC(,@BR),BAGSDL(1,@XR) RESET SEGMENT BYTE COUNTER	
08DD	BC 00 03	4012	BAG230 MVI	BAGSCC(,@XR),*-* PRECEDE NEW TEXT WITH LAST CHAR	
		4013	*		
		4014	*	TEST FOR SEGMENT POSITION IN THE SOURCE RECORD	
		4015	*		
08E0	B8 02 02	4016	BAG240 TBN	BAGSDS(,@XR),BAGSEC IF THIS IS SECONDARY SEGMENT	
08E3	F2 10 11	4017	JT	BAG270 * SKIP FOR 'SOF' ADJUST ONLY	
		4018	*		
		4019	*	ADJUST POINTERS FOR STATEMENT LINE NO, AND TYPE CODE	
		4020	*		
08E6	E2 02 03	4021	BAG250 LA	B@LSNO+B@LTYP(,@XR),@XR INCR POINTER FOR STMT CODES	
08E9	5F 00 C5 76	4022	SLC	BAGSBC(,@BR),BAGCLI(1,@BR) DECR BYTE CT FOR STMT CODES	
		4023	*		
		4024	*	SAVE THE STATEMENT LINE NUMBER AND TYPE CODE	
		4025	*		
08ED	2C 01 07D0 02	4026	BAG260 MVC	BZLINE,BAGLIN(B@LSNO,@XR) SAVE STATEMENT LINE NO,	
08F2	2C 00 0739 03	4027	MVC	BZTYPE,BAGTYP(B@LTYP,@XR) SAVE STATEMENT TYPE CODE	
		4028	*		
		4029	*	ADJUST POINTERS FOR SEGMENT DESCRIPTOR FIELD LENGTH	
		4030	*		
08F7	E2 02 03	4031	BAG270 LA	B@LSDF-1(,@XR),@XR INCR POINTER FOR 'SOF' LENGTH	
08FA	5F 00 C5 87	4032	SLC	BAGSBC(,@BR),BAGDLI(1,@BR) DECR BYTE CT FOR 'SOF' LENGTH	
		4033	*		
08FE	D0 87 1B	4034	B	BAG100(,@BR) GO PROCESS NEXT CHARACTER	

S/3 BASIC COMPILER TEXT CHARACTER INPUT RTN.

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 40
		4036		*****	
		4037	*	NEXT SOURCE TEXT DISK BLOCK INPUT ROUTINE	
		4038		*****	
		4039	*		
		4040	*	TEST CURRENT BLOCK LINKAGE FOR DISK LOCATION OF NEXT BLOCK	
		4041	*		
0901 3D 00 1E00		4042	BAG300 CLI	BAGLNK,BAGLCC	IF NEXT BLOCK NOT CONTIGUOUS
0905 F2 01 07		4043		JNE BAG320	* GO COMPUTE NEW SECTOR ADDR
		4044	*		
		4045	*	NEXT BLOCK CONTIGUOUS - INCREMENT CURRENT WORK FILE ADDRESS	
		4046	*		
0908 5E 00 C0 C1		4047	BAG310 ALC	BAGDSA(,@BR),BAGDSC(1,@BR)	INCREMENT CURRENT SECTOR ADDR
090C F2 87 08		4048		J BAG330	BRANCH TO READ NEW DISK BLOCK
		4049	*		
		4050	*	NEXT BLOCK NOT CONTIGUOUS - FIND WORK FILE ADDRESS USING LINKAGE	
		4051	*		
090F 7C 03 C0		4052	BAG320 MVI	BAGDSA(,@BR),B@DWT1	SET TEXT BASE SECTOR ADDRESS
0912 4E 00 C0 1E00		4053		ALC BAGDSA(,@BR),BAGLNK(1)	INCREMENT BY LINKAGE VALUE
		4054	*		
		4055	*	READ NEW DISK BLOCK INTO BUFFER FOR PROCESSING	
		4056	*		
0917 D2 02 BE		4057	BAG330 LA	BAGDPL(,@BR),@XR	LOAD DISK PARAM LIST CAUDR
091A C0 87 1A6B		4058		B BVDL4T	LINK TO READ NEW DISK BLOCK
		4059	*		
		4060	*	RESET POINTERS TO FIRST SEGMENT IN NEW BLOCK	
		4061	*		
091E C2 02 1E01		4062	BAG340 LA	BAGSG1,@XR	RESET TEXT PT TO 1ST SEGMENT
0922 7C 01 C7		4063		MVI BAGSGP(,@BR),BAGB01	SET 'SOF' PT TO 1ST SEMENT
		4064	*		
		4065	*	BRANCH TO PROCESS NEW BLOCK WHEN DISK INPUT FINISHED	
		4066	*		
0925 C0 87 0025		4067	BAG350 B	\$DISKN	LINK TO WAIT INPUT COMPLETED
0929 057F	092A	4068		DC AL(@CADDR)(\$WAITF)	'WAIT' PARAMETER CORE ADDRESS
		4069	*		
092B D0 87 5D		4070		B BAG210(,@BR)	GO PROCESS BLOCK SEGMENTS

S/3 BASIC COMPILER TEXT CHARACTER INPUT RTN.

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/07/20	PAGE	41
					4072	*****					
					4073	* INPUT ROUTINE CONSTANTS					
					4074	*****					
					4075	*					
092E	FFFF			092F	4076	BAGM01 DC	IL(@REGL)'-1' BINARY CONSTANT -1				
					4078	*****					
					4079	* INPUT ROUTINE DISK PARAMETER LIST					
					4080	*****					
					4081	*					
				0930	4082	BAGDPL EQU	* DISK IOCR PARAMETER LIST CADDR				
0930	01			0930	4083	BAGDFN DC	AL1(@DGET) DISK 'READ' FUNCTION CODE				
0931	05			0931	4084	BAGDCY DC	AL1(B@DWCY) WORK FILE BASE CYLINDER				
0932				0932	4085	BAGDSA DS	CL1 WORK FILE LOGICAL SCTR ADM				
0932					4086	ORG	BAGDSA INITIALIZE LOGICAL SCTR ADDR				
0932	03			0932	4087	DC	AL1(B@DWT1) * TO WORK FILE TEXT BLOCK 1				
0933	01			0933	4088	BAGDSC DC	IL1'1' SECTOR INPUT COUNT				
0934	1E00			0935	4089	BAGDCA DC	AL(@CADDR)(B\$GTBF) INPUT BUFFER CORE ADDRESS				
					4091	*****					
					4092	* INPUT ROUTINE WORK AREAS					
					4093	*****					
					4094	*					
0936				0936	4095	BAGCSC DS	CL1 CHARACTER SKIP COUNTER				
0936					4096	ORG	BAGCSC INITIALIZE CHARACTER SKIP				
0936	00			0936	4097	DC	IL1'0' * COUNTER TO ZERO				
					4098	*					
0937				0937	4099	BAGSBC DS	CL1 SEGMENT BYTE COUNTER				
0937					4100	ORG	BAGSBC INITIALIZE COUNTER TO				
0937	01			0937	4101	DC	IL1'1' * INDICATE END OF SEGMENT				
					4102	*					
0938				0938	4103	BAGSGL DS	CL1 CURRENT SEGMENT LENGTH				
0938					4104	ORG	BAGSGL INITIALIZE CURRENT SEGMENT				
0938	00			0938	4105	DC	IL1'0' * LENGTH TO ZERO				
					4106	*					
0939				0939	4107	BAGSGP DS	CL1 CURRENT 'SDF' DISP IN BUFFER				
0939					4108	ORG	BAGSGP INITIALIZE CURRENT 'SDF' DISP				
0939	01			0939	4109	DC	IL1'1' * TO REFERENCE 1ST SEGMENT				
					4111	*****					
					4112	* INPUT ROUTINE SWITCH EQUATES					
					4113	*****					
					4114	*					
				08AF	4115	BAGBSW EQU	BAG140+@Q 'BLANK' CHAR BYPASS SWITCH				
				0001	4116	BAGBMK EQU	@BE-@NOP 'BLANK' CHAR BYPASS SWITCH MASK				

S/3 BASIC COMPILER TEXT CHARACTER INPUT RTN.

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT VER 15, MOD 00 04/07/20 PAGE 42

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4118 *****
4119 * INPUT ROUTINE MISCELLANEOUS EQUATES
4120 *****
4121 *
4122 * EQUATES REFERENCING CONSTANTS
4123 *
0001 4124 BAGB01 EQU 1 BINARY CONSTANT +1
4125 *
4126 * EQUATES REFERENCING DISK BLOCKS
4127 *
1E01 4128 BAGSG1 EQU B$GTBF+1 CORE ADDR OF BLOCK 1ST SEGMENT
1E00 4129 BAGLNK EQU B$GTBF+0 CORE ADDR OF BLOCK LINKAGE BYTE
0000 4130 BAGLCC EQU 0 CONTIGUOUS BLOCK LINKAGE CODE
4131 *
4132 * EQUATES REFERENCING SOURCE TEXT STATEMENTS
4133 *
0002 4134 BAGLIN EQU 2 DISP FOR STATEMENT LINE NO.
0003 4135 BAGTYP EQU 3 DISP FOR STATEMENT TYPE CODE
001B 4136 BAGCID EQU X'1B' MAXIMUM CHAR REPETITION COUNT
0000 4137 BAGRCT EQU 0 DISP FOR CHAR REPEAT COUNTER
4138 *
4139 * EQUATES REFERENCING SEGMENT DESCRIPTOR FIELD
4140 *
0000 4141 BAGSDF EQU 0 DISP FOR SEGMENT DESCRIPT FLD
0001 4142 BAGSDL EQU 1 DISP FOR 'SDF' LENGTH FIELD
0002 4143 BAGSDS EQU 2 DISP FOR 'SDF' POSITION STATUS
0002 4144 BAGSEC EQU X'02' MASK FOR SECONDARY SEGMENT !OR
0080 4145 BAGNUL EQU X'80' MASK FOR NULL SEGMENT INDICATOR
4146 *
4147 * MISCELLANEOUS EQUATES
4148 *
0003 4149 BAGSCC EQU 3 DISP FOR SEGMENT CONTN CHAR
4150 *
4151 * EQUATES REFERENCING PROGRAM INSTRUCTIONS
4152 *
0873 4153 BAGCSP EQU BAG010+@Q CHARACTER SKIP CONTROL PARAM
0878 4154 BAGCPT EQU BAG020+@OP1 CHARACTER POINTER SAVE AREA
0896 4155 BAGN01 EQU BAG110+@D1 BINARY CONSTANT +1
08DE 4156 BAGCSV EQU BAG230+@Q CONTINUATION CHAR SAVE AREA
08E8 4157 BAGCLI EQU BAG250+@D1 INCR TO SKIP OVER STMT CODES
08F9 4158 BAGDLI EQU BAG270+@D1 INCR TO SKIP OVER AN 'SDF'
4159 *
4160 *****
4161 *
4162 * END OF COMPILER INPUT ROUTINE CODING
4163 *

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S/3 BASIC COMPILER VIRTUAL MEMORY RTN.

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/07/20	PAGE 43
4165				*****			
4166	*			5703-XM1 COPYRIGHT IBM CORP. 1970			*
4167	*			REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083			*
4168	*						*
4169				*****			*
4170				*STATUS			*
4171	*			VERSION 1 MODIFICATION 0			*
4172	*						*
4173				*FUNCTION			*
4174	*			* BBPUTC STORES PSEUDO MACHINE CODE STRINGS OF FROM 1 TO 255			*
4175	*			BYTES INTO CONSECUTIVE LOCATIONS IN VIRTUAL MEMORY, OR STORES			*
4176	*			256-BYTE CONSTANT DATA BLOCKS INTO SEQUENTIALLY DECREASING			*
4177	*			VIRTUAL MEMORY PAGES.			*
4178	*			* OUTPUT EXECUTION IS CONTROLLED USING FOUR PRIMARY INPUT PARA-			*
4179	*			METERS. ONE OF THESE PARAMETERS (BRPFNC) CONTAINS THE FUNCTION			*
4180	*			CODE WHICH DEFINES THE TYPE OF PROCESSING TO BE CONDUCTED.			*
4181	*			* FUNCTION 'ADD RECORD' (AR) CAUSES A PSEUDO MACHINE CODE STRING			*
4182	*			OF FROM 1 TO 255 BYTES TO BE ADDED TO THE COMPILER OUTPUT BUF-			*
4183	*			FER, AND CAUSES FILLED BUFFERS TO BE WRITTEN INTO SEQUENTIALLY			*
4184	*			INCREASING VIRTUAL MEMORY PAGES. PAGES ARE FILLED BEGINNING			*
4185	*			WITH THE 1ST PMC PAGE SPECIFIED FOR THE SYSTEM. THIS STARTING			*
4186	*			PAGE IS INDEPENDENT OF SPECIFIED PROGRAM PRECISION.			*
4187	*			* FUNCTION 'WRITE PAGE' (WP) CAUSES THE 256-BYTE COMPILER CON-			*
4188	*			STANT OUTPUT BUFFER TO BE WRITTEN INTO SEQUENTIALLY DECREASING			*
4189	*			VIRTUAL MEMORY PAGES. SUCH PAGES ARE OUTPUT BEGINNING WITH THE			*
4190	*			1ST PAGE SPECIFIED FOR CONSTANT GENERATION IN THE SYSTEM. THIS			*
4191	*			STARTING PAGE DEPENDS ON SPECIFIED PROGRAM PRECISION.			*
4192	*			* FUNCTION 'ADD ERROR' (AE) IS THE SAME AS FUNCTION (AP), EXCEPT			*
4193	*			THE DATA STRING CONSISTS OF A 3-BYTE ERROR SEQUENCE WHICH IS			*
4194	*			GENERATED WITHIN BBPUTC. IN ADDITION, FUNCTIONS (AR) AND (WP)			*
4195	*			ARE DISABLED DURING THE REMAINDER OF COMPILATION WHEN (AE) IS			*
4196	*			EXECUTED. ERROR CODE PAGES ARE FILLED BEGINNING WITH THE 1ST			*
4197	*			PMC PAGE SPECIFIED FOR THE SYSTEM, REPLACING ANY PSEUDO CODE			*
4198	*			THAT MAY ALREADY HAVE BEEN GENERATED.			*
4199	*			* FUNCTION 'CLOSE' (CL) CAUSES THE CURRENT COMPILER OUTPUT BUFFER			*
4200	*			TO BE WRITTEN IMMEDIATELY INTO VIRTUAL MEMORY AT THE NEXT			*
4201	*			AVAILABLE PMC PAGE. CLOSING COMPILE-TIME PMC GENERATION.			*
4202	*			* EACH PAGE OUTPUT TO VIRTUAL MEMORY FROM THE COMPILER OUTPUT			*
4203	*			PUFFER (USING FUNCTION AR, AE, OR CL) IS PADDED ON THE RIGHT			*
4204	*			WITH AT LEAST ONE END-OF-PAGE (EOP) PSEUDO INSTRUCTION.			*
4205	*						*
4206				*ENTRY POINTS			*
4207	*			* THIS ROUTINE HAS A SINGLE ENTRY POINT - BBPUTC - WHOSE FUNCTION			*
4208	*			IS DEFINED ABOVE. CALLING SEQUENCE IS			*
4209	*			B BBPUTC			*
4210	*			SUBJECT TO INPUT CONDITIONS DESCRIBED BELOW.			*
4211	*			* ENTRY POINT BBPUTC MAY ALSO BE SPECIFIED AS B\$PUTC WHEN CALLED			*
4212	*			FROM ONE OF THE DISK-RESIDENT STATEMENT PROCESSORS.			*
4213	*						*
4214				*INPUT			*
4215	*			* BBPFNC (EXTERNAL BIPENC, B\$PENC) - 1 BYTE, FOR THE VIRTUAL			*
4216	*			MEMORY OUTPUT FUNCTION CODE. THIS IS REQUIRED FOR ALL FUNC-			*
4217	*			TIONS EXCEPT 'ADD RECORD', AND IS SPECIFIED USING ONE OF THE			*
4218	*			FOLLOWING DISPLACEMENT CODES.			*
4219	*			* BIPFWP (EXTERNAL BZPFHP, B\$PFWP) - 'WRITE PAGE' (MP).			*
4220	*			* BBPFAE (EXTERNAL BZPFAE, B\$PFAE) - 'ADD ERROR' (AE).			*

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 44
4221	*		*	BBPFCL (EXTERNAL BZPFCL, B\$PFCL) - 'CLOSE' VM OUTPUT (CL).	*
4222	*			THE 'ADD RECORD' FUNCTION IS EXECUTED BY DEFAULT WHEN BBPFNC	*
4223	*			IS NOT EXPLICITLY SET BEFORE EACH BBPUTC CALL.	*
4224	*		*	BBPCAD (EXTERNAL BZPCAD, B\$PCAD) - 2 BYTES, FOR THE CORE ADDRESS	*
4225	*			OF THE 'ADD RECORD' DATA STRING LEFTMOST BYTE.	*
4226	*		*	BBPNBY (EXTERNAL BZPNBY, B\$PNBY) - 1 BYTE, FOR THE 'ADD RECORD'	*
4227	*			DATA STRING BYTE LENGTH CODE (LENGTH MINUS 1). THIS LENGTH	*
4228	*			CODE IS LIMITED TO A VALUE OF 254.	*
4229	*		*	BBPARP (EXTERNAL BZPARP, B\$PARP) - 3 BYTES. FOR THE 'ADD RECORD'	*
4230	*			PARAMETERS. THIS IS USED TO PERMIT BBPCAD AND BBPNBY TO BE SET	*
4231	*			IN A SINGLE OPERATION. THE FIRST 2 BBPARP BYTES ARE EQUIVALENT	*
4232	*			TO BBPCAD, AND THE FINAL BBPARP BYTE IS EQUIVALENT TO BBPNBY.	*
4233	*		*	CORE DATA AREA - THE 'ADD RECORD' DATA STRING OF LENGTH	*
4234	*			BBPNBY-1 BYTES BEGINNING AT CORE ADDRESS BBPCAD.	*
4235	*		*	GENERATED CONSTANT BUFFER - 256 BYTES, BEGINNING AT CORE	*
4236	*			ADDRESS BZCBFA AND ESTABLISHED BY CONSTANT ROUTINE BCFCON.	*
4237	*			THIS BUFFER CONTAINS GENERATED CONSTANTS WHICH ARE PROCESSED AS	*
4238	*			A SINGLE DATA BLOCK WHEN THE 'WRITE PAGE' FUNCTION IS SPECI-	*
4239	*			HIED. EXCEPT FOR THE FUNCTION CODE. 'WRITE PAGE' REQUIRES NO	*
4240	*			OTHER PARAMETERS.	*
4241	*		*	BBPERC (EXTERNAL BZPERC, B\$PERC) - 1 BYTE, FOR THE COMPILE-TIME	*
4242	*			ERROR MESSAGE CODE. THIS IS REQUIRED ONLY FOR 'ADD ERROR'.	*
4243	*			AND IS SET WITH THE SYSTEM ERROR MESSAGE CODE APPROPRIATE FOR	*
4244	*			A GIVEN ERROR CONDITION.	*
4245	*		*	BZLINE - 2 BYTES, FOR THE COMPILE-TIME STATEMENT LINE NUMBER.	*
4246	*			THIS IS REQUIRED ONLY DURING 'ADD ERROR' EXECUTION, AND CON-	*
4247	*			TAINS THE LINE NUMBER ASSOCIATED WITH A PARTICULAR ERROR CONDI-	*
4248	*			TION. BZLINE IS ESTABLISHED NORMALLY THROUGH THE USE OF INPUT	*
4249	*			ROUTINE BAGETC, AND IS NOT SPECIFICALLY SET FOR BBPUTC	*
4250	*				*
4251	*			*OUTPUT	*
4252	*		*	DISK VIRTUAL MEMORY - THIS 3 CYLINDER SYSTEM FILE IS UPDATED	*
4253	*			WHENEVER THE PMC OUTPUT BUFFER IS FILLED ('ADD RECORD' OR 'ADD	*
4254	*			ERROR' FUNCTIONS) OR FOR EVERY 'WRITE PAGE' OPERATION EXECUTED.	*
4255	*		*	BBPVAD (EXTERNAL BZPVAD, B\$PVAD) - 2 BYTES, FOR THE NEXT AVAIL-	*
4256	*			ABLE PMC VIRTUAL ADDRESS. THIS CONTAINS THE VIRTUAL ADDRESS OF	*
4257	*			THE BYTE IMMEDIATELY FOLLOWING THE LAST PSEUDO INSTRUCTION (OR	*
4258	*			ERROR CODE) SEQUENCE OUTPUT USING BBPUTC.	*
4259	*		*	BBPCDL (EXTERNAL BZPCDL, B\$PCDL) - 1 BYTE, FOR THE PMC RECORD	*
4260	*			LENGTH, CONTAINS THE BYTE LENGTH OF THE LAST PSEUDO INSTRUC-	*
4261	*			TION SEQUENCE MOVED INTO THE COMPILER OUTPUT BUFFER.	*
4262	*		*	BBPBNL (EXTERNAL BZPBNL, B\$PBNL) - 1 BYTE, FOR THE OUTPUT BUFFER	*
4263	*			CAPACITY INDICATOR, CONTAINS THE NUMBER OF BYTES LEFT AVAIL-	*
4264	*			ABLE FOR PSEUDO INSTRUCTION SEQUENCES AFTER THE LAST GENERATED	*
4265	*			SEQUENCE HAS BEEN MOVED INTO THE OUTPUT BUFFER.	*
4266	*		*	COMPILER PMC OUTPUT BUFFER - 256 BYTES, BEGINNING AT CORE	*
4267	*			ADDRESS B\$PTBF. THIS IS USED TO ACCUMULATE PMC OR ERROR CODE	*
4268	*			SEQUENCES FOR OUTPUT TO DISK VIRTUAL MEMORY.	*
4269	*		*	BBPFNC (EXTERNAL BZPFNC, B\$PFNC) - 1 BYTE, FOR THE VIRTUAL	*
4270	*			MEMORY OUTPUT FUNCTION CODE. THIS IS ALWAYS RESET TO SPECIFY	*
4271	*			THE 'ADD RECORD' FUNCTION AT BBPUTC EXIT.	*
4272	*		*	BBPASW (EXTERNAL BZARSW, B\$ARSW) - 1 BYTE, FOR THE 'ADD RECORD'	*
4273	*			PROCESSING SWITCH. THIS SWITCH, WHICH IS NOT CHANGED AT BBPUTC	*
4274	*			ENTRY, IS SET USING MASK MARK (EXTERNAL BZARMK, B\$ARMK), AND	*
4275	*			IS SET *ON* WHENEVER THE 'ADD RECORD' FUNCTION (WHETHER ENABLED	*
4276	*			OR DISABLED> IS ATTEMPTED.	*

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4277 *      * BBPCPG (EXTERNAL BZPCPG, B$PCPG) - 1 BYTE, FOR THE VIRTUAL PAGE *
4278 *      * NUMBER OF THE LAST CONSTANT PAGE OUTPUT USING THE 'WRITE PAGE' *
4279 *      * FUNCTION.  AT COMPILER ENTRY, THIS PARAMETER CONTAINS THE PAGE *
4280 *      * NUMBER IMMEDIATELY HIGHER THAN THE BASE PAGE SPECIFIED FOR *
4281 *      * CONSTANTS IN THE SYSTEM CONSTANTS ARE OUTPUT TO VM IN DECREAS- *
4282 *      * ING PAGE ORDER). *
4283 *      * BBPESW (EXTERNAL BZERSW, B$ERSW) - 1 BYTE, FOR THE COMPILER *
4284 *      * ERROR SWITCH.  THIS SWITCH.  NORMALLY *OFF*, IS SET USING SWITCH *
4285 *      * MASK BBPEMK (EXTERNAL BZERSW, B$ERSW), AND IS SET *ON* WHEN AT *
4286 *      * LEAST ONE COMPILER ERROR HAS BEEN ENCOUNTERED (I.E. WHEN THE *
4287 *      * 'ADD ERROR' FUNCTION HAS BEEN EXECUTED AT LEAST ONCE). *
4288 *      * BBPECT (EXTERNAL BZPECT, B$PECT) - 1 BYTE, FOR THE COMPILER *
4289 *      * ERROR COUNTER, CONTAINS THE NUMBER OF ERROR CODE SEQUENCES *
4290 *      * GENERATED DURING COMPILATION USING THE 'ADD ERROR' FUNCTION. *
4291 *      * A LIMIT OF 255 'STACKED' COMPILER ERRORS IS PERMITTED. *
4292 *      * FUNCTION DISABLING - DURING THE FIRST 'ADD ERROR' FUNCTION *
4293 *      * EXECUTION.  THE 'ADD RECORD' AND 'WRITE PAGE' FUNCTIONS ARE *
4294 *      * DISABLED FOR USE DURING THE CURRENT COMPILATION. *
4295 *      * *
4296 *EXTERNAL REFERENCES *
4297 *      * $DISKN - ENTRY POINT FOR THE SYSTEM PHYSICAL DISK I0CS. *
4298 *      * $WAITF - CORE ADDRESS OF 'WAIT' FUNCTION DISK PARAMETER LIST. *
4299 *      * $CAERK - ENTRY POINT FOR THE SYSTEM ERROR MESSAGE PROGRAM. *
4300 *      * $CAERR - 1 BYTE, FOR THE SYSTEM ERROR PROGRAM MESSAGE CODE. *
4301 *      * $ERRPG - 1 BYTE, FOR THE SYSTEM ERROR PROGRAM CONTROL CODE. *
4302 *      * BVDL4T - ENTRY POINT FOR COMPILER 4-TRACK LOGICAL DISK I0CR. *
4303 *      * B$PTBF - CORE ADDRESS OF THE LEFTMOST BYTE IN THE 256-BYTE *
4304 *      * COMPILER PMC OUTPUT BUFFER. *
4305 *      * BZCBFA - CORE ADDRESS OF THE LEFTMOST BYTE IN THE 256-BYTE *
4306 *      * CONSTANT GENERATOR OUTPUT BUFFER. *
4307 *      * BZLINE - 2 BYTES, FOR THE COMPILER STATEMENT LINE NUMBER. *
4308 *      * *
4309 *EXITS, NORMAL *
4310 *      * CONTROL IS NORMALLY RETURNED TO THE FIRST INSTRUCTION FOLLOWING *
4311 *      * THE BBPUTC CALLING SEQUENCE. *
4312 *      * *
4313 *EXITS, ERROR *
4314 *      * TWO ERROR CONDITIONS ARE DETECTED, BOTH REFERENCING EXCESSIVE *
4315 *      * VIRTUAL MEMORY ALLOCATION. *
4316 *      * * ERROR 1 - A PAGE TO BE WRITTEN UNDER CONTROL OF FUNCTION 'AR' *
4317 *      * WILL OVERLAY PREVIOUSLY STORED CONSTANT DATA. *
4318 *      * * ERROR 2 - A PAGE OF CONSTANTS TO BE WRITTEN UNDER CONTROL OF *
4319 *      * FUNCTION 'WP' WILL OVERLAY CURRENTLY GENERATED PSEUDO CODE. *
4320 *      * IN EITHER OF THESE EVENTS, COMPILATION IS TERMINATED AND CONTROL *
4321 *      * IS PASSED TO THE ERROR MESSAGE PROGRAM AT ENTRY POINT $CAERK WITH *
4322 *      * THE FOLLOWING CONDITIONS SET. *
4323 *      * * ERROR CODE $CAERR IS SET FOR DISPLAY OF THE MESSAGE *
4324 *      * 'COMPILED PROGRAM TOO LARGE'. *
4325 *      * * CONTROL CODE $ERRPG IS SET EQUAL CODE $$$NLN FOR LINE NUMBER *
4326 *      * SUPPRESSION DURING ERROR MESSAGE DISPLAY. *
4327 *      * *
4328 *TABLES/WORK AREAS *
4329 *      * BBPFNC (EXTERNAL BZPFNC, B$PFNC) - 1 BYTE, FOR THE VIRTUAL *
4330 *      * MEMORY OUTPUT FUNCTION CODE.  THIS CODE IS INITIALIZED AT *
4331 *      * COMPILER ENTRY TO THE 'ADD RECORD' FUNCTION CODE. *
4332 *      * BBPVAD (EXTERNAL BZPVAD, B$PVAD) - 2 BYTES, FOR THE NEXT AVAIL- *

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4333 *   ABLE PMC VIRTUAL ADDRESS.  THIS CONSISTS OF BBPVPG (LEFTMOST) *
4334 *   AND BBPRIX (RIGHTMOST). *
4335 *   * BBPVPG IS THE VIRTUAL MEMORY PAGE CURRENTLY BEING FILLED *
4336 *   WITH PMC.  THIS IS INITIALIZED AT COMPILER ENTRY TO *
4337 *   VALUE OF B@DVC1, THE FIRST PMC PAGE IN VIRTUAL MEMORY. *
4338 *   BBPVPG IS INCREMENTED BY 1 EACH TIME A PMC PAGE IS WRITTEN *
4339 *   IN VIRTUAL MEMORY. *
4340 *   * BBPBIX IS THE COMPILER OUTPUT BUFFER POINTER.  THIS IS *
4341 *   INITIALIZED AT COMPILER ENTRY TO X'00' TO REFERENCE THE *
4342 *   FIRST BYTE IN THE OUTPUT BUFFER. *
4343 *   * BBPBNL (EXTERNAL BZPBNL, B$PBNL) - 1 BYTE, FOR THE COMPILER *
4344 *   OUTPUT BUFFER 'NUMBER OF BYTES LEFT'.  THIS IS INITIALIZED AT *
4345 *   COMPILER ENTRY TO A VALUE OF 255, THE MAXIMUM NUMBER OF DATA *
4346 *   BYTES ALLOWED IN THE BUFFER. *
4347 *   * BBPCPG (EXTERNAL B2PCPG, B$PCPG) - 1 BYTE, FOR THE VIRTUAL *
4348 *   MEMORY PAGE NUMBER NEXT HIGHER THAN THAT PAGE CURRENTLY BEING *
4349 *   USED FOR CONSTANT GENERATION.  THIS IS INITIALIZED AT COMPILER *
4350 *   ENTRY TO X'F5' (STANDARD PRECISION) OR X'F0' (LONG PRECISION). *
4351 *   * BBPCPG IS DECREMENTED BY 1 EACH TIME A CONSTANT PAGE IS WRITTEN *
4352 *   IN VIRTUAL MEMORY. *
4353 *   * BBPARP (EXTERNAL BZPARP, B$PARP) - 3 BYTES, FOR THE 'ADD RECORD' *
4354 *   PARAMETERS BBPCAD AND BBPNBY (SEE INPUT). *
4355 *   * BBPCAD (EXTERNAL BZPCAD, B$PCAD) - 2 BYTES, FOR THE 'ADD RECORD' *
4356 *   CORE ADDRESS INPUT PARAMETER. *
4357 *   * BBPNBY (EXTERNAL BZPNBY, B$PNBY) - 1 BYTE, FOR THE 'ADD RECORD' *
4358 *   BYTE LENGTH CODE INPUT PARAMETER. *
4359 *   * BBPCDL (EXTERNAL BZPCDL, B$PCDL) - 1 BYTE, FOR THE 'ADD RECORD' *
4360 *   SEQUENCE DATA LENGTH OUTPUT PARAMETER. *
4361 *   * BBPECT (EXTERNAL BZPECT, B$PECT) - 1 BYTE, FOR THE NUMBER OF *
4362 *   ERROR CODE SEQUENCES OUTPUT TO VIRTUAL MEMORY.  THIS IS INI- *
4363 *   TIALIZED AT COMPILER ENTRY TO A COUNT OF 0. *
4364 *   * BBPERC (EXTERNAL BZPERC, B$PERC) - 1 BYTE, FOR THE ERROR CODE *
4365 *   INPUT PARAMETER. *
4366 *   * BBPESW (EXTERNAL BZERSW, B$ERSW) - 1 BYTE, FOR THE COMPILER *
4367 *   ERROR SWITCH.  THIS IS INITIALIZED AT COMPILER ENTRY TO THE *
4368 *   *OFF* CONDITION (SEE OUTPUT). *
4369 *   * BBPASW (EXTERNAL BZARSW, B$ARSW) - 1 BYTE, FOR THE 'ADD RECORD' *
4370 *   OPERATION SWITCH.  THIS IS INITIALIZED AT COMPILER ENTRY TO THE *
4371 *   *OFF* CONDITION (SEE OUTPUT). *
4372 *   * BBPRSW - 1 BYTE, FOR THE 'ADD RECORD' FUNCTION DISABLE SWITCH. *
4373 *   THIS SWITCH IS SET USING MASK BBPRMK, AND IS INITIALIZED AT *
4374 *   COMPILER ENTRY TO THE *OFF* CONDITION.  WHEN THIS SWITCH IS *
4375 *   SET *ON* THE 'AR' FUNCTION IS DISABLED. *
4376 *   * BBPWSW - 1 BYTE, FOR THE 'WRITE PAGE' FUNCTION DISABLE SWITCH. *
4377 *   THIS SWITCH IS SET USING MASK BBPWMK, AND IS INITIALIZED AT *
4378 *   COMPILER ENTRY TO THE *OFF* CONDITION.  WHEN THIS SWITCH IS *
4379 *   SET *ON*, THE 'WP' FUNCTION IS DISABLED. *
4380 *   * BBPDPL - 6 BYTES, FOR THE COMPILER PMC OUTPUT BUFFER DISK PARA- *
4381 *   METER LIST.  THESE PARAMETERS ARE SET TO WRITE SINGLE SECTORS *
4382 *   FROM B$PTBF TO DISK AT THE SECTOR DEFINED BY BBPVPG. *
4383 *   * BBPWPL - 6 BYTES, FOR THE CONSTANT OUTPUT BUFFER DISK PARAMETER *
4384 *   LIST.  THESE PARAMETERS ARE SET TO WRITE SINGLE SECTORS FROM *
4385 *   BZCBFA TO DISK AT THE SECTOR DEFINED BY BBPCPG. *
4386 *   * ERROR CODE SEQUENCE IMAGE AND PARAMETERS - USED TO GENERATE *
4387 *   ERROR CODE SEQUENCES USING THE 'ADD RECORD' ROUTINE LOGIC. *
4388 *

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		4389	*	*ATTRIBUTES			*
		4390	*	* REUSABLE			*
		4391	*	* RELOCATABLE			*
		4392	*				*
		4393	*	*CHARACTER CODE DEPENDENCY			*
		4394	*	THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR			*
		4395	*	INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.			*
		4396	*				*
		4397	*	*NOTES			*
		4398	*	ERROR PROCEDURES			*
		4399	*	COMPILATION IS TERMINATED AND CONTROL IS PASSED TO THE ERROR			*
		4400	*	MESSAGE PROGRAM (\$ERRPG) USING ENTRY POINT \$CAERK WHENEVER			*
		4401	*	VIRTUAL MEMORY CAPACITY IS EXCEEDED DURING PMC OR CONSTANT			*
		4402	*	OUTPUT (SEE ERROR EXITS).			*
		4403	*	REGISTER USAGE			*
		4404	*	* REGISTER @BR IS SAVED, USED AS A BASE REGISTER, THEN			*
		4405	*	RESTORED AT BBPUTC EXIT.			*
		4406	*	* REGISTER @XR IS SAVED, USED FOR OUTPUT BUFFER ADDRESSABI-			*
		4407	*	LITY, THEN RESTORED AT BBPUTC EXIT.			*
		4408	*	SAVED/RESTORED AREAS			*
		4409	*	N/A			*
		4410	*	MODIFICATION CONSIDERATIONS			*
		4411	*	N/A			*
		4412	*	REQUIRED MODULES			*
		4413	*	* @SYSEQ - COMMON SYSTEM EQUATES.			*
		4414	*	* @FXDEQ - SYSTEM NUCLEUS ADDRESSES AND INDICATOR EQUATES.			*
		4415	*	* @CANEQ - COMMAND ANALYZER ADDRESSES AND INDICATOR EQUATES.			*
		4416	*	* @ERMEQ - SYSTEM ERROR MESSAGE CODE EQUATES.			*
		4417	*	* \$\$SEQU - COMPILER FIXED LOCATION ADDRESS EQUATES.			*
		4418	*	* \$B@EQ - COMPILER PARAMETER AND CONSTANT EQUATES.			*
		4419	*	* BVDL4T - COMPILER 4-TRACK LOGICAL DISK IOCS INTERFACE.			*
		4420	*	* BZCOMN - COMPILER COMMON AREAS AND ADDRESS REFERENCE EQUATES.			*
		4421	*	OTHER			*
		4422	*	N/A			*
		4423	*	*****			*

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/07/20	PAGE 48
				4425		*****				
				4426		* COMPILER OUTPUT ROUTINE ENTRY POINT				
				4427		*****				
				4428		*				
				4429		* ENTER BBPUTC - PERFORM REGISTER OPERATIONS				
				4430		*				
				093A 4431	BBPUTC EQU	*	BBPUTC ENTRY POINT			
				094C 4432	USING	BBP020,@BR	DEFINE BBPUTC BASE ADDRESS			
093A	34	01	0958	4433	ST	BBP040+@OP1,@BR	SAVE CALLING PROGRAM BASE			
093E	C2	01	094C	4434	LA	BBP020,@BR	LOAD BBPUTC BASE ADDRESS			
0942	74	02	10	4435	ST	BBP050+@OP1(,@BR),@XR	SAVE CALLING PROG INDEX REG			
0945	74	08	14	4436	ST	BBP060+@OP1(,@BR),@ARR	SET RETURN BRANCH INSTRUCTION			
				4437		*				
				4438		* ESTABLISH ADDRESSABILITY FOR THE OUTPUT BUFFER				
				4439		*				
0948	C2	02	1F00	4440	BBP010 LA	B\$PTBF,@XR	LOAD ADDR OF BUFFER LEFT BYTE			
				4441		*				
				4442		* BRANCH TO EXECUTE THE SPECIFIED OUTPUT FUNCTION				
				4443		*				
094C	D0	87	00	4444	BBP020 B	*-*(,@BR)	GO EXECUTE SPECIFIED FUNCTION			
094E				4445	ORG	BBP020+@D1	INITIALIZE OUTPUT FUNCTION			
094E	61			094E 4446	DC	AL1(BBPFAR)	PARAMETER TO 'ADD RECORD'			
094F				4447	ORG	BBP020+@INST3				
				4448		*				
				4449		* NORMAL EXIT - RESET FUNCTION PARAMETER AND RETURN TO CALLER				
				4450		*				
094F	7C	61	02	4451	BBP030 MVI	BBPFNC(,@BR),BBPFAR	RESET FUNCTION TO 'ADD RECORD'			
0952	F2	87	00	4452	J	BBP040	NOP INSTRUCTION		1-4	
				4453		*				
0955	C2	01	0000	4454	BBP040 LA	*-*,@BR	RESTORE CALLING PROG BASE REG			
0959	C2	02	0000	4455	BBP050 LA	*-*,@XR	RESTORE CALLING PROG INDEX REG			
095D	C0	87	0000	4456	BBP060 B	*-*	RETURN TO CALLING PROGRAM			

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 49
			4458		*****	
			4459		* FUNCTION 'WRITE PAGE' - ADD PAGE OF CONSTANTS TO VIRTUAL MEMORY	
			4460		*****	
			4461		*	
			4462		* TEST THE 'WRITE PAGE' FUNCTION EXECUTION SWITCH	
			4463		*	
0961	D0 00 03		4464	BBP100 BC	BBP030(,@BR),*-*	GO EXIT THE PUT ROUTINE
0962			4465	ORG	BBP100+@Q	* IF 'WRITE PAGE' FUNCTION
0962	80	0962	4466	DC	AL1(@NOP)	* IS DISABLED - INITIALIZE
0964			4467	ORG	BBP100+@INST3	* SWITCH TO ENABLE FUNCTION
			4468		*	
			4469		* DECREMENT CONSTANT PAGE NO. TO REFERENCE PAGE TO BE WRITTEN	
			4470		*	
0964	5F 00 E9 E4		4471	BBP110 SLC	BBPCPG(,@BR),BBPBN1(1,@BR)	DECREMENT CONSTANT PAGE NO.
			4472		*	
			4473		* TEST FOR OBJECT PROGRAM TOO LARGE FOR VIRTUAL MEMORY	
			4474		*	
0968	5D 00 E9 F6		4475	BBP120 CLC	BBPCPG(,@BR),BBPVP(1,@BR)	IF CONSTANT PAGE WILL OVERLAY
096C	D0 04 D5		4476	BNH	BBP500(,@BR)	* PMC, GO TERMINATE CUAPILER
			4477		*	
			4478		* OUTPUT THE PAGE OF CONSTANTS TO DISK VIRTUAL MEMORY	
			4479		*	
096F	D2 02 E7		4480	BBP130 LA	BBPWPL(,@BR),@XR	LOAD 'WRITE PAGE' OPL ADDRESS
0972	C0 87 1A6B		4481	B	BVDL4T	LINK TO WRITE CONSTANT PAGE
0976	C0 87 0025		4482	B	\$DISKN	LINK TO WAIT OUTPUT COMPLETED
097A	057F	097B	4483	DC	AL(@CADDR)(\$WAITF)	'WAIT' PARAMETER CORE ADDRESS
			4484		*	
			4485		* BRANCH TO BBPUTC EXIT WHEN OUTPUT IS FINISHED	
			4486		*	
097C	D0 87 03		4487	BBP140 B	BBP030(,@BR)	GO EXIT THE OUTPUT ROUTINE

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		4489		*****	
		4490		* FUNCTION 'ADD ERROR' - ADD ERROR CODE TO VIRTUAL MEMORY	
		4491		*****	
		4492		*	
		4493		* TEST FOR MAXIMUM NUMBER OF COMPILER ERROR MESSAGES	
		4494		*	
097F 7D FF F8		4495	BBP200 CLI	BBPECT(,@BR),BBPEMX IF MAX NO. OF ERRORS HAVE BEEN	
0982 D0 81 03		4496	BE	BBP030(,@BR) A LOGGED, GO EXIT OUTPUT RON	
		4497		*	
		4498		* INCREMENT ERROR COUNTER FOR ERROR MESSAGE PROGRAM	
		4499		*	
0985 5E 00 F8 E4		4500	BBP202 ALC	BBPECT(,@BR),BBPBN1(1,@BR) INCREMENT THE ERROR COUNT	
		4501		*	
		4502		* ESTABLISH THE ERROR CODE STRING - ERROR MESSAGE CODE HAS BEEN SET	
		4503		* BY CALLING PROGRAM AND CURRENT STATEMENT NUMBER IS REFERENCED	
		4504		*	
0989 4C 01 EF 07D0		4505	BBP205 MVC	BBPELN(,@BR),BZLINE(B@LSNO) MOVE CURRENT LINE NO. TO ERR	
098E 5C 02 F5 F2		4506	MVC	BBPARP(,@BR),BBPERP(@CADDR+1,@BR) SET OUTPUT PARAMETERS	
		4507		*	
		4508		* TEST COMPILER ERROR SWITCH FOR 1ST ERROR CONDITION	
		4509		*	
0992 D0 00 67		4510	BBP210 BC	BBP310(,@BR),*-* IF ERROR SWITCH IS ON	
0993		4511	ORG	BBP210+@Q * GO ADD THE ERROR STRING	
0993 80	0993	4512	DC	AL1(@NOP) * INITIALIZE ERROR SWITCH	
0995		4513	ORG	BBP210+@INST3 * TO 'OFF' CONDITION	
		4514		*	
		4515		* ESTABLISH ERROR STATUS CONDITIONS FOR OUTPUT ROUTINE	
		4516		*	
0995 7A 07 47		4517	BBP220 SBN	BBPESW(,@BR),BBPEMK SET COMPILER ERROR SWITCH ON	
0998 7A 07 65		4518	SBN	BBPRSW(,@BR),BBPRMK DISABLE 'ADD RECORD' FUNCTION	
099B 7A 07 16		4519	SBN	BBPWSW(,@BR),BBPWMK DISABLE 'WRITE PAGE' FUNCTION	
		4520		*	
		4521		* RESET VIRTUAL ADDRESS POINTERS TO OVERLAY PMC WITH ERROR CODE	
		4522		*	
099E 7C 56 F6		4523	BBP230 MVI	BBPVPG(,@BR),B@DVC1 SET VIRTUAL ADDRESS POINTERS	
09A1 7C 00 F7		4524	MVI	BBPBIX(,@BR),@ZERO * FOR OUTPUT TO 1ST PMC PAGE	
		4525		*	
		4526		* ADJUST CONSTANT PAGE POINTER TO INSURE ERROR CODE GENERATION	
		4527		*	
09A4 7C FF E9		4528	BBP240 MVI	BBPCPG(,@BR),B@NVPG-1 SET CONSTANT PACE TO MAXIMUM	
		4529		*	
		4530		* RESET THE OUTPUT BUFFER CAPACITY INDICATOR	
		4531		*	
09A7 7C FF B5		4532	BBP250 MVI	BBPBNL(,@BR),BBPMAX SET BR LIMIT COUNTER TO MAX	
		4533		*	
		4534		* BRANCH TO GENERATE THE FIRST COMPILER ERROR CODE IN VIRTUAL MEMORY	
		4535		*	
09AA D0 87 67		4536	BBP260 B	BBP310(,@BR) GO ADD THE ERROR STRING	

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4538 *****
4539 * FUNCTION 'ADD RECORD' - ADD DATA RECORD TO VIRTUAL MEMORY
4540 * * CHECKS BUFFER CAPACITY FOR CURRENT DATA STRING LENGTH
4541 * * CALLS OUTPUT TO VIRTUAL MEMORY WHEN BUFFER AT DATA LIMIT
4542 * * MOVES CURRENT DATA STRING FROM CORE LOCATION TO BUFFER
4543 *****
4544 *
4545 * SET INDICATOR SPECIFYING ACTUAL OR ATTEMPTED PMC GENERATION
4546 *
09AD 7A 01 F9 4547 BBP300 SBN BBPASW(,@BR),BBPAMK SET 'ADD REC' EXECUTION SW ON
4548 *
4549 * TEST THE 'ADD RECORD' FUNCTION EXECUTION SWITCH
4550 *
09B0 D0 00 03 4551 BBP305 BC BBP030(,@BR),*-* GO EXIT THE PUT ROUTINE
09B1 4552 ORG BBP305+@Q * IF 'ADD RECORD' FUNCTION
09B1 80 09B1 4553 DC AL1(@NOP) * IS DISABLED - INITIALIZE
09B3 4554 ORG BBP305+@INST3 * SWITCH TO ENABLE FUNCTION
4555 *
4556 * INITIALIZE THE DATA MOVE INSTRUCTION
4557 *
09B3 5C 00 89 F5 4558 BBP310 MVC BBPCDR(,@BR),BBPNBY(1,@BR) INSERT THE DATA LENGTH PARAM
09B7 5C 01 88 89 4559 MVC BBPBDR(,@BR),BBPCDR(2,@BR) * INTO MOVE INST Q, D1, D2
4560 *
4561 * CHECK BUFFER CAPACITY TO CONTAIN THE CURRENT DATA STRING
4562 *
09BB 5D 00 F5 B5 4563 BBP320 CLC BBPNBY(,@BR),BBPBNL(1,@BR) IF BUFFER CAN CONTAIN DATA
09BF F2 82 09 4564 JL BBP350 * BRANCH TO MOVE DATA TO BUFF
4565 *
4566 * BUFFER FULL - WRITE THE OUTPUT BUFFER INTO VIRTUAL MEMORY
4567 *
09C2 D0 87 9D 4568 BBP330 B BBP400(,@BR) LINK TO DUMP THE BUFFER
4569 *
4570 * RESET THE BUFFER POINTER AND CAPACITY COUNTER
4571 *
09C5 7C 00 F7 4572 BBP340 MVI BBPBIX(,@BR),@ZERO SET BUFFER POINTER TO LH BYTE
09C8 7C FF B5 4573 MVI BBPBNL(,@BR),BBPMAX SET BAR LIMIT COUNTER TO MAX
4574 *
4575 * MOVE THE CURRENT DATA STRING FROM CORE LOCATION TO BUFFER
4576 *
09CB 5E 00 88 F7 4577 BBP350 ALC BBPBDR(,@BR),BBPBIX(1,@BR) FIND BUFFER DISP FOR DATA
09CF 75 01 F4 4578 L BBPCAD(,@BR),@BR LOAD THE DATA STRING CORE ADDR
09D2 9C 00 00 00 4579 BBP360 MVC *-(,@XR),*-(@VQ,@BR) MOVE DATA STRING TO BUFFER
09D6 C2 01 094C 4580 LA BBP020,@BR KSTORE BBPUTC BASE REGISTER
4581 *
4582 * ADJUST BUFFER CAPACITY COUNTER FOR ADDED RECORD
4583 *
09DA 5E 00 87 E4 4584 BBP370 ALC BBPCDL(,@BR),BBPBN1(1,@BR) CALC THE DATA STRING LENGTH
09DE 5F 00 B5 87 4585 SLC BBPBNL(,@BR),BBPCDL(1,@BR) SUB LENGTH FROM BUFFER LIMIT
4586 *
4587 * ADJUST BUFFER POINTER FOR ADDED RECORD (SET NEXT AVAILABLE VADDR)
4588 *
09E2 5E 00 F7 87 4589 BBP380 ALC BBPBIX(,@BR),BBPCDL(1,@BR) ADD DATA LENGTH TO BFR POINTER
09E6 D0 87 03 4590 B BBP030(,@BR) GO EXIT THE OUTPUT ROUTINE

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 52
		4592		*****	
		4593		* OUTPUT (PSEUDO CODE) BUFFER DUMP ROUTINE	
		4594		* * PADS UNUSED BUFFER AREA WITH END/PAGE PSEUDO OPCODES	
		4595		* * WRITES THE OUTPUT BUFFER TO DISK VIRTUAL MEMORY	
		4596		* * INCREMENTS THE VIRTUAL MEMORY PAGE NUMBER FOR PMC	
		4597		*****	
		4598		*	
		4599		* ENTER SUBROUTINE - SET THE RETURN LINKAGE	
		4600		*	
09E9	74 08 D4	4601	BBP400 ST	BBP470+@OP1(,@BR),@ARR STORE THE RETURN ADDRESS	
		4602		*	
		4603		* TEST FOR OBJECT PROGRAM TOO LARGE FOR VIRTUAL MEMORY	
		4604		*	
09EC	5D 00 F6 E9	4605	BBP410 CLC	BBPVPG(,@BR),BBPCPG(1,@BR) IF PSEUDO CODE PAGE WILL OVER-	
09F0	D0 02 D5	4606	BNL	BBP500(,@BR) * LAY CONSTANTS, GO TERMINATE	
		4607		*	
		4608		* PAD BUFFER RIGHT BYTES WITH END/PAGE PSEUDO OPCODES	
		4609		*	
09F3	BC 68 FF	4610	BBP420 MVI	BBPEOB(,@XR),B@CEOP MOVE END/PAGE TO BUFFER RH BYTE	
09F6	7D FF F7	4611	CLI	BBPBIX(,@BR),BBPEOB IF NO FURTHER PADDING REQUIRED	
09F9	F2 81 08	4612	JE	BBP440 * GO OUTPUT THE BUFFER TO DISK	
09FC	5F 00 B5 E4	4613	SLC	BBPBNL(,@BR),BBPBN1(1,@BR) ADJUST LENGTH FOR PADDING	
0A00	AC 00 FE FF	4614	BBP430 MVC	BBPEOB-1(,@XR),BBPEOB(@VQ,@XR) EXTEND PADDING TO DATA	
0A01		4615	ORG	BBP430+@Q INITIALIZE THE OUTPUT	
0A01	FF	0A01 4616	DC	AL1(BBPMAX) * BUFFER CAPACITY TO A	
0A04		4617	ORG	BBP430+@INST4 MAXIMUM (255 BYTES)	
		4618		*	
		4619		* ESTABLISH THE CURRENT VIRTUAL PAGE AS DISK PARAMETER	
		4620		*	
0A04	5C 00 E3 F6	4621	BBP440 MVC	BBPDSA(,@BR),BBPVPG(1,@BR) SET SECTOR ADDR FOR OUTPUT	
		4622		*	
		4623		* OUTPUT THE PSEUDO CODE BUFFER TO DISK VIRTUAL MEMORY	
		4624		*	
0A08	D2 02 E1	4625	BBP450 LA	BBPDPL(,@BR),@XR LOAD 'ADD RECORD' DPL ADDRESS	
0A0B	C0 87 1A6B	4626	B	BVDL4T LINK TO WRITE THE PMC PAGE	
0A0F	C2 02 1F00	4627	LA	B\$PTBF,@XR RELOAD OUTPUT BUFFER CORE ADDR	
0A13	C0 87 0025	4628	B	\$DISKN LINK TO WAIT OUTPUT COMPLETED	
0A17	057F	0A18 4629	DC	AL(@CADDR)(\$WAITF) 'WAIT' PARAMETER CORE ADDRESS	
		4630		*	
		4631		* INCREMENT PSEUDO CCDE PAGE NO. TO REFERENCE NEXT PMC PAGE	
		4632		*	
0A19	5E 00 F6 E4	4633	BBP460 ALC	BBPVPG(,@BR),BBPBN1(1,@BR) INCREMENT PMC PAGE NUMBER	
		4634		*	
		4635		* RETURN CONTROL TO OUTPUT ROUTINE CALLING SECTION	
		4636		*	
0A1D	C0 87 0000	4637	BBP470 B	*- * RETURN TO BBPUTC MAINLINE	

ERR LOC		OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20		PAGE 53
			4639		*****			
			4640		* ERROR EXIT - SET ERROR DISPLAY AND ABORT COMPILATION			
			4641		*****			
			4642		*			
			4643		* SET ERROR PROGRAM TO DISPLAY 'OBJECT PROGRAM TOO LARGE'			
			4644		*			
0A21	3C	A0 03CE	4645	BBP500	MVI \$ERRPG,\$\$\$NLN			SUPPRESS ERROR LINE PA ER
0A25	3C	AF 03CD	4646		MVI \$CAERR,@E610			SET THE ERROR MESSAGE CODE
			4647		*			
			4648		* TERMINATE COMPILER EXECUTION TO DISPLAY THE ERROR MESSAGE			
			4649		*			
0A29	C0	87 0469	4650	BBP510	B \$CAERK			EXIT THE COMPILER

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/07/20 PAGE 54
			4652		*****		
			4653		* OUTPUT ROUTINE DISK PARAMETER LISTS		
			4654		*****		
			4655		*		
			4656		* 'ADD RECORD' FUNCTION DISK PARAMETER LIST (FOR PMC OR ERRORS)		
			4657		*		
			0A2D	4658	BBPDPL EQU *	ADDRESS OF 'ADD RECORD' DPL.	
0A2D	02		0A2D	4659	BBPDFN DC AL1(@DPUT)	DISK IOCR 'WRITE' FUNCTION	
0A2E	07		0A2E	4660	BBPDCY DC AL1(B@DVCY)	VIRTUAL MEMORY BASE CYLINDER	
0A2F			0A2F	4661	BBPDSA DS CL1	LOGICAL SECTOR ADDR (VM PAGE)	
0A30	01		0A30	4662	BBPDSC DC IL1'1'	SECTOR COUNT FOR OUTPUT	
0A31	1F00		0A32	4663	BBPDCA DC AL(@CADDR)(B\$PTBF)	OUTPUT BUFFER CORE ADDRESS	
			4664		*		
			4665		* 'WRITE PAGE' FUNCTION DISK PARAMETER LIST (FOR CONSTANTS)		
			4666		*		
			0A33	4667	BBPWPL EQU *	ADDRESS OF 'WRITE PAGE' DPL	
0A33	02		0A33	4668	BBPWFN DC AL1(@DPUT)	DISK IOCR 'WRITE' FUNCTION	
0A34	07		0A34	4669	BBPWCY DC AL1(B@DVCY)	VIRTUAL MEMORY BASE CYLINDER	
			0A35	4671	BBPWSA DS CL1	LOGICAL SECTOR ADDR (YM PAGE)	
0A35				4672	ORG BBPWSA	INITIALIZZ THE SECTOR ADDRESS	
0A35	F5E5		0A36	4673	DC AL(@VADDR)(B@VMSB)	* TO REFERENCE PAGE PRECEDING	
0A36				4674	ORG *-1	* FIRST PAGE ALLOCATED FOR	
				4675	*	* STANDARD PRECISION CONSTANTS	
0A36	01		0A36	4676	BBPWSC DC IL1'1'	SECTOR COUNT FOR OUTPUT	
0A37	0CBC		0A38	4677	BBPWCA DC AL(@CADDR)(BZCBFA)	CONSTANT BUFFER CORE ADDRESS	
			4679		*****		
			4680		* OUTPUT ROUTINE ERROR CODE SEQUENCE AND STORAGE PARAMETERS		
			4681		*****		
			4682		*		
0A39			0A39	4683	BBPERC DS CL1	ERROR MESSAGE CODE BYTE	
0A3A			0A3B	4684	BBPELN DS CL(B@LSNO)	ERROR MESSAGE LINE NUMBER	
0A3C	0A39		0A3D	4685	DC AL(@CADDR)(BBPERC)	ERROR STRING CORE ADDRESS	
0A3E	02		0A3E	4686	BBPERP DC AL1(B@LERC-1)	ERROR STRING LENGTH CODE	

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 55
			4688		*****	
			4689		* OUTPUT ROUTINE MISCELLANEOUS WORK AREAS	
			4690		*****	
			4691		*	
0A3F			0A41 4692	BBPARP DS	CL(@CADDR+1)	'ADD RECORD' DATA PARAMETERS
			0A40 4693	BBPCAD EQU	*-2	CADDR OF DATA STRING LEFT BYTE
			0A41 4694	BBPNBY EQU	*-1	DATA STRING LENGTH CODE (L-1)
0A42			0A43 4696	BBPVAD DS	CL(@VADDR)	VIRTUAL ADDRESS OF NEXT
0A42					ORG *-@VADDR	* AVAILABLE PMC LOCATION
0A42			0A42 4698	BBPVPD DS	CL1	CURRENT VIRTUAL PAGE FOR PMC
0A42					ORG BBPVPD	* INITIALIZE TO REFERENCE
0A42 56			0A42 4700		DC AL1(B@DVC1)	* 1ST PSEUDO CODE PAGE
0A43			0A43 4701	BBPBIX DS	CL1	OUTPUT BUFFER IDX (POINTER)
0A43					ORG BBPBIX	* INITIALIZE TO REFERENCE
0A43 00			0A43 4703		DC XL1'00'	* OUTPUT BUFFER LEFTMOST BYTE
0A44			0A44 4704	BBPECT DS	CL1	COMPILER ERROR COUNTER
0A44					ORG BBPECT	* SET ERROR COUNTER TO
0A44 00			0A44 4706		DC IL1'0'	* AN INITIAL VALUE OF ZERO
0A45			0A45 4707	BBPCGI DS	CL1	CODE GENERATION INDICATOR
0A45					ORG BBPCGI	* SET TO X'01' WHEN 'ADD RECORD'
0A45 00			0A45 4709		DC XL1'00'	* FUNCTION IS EXECUTED
			4711		*****	
			4712		* OUTPUT ROUTINE FUNCTION PARAMETER EQUATES	
			4713		*****	
			4714		*	
			094E 4715	BBPFNC EQU	BBP020+@D1	FUNCTION CONTROL PARAM ADIIR
			0061 4716	BBPFAR EQU	BBP300-BBP020	'ADD RECORD' FUNCTION CODE
			0015 4717	BBPFWP EQU	BBP100-BBP020	'WRITE PAGE' FUNCTION CODE
			0033 4718	BBPFAE EQU	BBP200-BBP020	'ADD ERROR' FUNCTION CODE
			009D 4719	BBPFCL EQU	BBP400-BBP020	'CLOSE FILE' FUNCTION CODE

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/07/20	PAGE 56
				4721		*****			
				4722	*	OUTPUT ROUTINE PROGRAM SWITCH EQUATES			
				4723		*****			
				4724	*				
	0A45	4725	BBPASW EQU	BBPCGI		'ADD RECORD' EXECUTION SWITCH			
	0001	4726	BBPAMK EQU	X'01'		'ADD RECORD' EXECUTION SW MASK			
	0993	4727	BBPESW EQU	BBP210+@Q		COMPILER ERROR SWITCH			
	0007	4728	BBPEMK EQU	@UCB-@NOP		COMPILER ERROR SW MASK			
	09B1	4729	BBPRSW EQU	BBP305+@Q		'ADD RECORD' DISABLE SWITCH			
	0007	4730	BBPRMK EQU	@UCB-@NOP		'ADD RECORD' DISABLE SW MASK			
	0962	4731	BBPWSW EQU	BBP100+@Q		'WRITE PAGE' DISABLE SWITCH			
	0007	4732	BBPWMK EQU	@UCB-@NOP		'WRITE PAGE' DISABLE SW MASK			
				4734		*****			
				4735	*	OUTPUT ROUTINE EQUATES REFERENCING CONSTANTS			
				4736		*****			
				4737	*				
	00FF	4738	BBPEOB EQU	B@BLSZ-1		DISP FOR RIGHTMOST BUFFER BYTE			
	00FF	4739	BBPMAX EQU	B@BLSZ-1		MAXIMUM DATA BYTES IN BUFFER			
	00FF	4740	BBPEMX EQU	255		MAXIMUM NO. OF ERRORS ALLONED			
				4742		*****			
				4743	*	OUTPUT ROUTINE EQUATES REFERENCING PROGRAM			
				4744		*****			
				4745	*				
	0A30	4746	BBPBN1 EQU	BBPDSC		BINARY CONSTANT +1			
	0A35	4747	BBPCPG EQU	BBPWSA		VIRTUAL PAGE PARAM - CONSTANTS			
	09D3	4748	BBPCDL EQU	BBP360+@Q		DATA FIELD LENGTH CODE			
	09D4	4749	BBPBDR EQU	BBP360+@D1		DISP FOR RH DATA BYTE IN BUFF			
	09D5	4750	BBPCDR EQU	BBP360+@DD2		DISP FOR RH DATA BYTE IN CORE			
	0A01	4751	BBPBNL EQU	BBP430+@Q		BUFFER CAPACITY REMAINING			
				4752	*				
				4753		*****			
				4754	*				
				4755	*	END OF COMPILER OUTPUT ROUTINE CODING			
				4756	*				

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/07/20	PAGE 57
		4758		*****			
		4759	*	5703-XM1 COPYRIGHT IBM CORP. 1970			*
		4760	*	REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083			*
		4761	*				*
		4762		*****			*
		4763	*	STATUS			*
		4764	*	VERSION 1 MODIFICATION 0			*
		4765	*				*
		4766	*	FUNCTION			*
		4767	*	* BCFCN SCANS BASIC SOURCE TEXT CONSTANTS, CONVERTS THESE TO			*
		4768	*	FORMS SUITABLE FOR VIRTUAL MEMORY STORAGE, AND RETURNS THE			*
		4769	*	VIRTUAL ADDRESS OF THE CONSTANT TO THE CALLING PROGRAM.			*
		4770	*	* EXECUTION IS CONTROLLED USING A SINGLE INPUT PARAMETER (BCFTYP)			*
		4771	*	WHICH SPECIFIES THE TYPE OF CONSTANT TO BE PROCESSED. CONSTANT			*
		4772	*	TYPES WHICH CAN BE PROCESSED ARE -			*
		4773	*	* ARITHMETIC - NUMERIC CONSTANTS WHICH ARE FOUND IN DATA			*
		4774	*	LISTS AND ALGEBRAIC EXPRESSIONS, AND WHICH ARE ASSOCIATED			*
		4775	*	WITH ARITHMETIC VARIABLE REFERENCES. THESE ARE STORED			*
		4776	*	INTERNALLY IN FLOATING POINT DECIMAL FORMAT.			*
		4777	*	* CHARACTER - CHARACTER STRINGS WHICH ARE TAILORED TO FIT			*
		4778	*	SINGLE CHARACTER CONSTANT FIELDS, AND WHICH ARE ASSOCIATED			*
		4779	*	WITH CHARACTER VARIABLE REFERENCES. THESE ARE STORED IN-			*
		4780	*	TERNALLY AS SINGLE 19-BYTE CHARACTER ELEMENTS.			*
		4781	*	* STRING - CHARACTER STRINGS WHICH MAY BE OF ANY LENGTH, AND			*
		4782	*	WHICH ARE NOT ASSOCIATED WITH CHARACTER VARIABLES. THESE			*
		4783	*	ARE STORED INTERNALLY AS ONE OR MORE 19-BYTE CHARACTER			*
		4784	*	ELEMENT STRING SEGMENTS.			*
		4785	*	* ARITHMETIC CONSTANT PROCESSING OCCURS BY DEFAULT WHEN THE			*
		4786	*	CONSTANT TYPE PARAMETER IS NOT EXPLICITLY SET PRIOR TO BCFCN			*
		4787	*	ENTRY.			*
		4788	*	* BCFCN IS ENTERED WITH REGISTER @XR CONTAINING THE CORE ADDRESS			*
		4789	*	OF THE FIRST CHARACTER IN THE CONSTANT. AFTER EXECUTION, THIS			*
		4790	*	REGISTER CONTAINS THE CORE ADDRESS OF THE FIRST NON-BLANK CHAR-			*
		4791	*	ACTER FOLLOWING THE FINAL CHARACTER IN THE CONSTANT.			*
		4792	*	* THE VIRTUAL ADDRESS OF THE CONSTANT IS LEFT IN PARAMETER BZBCKT			*
		4793	*	AFTER BCFCN EXECUTION.			*
		4794	*				*
		4795	*	ENTRY POINTS			*
		4796	*	* THIS ROUTINE HAS A SINGLE ENTRY POINT - BCFCN - WHOSE FUNCTION			*
		4797	*	IS DEFINED ABOVE. CALLING SEQUENCE IS			*
		4798	*	B BCFCN			*
		4799	*	SUBJECT TO INPUT CONDITIONS DESCRIBED BELOW.			*
		4800	*	* ENTRY POINT BCFCN MAY ALSO BE SPECIFIED AS B\$FCN WHEN CALLED			*
		4801	*	FROM ONE OF THE DISK-RESIDENT STATEMENT PROCESSORS.			*
		4802	*				*
		4803	*	INPUT			*
		4804	*	* BCFTYP (EXTERNAL BZCTYP, B\$CTYP) - 1 BYTE, FOR THE BCFCN			*
		4805	*	CONSTANT TYPE CODE. THIS IS REQUIRED FOR THE CONVERSION AND			*
		4806	*	STORAGE OF CHARACTER ELEMENTS, BUT IS NOT REQUIRED FOR			*
		4807	*	ARITHMETIC ELEMENTS. THE TYPE PARAMETER IS SPECIFIED USING			*
		4808	*	ONE OF THE FOLLOWING DISPLACEMENT CODES.			*
		4809	*	* BCFCN (EXTERNAL BZCCN, B\$SCN) - CHARACTER CONSTANT.			*
		4810	*	* BCFCN (EXTERNAL BZSCN, B\$SSN) - STRING CONSTANT.			*
		4811	*	ARITHMETIC CONSTANT PROCESSING IS EXECUTED BY DEFAULT IF BCFTYP			*
		4812	*	IS NOT EXPLICITLY SET BEFORE EACH BCFCN CALL.			*
		4813	*	* REGISTER @XR - FOR THE TEXT CHARACTER POINTER REGISTER. THIS			*

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 58
		4814	*	CONTAINS THE CORE ADDRESS OF THE INITIAL CONSTANT CHARACTER.	*
		4815	*	AND IS NORMALLY EQUIVALENT TO THE COMPILER INPUT ROUTINE TEXT	*
		4816	*	POINTER (BZGPTR).	*
		4817	*	* FOR ARITHMETIC CONSTANTS, REGISTER @XR IS TO REFERENCE THE	*
		4818	*	LEADING CHARACTER IN THE CONSTANT.	*
		4819	*	* FOR CHARACTER ELEMENTS, REGISTER @XR IS TO REFERENCE THE	*
		4820	*	DELIMITER (E.G. SINGLE QUOTE) PRECEDING THE FIRST LITERAL	*
		4821	*	CHARACTER IN THE STRING.	*
		4822	*	* COMPILER INPUT BUFFER - THIS CONTAINS SOURCE PROGRAM TEXT	*
		4823	*	INCLUDING, IN GENERAL, THE CONSTANT TO BE PROCESSED.	*
		4824	*		*
		4825	*	*OUTPUT	*
		4826	*	* BZBCKT - 2 BYTES, FOR THE VIRTUAL ADDRESS OF THE PROCESSED	*
		4827	*	CONSTANT. THIS CONTAINS THE VIRTUAL ADDRESS OF THE LEFTMOST	*
		4828	*	BYTE IN THE CONSTANT (OR THE LEFTMOST BYTE IN THE FIRST SEGMENT	*
		4829	*	OF A MULTI-SEGMENT STRING), AS IT IS STORED IN INTERNAL VIRTUAL	*
		4830	*	MEMORY FORMAT.	*
		4831	*	* REGISTER @XR - THIS WILL CONTAIN THE CORE ADDRESS OF THE FIRST	*
		4832	*	NON-BLANK CHARACTER FOLLOWING THE FINAL ARITHMETIC CHARACTER OR	*
		4833	*	CHARACTER ELEMENT DELIMITER IN THE CONSTANT, AND IS EQUIVALENT	*
		4834	*	TO THE ADDRESS IN BZGPTR (SEE BAGETC).	*
		4835	*	* BCFVPG (EXTERNAL BZCVPG, B\$CVFG) - 1 BYTE, FOR THE VIRTUAL	*
		4836	*	MEMORY PAGE CURRENTLY BEING FILLED WITH CONSTANTS.	*
		4837	*	* BCFVPD (EXTERNAL BZCVPD, B\$CVPD) - 1 BYTE, FOR THE CONSTANT	*
		4838	*	OUTPUT BUFFER POINTER. THIS CONTAINS THE BUFFER DISPLACEMENT	*
		4839	*	REFERENCING THE NEXT BYTE AVAILABLE FOR A GENERATED CONSTANT IN	*
		4840	*	THE BUFFER, BEGINNING AT THE HIGHEST BUFFER BYTE AND PROCEEDING	*
		4841	*	TO THE LOWEST. A VALUE OF X'FF' IN BCFVPD INDICATES AN EMPTY	*
		4842	*	BUFFER.	*
		4843	*	* BCFTYP (EXTERNAL BZCTYP, B\$CTYP) - THIS 1-BYTE PARAMETER (SEE	*
		4844	*	INPUT) IS ALWAYS RESET TO SPECIFY ARITHMETIC CONSTANT PROCES-	*
		4845	*	SING PRIOR TO RETURNING CONTROL TO THE CALLING PROGRAM.	*
		4846	*	* BCFPCT (EXTERNAL BZCPCT, B\$CPCT) - 1 BYTE, FOR THE NUMBER OF	*
		4847	*	SEGMENTS GENERATED FOR A CHARACTER STRING. WHEN A CHARACTER	*
		4848	*	STRING HAS BEEN PROCESSED USING BCFTYP = BCFSCN, A VALUE OF 0	*
		4849	*	IN BCFPCT INDICATES A NULL CHARACTER FIELD FOR WHICH NO STRING	*
		4850	*	SEGMENT HAS BEEN GENERATED.	*
		4851	*	* COMPILER CONSTANT OUTPUT BUFFER - 256 BYTES, BEGINNING AT CORE	*
		4852	*	ADDR BCFBFR (EXTERNAL BZCBFA, B\$CBFA). THIS IS USED TO ACCU-	*
		4853	*	MULATE BASIC PROGRAM CONSTANTS FOR OUTPUT TO DISK VIRT MEMORY.	*
		4854	*	* DISK VIRTUAL MEMORY - THIS IS UPDATED, WHENEVER THE CONSTANT	*
		4855	*	OUTPUT BUFFER IS FILLED, USING CMPILER OUTPUT ROUTINE BBPUTC.	*
		4856	*		*
		4857	*	*EXTERNAL REFERENCES	*
		4858	*	* BAGETC - ENTRY POINT FOR COMPILER SOURCE TEXT INPUT ROUTINE.	*
		4859	*	* BBPUTC - ENTRY POINT FOR COMPILER VIRTUAL MEMORY OUTPUT ROUTINE.	*
		4860	*	* BUZDBN - ENTRY POINT FOR COMPILER DECIMAL TO BINARY CONV. RTN.	*
		4861	*	* BZBCKT - 2 BYTES, FOR COMPILER SYMBOL VIRTUAL ADDRESS PARAMETER.	*
		4862	*	* BZGPTR - 2 BYTES, FOR COMPILER SOURCE TEXT CHARACTER POINTER.	*
		4863	*	* BZGBSW - 1 BYTE, FOR THE SOURCE TEXT BLANK BYPASS SWITCH.	*
		4864	*	* BZPFNC - 1 BYTE, FOR THE BBPUTC OUTPUT FUNCTION CODE. BCFCON	*
		4865	*	USES FUNCTION 'WRITE PAGE' FOR BUFF OUTPUT TO VIRT MEM	*
		4866	*	* BZBINO - 2 BYTES, FOR THE DECIMAL TO BINARY CONVERSION RESULT.	*
		4867	*		*
		4868	*	*EXITS, NORMAL	*
		4869	*	CONTROL IS NORMALLY RETURNED TO THE FIRST INSTRUCTION FOLLOWING	*

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 59
		4870	*	THE BCFCN CALLING SEQUENCE.	*
		4871	*		*
		4872	*	*EXITS, ERROR	*
		4873	*	* SINGLE ERROR CONDITION IS DETECTED, AS A CONSEQUENCE OF THE USE	*
		4874	*	OF OUTPUT ROUTINE BBPUTC, WHEN EXCESSIVE VIRT MEMORY IS NEEDED	*
		4875	*	DURING A CONSTANT BUFFER OUTPUT OPERATION.	*
		4876	*	* ERROR - A PAGE FILLED WITH CONSTANTS IS ATTEMPTED TO BE	*
		4877	*	OUTPUT TO VIRTUAL MEMORY, AND THE PAGE WILL OVERLAY CUR-	*
		4878	*	RENTLY GENERATED PSEUDO CODE.	*
		4879	*	WHEN THIS OCCURS, BBPUTC TERMINATES COMPILATION AND PASSES CON-	*
		4880	*	TROL TO THE ERROR MESSAGE PROGRAM AT ENTRY POINT \$CAERK WITH THE	*
		4881	*	FOLLOWING ERROR CONDITIONS SET.	*
		4882	*	* ERROR CODE \$CAERR IS SET FOR DISPLAY OF THE MESSAGE	*
		4883	*	'COMPILED PROGRAM TOO LARGE'.	*
		4884	*	* CONTROL CODE \$ERRPG IS SET EQUAL CODE \$\$\$NLN FOR LINE NO	*
		4885	*	SUPPRESION DURING ERROR MESSAGE DISPLAY.	*
		4886	*		*
		4887	*	*TABLES/WORK AREAS	*
		4888	*	* BCFTTP (EXTERNAL BZCTYP, B\$CTYP) - 1 BYTE, FOR THE CONSTANT	*
		4889	*	GENERATOR TYPE CODE. THIS IS INITIALIZED AT COMPILER ENTRY FOR	*
		4890	*	ARITHMETIC CONSTANT PROCESSING.	*
		4891	*	* BCFBSW - 1 BYTE, FOR THE CONSTANT BUCKET LIMIT SWITCH. THIS	*
		4892	*	SWITCH IS SET USING MASK BCFBMK, AND IS INITIALIZED AT COMPILER	*
		4893	*	ENTRY TO THE *OFF* CONDITION. WHEN THIS SWITCH IS SET *ON*,	*
		4894	*	THE CONSTANT CHARACTER ACCUMULATION BUCKET IS FILLED TO	*
		4895	*	CAPACITY, AND TRAILING CHARACTERS (IF ANY) ARE LOST UNLESS	*
		4896	*	STRING PROCESSING IS IN OPERATION.	*
		4897	*	* BCFFSW - 1 BYTE, FOR THE ARITHMETIC CONSTANT FRACTION SWITCH.	*
		4898	*	THIS SWITCH IS SET USING MASK BCFFMK, AND IS INITIALIZED AT	*
		4899	*	COMPILER ENTRY TO THE *OFF* CONDITION. WHEN THIS SWITCH IS SET	*
		4900	*	*ON*, ARITHMETIC CONSTANT FRACTIONAL COMPONENT PROCESSING IS	*
		4901	*	BEING PERFORMED.	*
		4902	*	* BCFSSW - 1 BYTE, FOR THE CHARACTER STRING PROCESSING SWITCH.	*
		4903	*	THIS SWITCH IS SET USING MASK BCFSMK, AND IS INITIALIZED AT	*
		4904	*	COMPILER ENTRY TO THE *OFF* CONDITION. WHEN THIS SWITCH IS SET	*
		4905	*	*ON*, THE CONSTANT GENERATOR IS SET INTERNALLY FOR CHARACTER	*
		4906	*	STRING (TYPE BCFSCN) PROCESSING.	*
		4907	*	* BCFXSW - 1 BYTE, FOR THE EXPONENT DECREMENT SWITCH. THIS	*
		4908	*	SWITCH IS SET USING MASK BCFXMK, AND IS INITIALIZED AT COMPILER	*
		4909	*	ENTRY TO THE AOFFA CONDITION. WHEN THIS SWITCH IS SET *ON.	*
		4910	*	DURING ARITHMETIC CONSTANT PROCESSING, A NEGATIVE EXPONENT	*
		4911	*	OPERATION IS BEING PERFORMED.	*
		4912	*	* ARITHMETIC PRECISION VALUES - THESE ARE THREE 1-BYTE VALUES	*
		4913	*	INITIALIZED AT COMPILER ENTRY FOR STANDARD PRECISION, AND MODI-	*
		4914	*	FLED BY THE COMPILER INITIATOR (BGINIT) WHEN LONG PRECISION IS	*
		4915	*	SPECIFIED. THESE FIELDS ARE -	*
		4916	*	* BCFPRC - ARITHMETIC PRECISION STATUS INDICATOR, SET TO	*
		4917	*	X'00' FOR STANDARD PRECISION AND X'20' FOR LONG.	*
		4918	*	* BCFMNL - UNPACKED FLOATING MANTISSA LENGTH, SET TO X'07'	*
		4919	*	FOR STANDARD PRECISION AND X'0F' FOR LONG.	*
		4920	*	* BCFPFL - PACKED FLOATING ELEMENT LENGTH, SET TO X'05' FOR	*
		4921	*	STANDARD PRECISION AND X'09' FOR LONG.	*
		4922	*	* BCFVPG (EXTERNAL BZCVPG, B\$CVPG) - 1 BYTE, FOR THE VIRTUAL	*
		4923	*	MEMORY PAGE NUMBER ASSIGNED TO THAT PAGE CURRENTLY BEING FILLED	*
		4924	*	WITH GENERATED CONSTANTS. THIS IS INITIALIZED AT COMPILER	*
		4925	*	ENTRY TO X'F4' FOR STANDARD PRECISION, AND MODIFIED BY BGINIT	*

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		4926	*	TO X'EF' WHEN LONG PRECISION IS SPECIFIED.	*
		4927	*	* BCFBP1 (EXTERNAL BZCVPD, B\$CVPD) - 1 BYTE, FOR THE CONSTANT	*
		4928	*	OUTPUT BUFFER DISPLACEMENT POINTER. THIS IS INITIALIZED AT	*
		4929	*	COMPILER ENTRY TO X'FF' TO REFERENCE THE RIGHTMOST BUFFER BYTE.	*
		4930	*	* BCFPCT (EXTERNAL BZCPCT, B\$CPCT) - 1 BYTE, FOR THE CHARACTER	*
		4931	*	STRING SEGMENT COUNTER.	*
		4932	*	* BCFBKT - 19 BYTES, FOR THE CONSTANT GENERATOR BUCKET. THIS	*
		4933	*	WORK AREA IS USED TO CONSTRUCT EACH CONSTANT OR STRING SEGMENT	*
		4934	*	BEFORE PLACEMENT IN THE OUTPUT BUFFER.	*
		4935	*	* CONSTANT OUTPUT BUFFER - 256 BYTES, WITH LEFTMOST BYTE REFER-	*
		4936	*	ENCED BY BCFBFR (EXTERNAL BZCBFA, B\$CBFA). THIS IS USED AS THE	*
		4937	*	WORK AREA IN WHICH GENERATED CONSTANTS AND STRING SEGMENTS ARE	*
		4938	*	ACCUMULATED FOR OUTPUT TO VIRTUAL MEMORY.	*
		4939	*		*
		4940	*	*ATTRIBUTES	*
		4941	*	* REUSABLE	*
		4942	*	* RELOCATABLE	*
		4943	*		*
		4944	*	*CHARACTER CODE DEPENDENCY	*
		4945	*	THE OPERATION OF THIS MODULE DEPENDS UPON AN INTERNAL REPRES-	*
		4946	*	TATION OF THE EXTERNAL CHARACTER SET WHICH IS EQUIVALENT TO THE	*
		4947	*	ONE USED AT ASSEMBLY TIME. THE CODING HAS BEEN ARRANGED SO THAT	*
		4948	*	REDEFINITION OF CHARACTER CONSTANTS, BY REASSEMBLY, WILL RESULT	*
		4949	*	IN A CURRENT MODULE, FOR THE NEW DEFINITIONS. IN REDEFINING THE	*
		4950	*	CHARACTER CONSTANTS, DECIMAL NUMBERS MUST BE CODED SO THAT THE	*
		4951	*	LOW ORDER FOUR BITS, WHEN CONSIDERED AS A BINARY INTEGER, IDEN-	*
		4952	*	TIFY THE VALUE OF THE DIGIT.	*
		4953	*		*
		4954	*	*NOTES	*
		4955	*	ERROR PROCEDURES	*
		4956	*	COMPILATION IS TERMINATED AND CONTROL IS PASSED TO THE ERROR	*
		4957	*	MESSAGE PROGRAM (#ERRPG) USING ENTRY POINT \$CAERK WHENEVER	*
		4958	*	VIRTUAL MEMORY CATACTY IS EXCEEDED DURING CONSTANT OUTPUT	*
		4959	*	(SEE ERROR EXITS).	*
		4960	*	REGISTER USAGE	*
		4961	*	* REGISTER @BR IS SAVED, USED AS A BASE REGISTER, THEN	*
		4962	*	RESTORED AT BCFCN EXIT.	*
		4963	*	* REGISTER @XR IS USED AS AN INPUT PARAMETER TO THIS ROUTINE,	*
		4964	*	AND ALSO TO CONTAIN AN OUTPUT PARAMETER AT BCFCN EXIT.	*
		4965	*	SAVED/RESTORED AREAS	*
		4966	*	N/A	*
		4967	*	MODIFICATION CONSIDERATIONS	*
		4968	*	BCFCN DESIGN REQUIRES THAT THE CONSTANT GENERATOR BUCKET	*
		4969	*	(BCFBKT) BE LOCATED IMMEDIATELY PRECEDING THE CONSTANT OUTPUT	*
		4970	*	BUFFER. THE BUCKET IS USED AS A GUARD AREA WHEN A BUFFER	*
		4971	*	BOUNDARY CONDITION OCCURS.	*
		4972	*	REQUIRED MODULES	*
		4973	*	* @SYSEQ - COMMON SYSTEM EQUATES.	*
		4974	*	* \$B@EQU - COMPILER PARAMETER AND CONSTANT EQUATES.	*
		4975	*	* BAGETC - COMPILER SOURCE TEXT INPUT ROUTINE.	*
		4976	*	* BBPUTC - COMPILER VIRTUAL MEMORY OUTPUT ROUTINE.	*
		4977	*	* BUZDBN - COMPILER DECIMAL TO BINARY CONVERSION ROUTINE.	*
		4978	*	* BZCOMN - COMPILER COMMON AREAS AND ADDRESS REFERENCE EQUATES.	*
		4979	*	OTHER	*
		4980	*	N/A	*
		4981	*	*****	*

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/07/20 PAGE 61
					4983	*****		
					4984	* COMPILER CONSTANT GENERATOR ROUTINE ENTRY POINT		
					4985	*****		
					4986	*		
					4987	* ENTER BCFCN - PERFORM REGISTER OPERATIONS		
					4988	*		
				0A46	4989	BCFCN EQU *	BCFCN ENTRY POINT	
				0A51	4990	USING BCF010,@BR	DEFINE BCFCN BASE ADDRESS	
0A46	34	01	0A67		4991	ST BCF040+@OP1,@BR	SAVE CALLING PROGRAM BASE	
0A4A	C2	01	0A51		4992	LA BCF010,@BR	LOAD BCFCN BASE ADDRESS	
0A4E	74	08	1A		4993	ST BCF050+@OP1(,@BR),@ARR	SET RETUR,@BRANCH INSTRUCTION	
					4994	*		
					4995	* INITIALIZE THE CONSTANT GENERATOR FOR GENERAL PROCESSING		
					4996	*		
0A51	3C	00	158F		4997	BCF010 MVI BZBCKT-1,@ZERO	SET OUTPUT PARAM FOR NO VADDR	
0A55	3C	00	0CA8		4998	MVI BCFPCT,@ZERO	CLEAR THE ELEMENT PUT COUNTER	
0A59	3B	07	0C25		4999	SBF BCFSSW,BCFSMK	SET CHARACTER STRING SWITCH OFF	
					5000	*		
					5001	* BRANCH TO EXECUTE THE FUNCTION SPECIFIED IN TYPE PARAMETER		
					5002	*		
0A5D	D0	87	00		5003	BCF020 B *-*(,@BR)	GO EXECUTE SPECIFIED FUNCTION	
0A5F					5004	ORG BCF020+@D1	INITIALIZE THE FUNCTION	
0A5F	23			0A5F	5005	DC AL1(BCFACN)	* PARAMETER TO GENERATE	
0A60					5006	ORG BCF020+@INST3	* AN ARITHMETIC CONSTANT	
					5007	*		
					5008	* EXIT - RESET BCFCN FUNCTION, RESTORE REGISTERS, RETURN		
					5009	*		
0A60	3C	23	0A5F		5010	BCF030 MVI BCFTYP,BCFACN	RESET BCFCN FOR ARITH CONSTANT	
0A64	C2	01	0000		5011	BCF040 LA *-*,@BR	RESTORE CALLING PROGRAM BASE	
0A68	C0	87	0000		5012	BCF050 B *-*	RETURN TO CALLING PROGRAM	

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 62
		5014		*****	
		5015		* CHARACTER GENERATOR INTERFACE	
		5016		*****	
		5017		*	
		5018		* CHARACTER STRING FUNCTION ENTRY	
		5019		*	
0A6C 3A 07 0C25		5020	BCF100 SBN	BCFSSW,BCFSMK	SET CHARACTER STRING SWITCH ON
		5021		*	
		5022		* CHARACTER CONSTANT FUNCTION ENTRY	
		5023		*	
0A70 C0 87 0B75		5024	BCF110 B	BCF500	BRANCH TO CHARACTER GENERATOR

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/07/20	PAGE 63
					5026	*****				
					5027	* ARITHMETIC CONSTANT GENERATOR				
					5028	*****				
					5029	*				
					5030	* GENERATOR ENTRY PERFORM REGISTER OPERATIONS				
					5031	*				
				0A74	5032	BCF200 EQU *	GENERATOR ENTRY POINT			
				0C03	5033	USING BCF800,@BR	DEFINE WORKING BASE ADDRESS			
0A74	C2	01	0C03		5034	LA BCF800,@BR	LOAD WORKING BASE ADDRESS			
					5035	*				
					5036	* SET VIRTUAL MEMORY OUTPUT ROUTINE FOR ARITHMETIC CONSTANT				
					5037	* AND INITIALIZE THE DATA BUCKET FLOATING POINT ELEMENT AREA				
					5038	*				
0A78	5C	00	4C A1		5039	BCF210 MVC BCFBKL(,@BR),BCFPFL(1,@BR)	SET OUTPUT RTN FOR ARITH CON			
0A7C	7B	F0	A6		5040	SBF BCFBKS(,@BR),B@TRAC+B@DTYP+B@PREC+B@SIGN	SET STATUS FOR			
					5041	* POSITIVE, STD PREC VALUE				
					5042	*				
0A7F	7C	80	B8		5043	MVI BCFBKX(,@BR),B@NXZR	SET NORM EXPONENT FOR 10**(0)			
0A82	7C	F0	B5		5044	MVI BCFBM2(,@BR),B@DEC0	FILL MANTISSA AREA			
0A85	5C	0D	B4 B5		5045	MVC BCFBM2-1(,@BR),BCFBM2(B@LELP-2,@BR)	* WITH DECIMAL ZEROS			
					5046	*				
					5047	* ESTABLISH SIGN OF VALUE AS SPECIFIED IN CONSTANT				
					5048	*				
0A89	BD	4E	00		5049	BCF220 CLI B@CHAR(,@XR),B@PLUS	IF CURRENT CHARACTER IS PLUS			
0A8C	F2	81	09		5050	JE BCF230	BRANCH TO GET NEXT CHARACTER			
0A8F	BD	60	00		5051	CLI B@CHAR(,@XR),B@MINS	IF CURRENT CHARACTER NOT MINUS			
0A92	F2	01	07		5052	JNE BCF235	* GO TEST FOR A LEADING ZERO			
0A95	7A	10	A6		5053	SBN BCFBKS(,@BR),B@SIGN	SET STATUS FOR NEGATIVE VALUE			
					5054	*				
					5055	* TEST FOR AND BYPASS ANY HIGH ORDER INSIGNIFICANT INTEGERS				
					5056	*				
0A98	C0	87	0867		5057	BCF230 B BAGETC	LINK TO GET NEXT CHARACTER			
0A9C	BD	F0	00		5058	BCF235 CLI B@CHAR(,@XR),B@DEC0	IF CHARACTER IS A LEADING ZERO			
0A9F	C0	81	0A98		5059	BE BCF230	* BRANCH TO GET NEXT CHARACTER			
					5060	*				
					5061	*				
					5062	* INITIALIZE INSTRUCTIONS FOR ELEMENT GENERATION				
					5063	*				
0AA3	3B	07	0ACE		5064	BCF240 SBF BCFFSW,BCFFMK	SET FRACTION SWITCH OFF			
0AA7	3C	A7	0ADD		5065	MVI BCFBMP,BCFBM1-BCF800	SET BUCKET POINTER TO			
					5066	* REFERENCE 1ST MANTISSA BYTE				
					5067	*				
					5068	* TEST FOR AND PROCESS ANY LEADING FRACTIONAL ZEROS				
					5069	*				
0AAB	BD	4B	00		5070	BCF250 CLI B@CHAR(,@XR),B@DPNT	IF CHAR NOT A DECIMAL POINT			
0AAE	F2	01	16		5071	JNE BCF270	* GO TEST FOR A DECIMAL DIGIT			
0AB1	C0	87	0867		5072	BCF255 B BAGETC	LINK TO GET NEXT CHARACTER			
0AB5	BD	F0	00		5073	CLI B@CHAR(,@XR),B@DEC0	IF CHARACTER NOT A LEADING ZERO			
0AB8	F2	01	08		5074	JNE BCF260	* GO PROCESS REMAINING FRACTION			
0ABB	5F	00	B8 9D		5075	SLC BCFBKX(,@BR),BCFBN1(1,@BR)	DECREMENT THE VALUE EXPONENT			
0ABF	C0	87	0AB1		5076	B BCF255	BRANCH TO GET NEXT CHARACTER			
					5077	*				
					5078	* SET CONSTANT GENERATOR TO PROCESS FRACTIONAL COMPONENT				
					5079	*				
0AC3	3A	07	0ACE		5080	BCF260 SBN BCFFSW,BCFFMK	SET FRACTION SWITCH ON			
					5081	*				

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 64
				5082	* TEST FOR A DIGIT FOLLOWING LEADING ZEROS OR DECIMAL POINT	
				5083	*	
	0AC7	BD F0 00		5084	BCF270 CLI B@CHAR(,@XR),B@DEC0 IF CHARACTER NOT A DECML DIGIT	
	0ACA	F2 82 30		5085	JL BCF320 * GO TEST FOR 'E' SPECIFICATION	
				5086	*	
				5087	* INCREMENT EXPONENT WHEN PROCESSING AN INTEGER DIGIT	
				5088	*	
	0ACD	F2 00 04		5089	BCF280 JC BCF290,*-* IF FRACTION SWITCH IS ON	
	0ACE			5090	ORG BCF280+@Q * SKIP EXPONENT MODIFICATION -	
	0ACE	80	0ACE	5091	DC AL1(@NOP) * INITIALIZE FRACTION SWITCH	
	0AD0			5092	ORG BCF280+@INST3 * TO 'OFF' CONDITION	
	0AD0	5E 00 B8 9D		5093	ALC BCFBKX(,@BR),BCFBN1(1,@BR) INCREMENT THE VALUE EXPONENT	
				5094	*	
				5095	* MOVE CONSTANT DIGIT TO BUCKET MANTISSA AS SPACE PERMITS	
				5096	*	
	0AD4	3D B5 0ADD		5097	BCF290 CLI BCFBMP,BCFBM2-BCF800 IF BUCKET MANTISSA IS FILLED	
	0AD8	F2 84 09		5098	JH BCF300 * BRANCH TO GET NEXT CHARACTER	
	0ADB	6C 00 00 00		5099	BCF295 MVC *-*(,@BR),B@CHAR(1,@XR) MOVE CHAR TO BUCKET MANTISSA	
	0ADF	1E 00 0ADD 9D		5100	ALC BCFBMP,BCFBN1(1,@BR) INCREMENT THE MANTISSA POINTER	
				5101	*	
				5102	* ACCESS NEXT CHARACTER AND REPEAT MANTISSA FILL LOOP IF DIGIT	
				5103	*	
	0AE4	C0 87 0867		5104	BCF300 B BAGETC LINK TO GET NEXT CHARACTER	
	0AE8	BD F0 00		5105	CLI B@CHAR(,@XR),B@DEC0 IF CHARACTER IS A DECIMAL DIGIT	
	0AEB	C0 02 0ACD		5106	BNL BCF280 * GO UPDATE THE BUCKET ELEMENT	
				5107	*	
				5108	* BRANCH TO PROCESS FRACTIONAL COMPONENT IF DECIMAL POINT FOUND	
				5109	*	
	0AEF	BD 4B 00		5110	BCF310 CLI B@CHAR(,@XR),B@DPNT IF CHARACTER NOT A DECML POINT	
	0AF2	F2 01 08		5111	JNE BCF320 * GO TEST FOR 'E' SPECIFICATION	
	0AF5	C0 87 0867		5112	B BAGETC LINK TO GET NEXT CHARACTER	
	0AF9	C0 87 0AC3		5113	B BCF260 GO PROCESS FRACTIONAL DIGITS	
				5114	*	
				5115	* TEST FOR EXPONENT SPECIFICATION IN CONSTANT	
				5116	*	
	0AFD	BD C5 00		5117	BCF320 CLI B@CHAR(,@XR),B@EXPC IF CHARACTER IS NOT AN 'E'	
	0B00	F2 01 30		5118	JNE BCF360 * GO CHECK FOR ZERO MANTISSA	
				5119	*	
				5120	* ESTABLISH SIGN OF EXPONENT SPECIFICATION IN CONSTANT	
				5121	*	
	0B03	C0 87 0867		5122	BCF330 B BAGETC LINK TO GET NEXT CHARACTER	
	0B07	3B 07 0B24		5123	SBF BCFXSW,BCFXMK SET EXPONENT DECR SWITCH OFF	
	0B0B	BD 4E 00		5124	CLI B@CHAR(,@XR),B@PLUS IF CURRENT CHARACTER IS PLUS	
	0B0E	F2 81 0A		5125	JE BCF335 * GO GET FIRST 'E' DIGIT	
	0B11	BD 60 00		5126	CLI B@CHAR(,@XR),B@MINS IF CURRENT CHARACTER NOT MEWS	
	0B14	F2 01 08		5127	JNE BCF340 * GO PROCESS THE 'E' CONSTANT	
	0B17	3A 07 0B24		5128	SBN BCFXSW,BCFXMK SET EXPONENT DECR SWITCH ON	
	0B1B	C0 87 0867		5129	BCF335 B BAGETC LINK TO GET NEXT CHARACTER	
				5130	*	
				5131	* MODIFY THE BUCKET EXPONENT ACCORDING TO 'E' SPECIFICATION	
				5132	*	
	0B1F	C0 87 19F2		5133	BCF340 B BUZDBN LINK TO CVRT 'E' SPEC TO BINARY	
				5134	*	
	0B23	F2 00 08		5135	BCF345 JC BCF350,*-* IF EXPONENT DECR SWITCH IS ON	
	0B24			5136	ORG BCF345+@Q * GO DECREMENT BUCKET EXPONENT	
	0B24	80	0B24	5137	DC AL1(@NOP) * - INITIALIZE EXPONENT DECR	

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0B26			5138	ORG	BCF345+@INST3	* SWITCH TO OFF CONDITION
0B26	4E 00 B8 1A6A		5139	ALC	BCFBKX(,@BR),BZBINO(1)	ADD 'E' SPEC TO BUCKET EXPONENT
0B2B	F2 87 05		5140	J	BCF360	GO CHECK FOR ZERO MANTISSA
0B2E	4F 00 B8 1A6A		5141	BCF350 SLC	BCFBKX(,@BR),BZBINO(1)	SUB 'E' SPEC FR BUCKET EXPONENT
			5142	*		
			5143	*	NORMALIZE THE BUCKET ELEMENT WHEN MANTISSA IS ZERO	
			5144	*		
0B33	7D F0 A7		5145	BCF360 CLI	BCFBM1(,@BR),B@DEC0	IF 1ST MANTISSA DIGIT NOT ZERO
0B36	F2 01 06		5146	JNE	BCF370	* GO PACK THE BUCKET ELEMENT
0B39	7B 10 A6		5147	SBF	BCFBKS(,@BR),B@SIGN	SET STATUS FOR POSITIVE VALUE
0B3C	7C 1E B8		5148	MVI	BCFBKX(,@BR),B@NXLO	SET NORM EXPONENT FOR MINIMUM
			5149	*		
			5150	*	SET THE BUCKET ELEMENT STATUS FOR CURRENT PRECISION	
			5151	*		
0B3F	5E 00 A6 9F		5152	BCF370 ALC	BCFBKS(,@BR),BCFPRC(1,@BR)	SET STATUS PRECISION BIT
			5153	*		
			5154	*	INITIALIZE FOR UNPACKED TO PACKED DECIMAL CONVERSION	
			5155	*		
0B43	5C 00 A4 A0		5156	BCF380 MVC	BCFCNT(,@BR),BCFMNL(1,@BR)	SET MANTISSA BYTE COUNTER
0B47	D2 02 A6		5157	LA	BCFBM1-1(,@BR),@XR	SET UNPACKED MANTISSA POINTER
0B4A	D2 01 A6		5158	LA	BCFBM1-1(,@BR),@BR	SET PACKED MANTISSA POINTER
0B4D	F2 87 0A		5159	J	BCF397	SKIP TO PACK 1ST MANTISSA DIGIT
			5160	*		
			5161	*	CONVERT THE BUCKET MANTISSA TO PACKED DECIMAL FORMAT	
			5162	*		
0B50	D2 01 01		5163	BCF390 LA	BCFPDL(,@BR),@BR	INCR PACKED MANTISSA POINTER
0B53	E2 02 02		5164	BCF395 LA	BCFUDL(,@XR),@XR	INCR UNPACKED MANTISSA POINTER
0B56	68 01 00 00		5165	MZN	BCFBPM(,@BR),BCFBUM(,@XR)	PACK NUMERIC PORTIONS OF TWO
0B5A	68 03 00 01		5166	BCF397 MNN	BCFBPM(,@BR),BCFBUM+1(,@XR)	* DIGITS INTO A SINGLE BYTE
0B5E	0F 00 0CA7 0B55		5167	SLC	BCFCNT,BCFUPL(1)	DECREMENT THE BYTE COUNTER
0B64	C0 84 0B50		5168	BH	BCF390	IF MANTISSA DIGITS REMAIN TO
			5169	*		* BE PACKED, REPEAT THE LOOP
0B68	4C 00 01 0CBB		5170	MVC	BCFPDX(,@BR),BCFBKX(1)	STORE EXPONENT IN PACKED FORMAT
			5171	*		
			5172	*	STORE THE CONSTANT IN VIRTUAL MEMORY AND BRANCH TO EXIT	
			5173	*		
0B6D	C0 87 0C03		5174	BCF400 B	BCF800	LINK TO STORE CONSTANT IN VM
0B71	C0 87 0A60		5175	B	BCF030	GO EXECUTE GENERATOR EXIT RTN

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					5177	*****				
					5178	* CHARACTER CONSTANT/STRING GENERATOR				
					5179	*****				
					5180	*				
					5181	* GENERATOR ENTRY - PERFORM REGISTER OPERATIONS				
					5182	*				
				0B75	5183	BCF500 EQU *	GENERATOR ENTRY POINT			
				0C03	5184	USING BCF800,@BR	DEFINE WORKING BASE ADDRESS			
0B75	C2	01	0C03		5185	LA BCF800,@BR	LOAD WORKING BASE ADDRESS			
					5186	*				
					5187	* SET VIRTUAL MEMORY OUTPUT ROUTINE FOR CHARACTER CONSTANT				
					5188	* AND INITIALIZE THE CHARACTER CONSTANT/STRING GENERATOR				
					5189	*				
0B79	7C	13	4C		5190	BCF510 MVI BCFBKL(,@BR),B@LCRV	SET OUTPUT RTN FOR CHARACTERS			
0B7C	3B	01	08AF		5191	SBF BZGBSW,BZGBMK	DISABLE BLANK CHARACTER BYPASS			
0B80	3B	07	0BAD		5192	SBF BCFBSW,BCFBMK	SET BUCKET LIMIT SWITCH OFF			
0B84	6C	00	A4 00		5193	MVC BCFDLM(,@BR),B@CHAR(1,@XR)	SAVE CURRENT CHAR AS DELIMITER			
					5194	*				
					5195	* INITIALIZE DATA BUCKET CHARACTER ELEMENT AREA				
					5196	*				
0B88	7C	60	A6		5197	BCF520 MVI BCFBKS(,@BR),B@DTYP+B@CTYP	SET STATUS FOR CHAR STRING SEG			
					5198	*	* AND CLEAR STATUS CHAR COUNT			
0B8B	7C	40	B8		5199	MVI BCFBC2(,@BR),B@BLNK	FILL CHARACTER AREA			
0B8E	5C	10	B7 B8		5200	MVC BCFBC2-1(,@BR),BCFBC2(B@LCRV-2,@BR)	A WITH EBCDIC BLANKS			
0B92	3C	A7	0BB2		5201	MVI BCFBCP,BCFBC1-BCF800	SET BUCKET POINTER TO			
					5202	*	* REFERENCE 1ST CHARACTER BYTE			
					5203	* GET NEXT CHARACTER AND TEST FOR DELIMITER				
					5204	*				
0B96	C0	87	0867		5205	BCF530 B BAGETC	LINK TO GET NEXT CHARACTER			
0B9A	9D	00	00 A4		5206	CLC B@CHAR(,@XR),BCFDLM(1,@BR)	IF CHARACTER NOT A DELIMITER			
0B9E	F2	01	0B		5207	JNE BCF540	* BRANCH TO CONTINUE PROCESS			
0BA1	C0	87	0867		5208	B BAGETC	LINK TO GET NEXT CHARACTER			
0BA5	9D	00	00 A4		5209	CLC B@CHAR(,@XR),BCFDLM(1,@BR)	IF CHAR NOT A PAIRED DELIMITER			
0BA9	F2	01	2F		5210	JNE BCF590	* EXIT THE BUCKET FILL LOOP			
					5211	*				
					5212	* IGNORE CHARACTER WHEN BUCKET IS FULL				
					5213	*				
0BAC	C0	00	0B96		5214	BCF540 BC BCF530,*-*	IF BUCKET LIMIT SWITCH IS ON			
0BAD					5215	ORG BCF540+@Q	* CONTINUE LOOP TO SCAN PAST			
0BAD	80			0BAD	5216	DC AL1(@NOP)	* CHARACTERS TO DELIMITER -			
0BB0					5217	ORG BCF540+@INST4	* INITIALIZE SWITCH TO 'OFF'			
					5218	*				
					5219	* MOVE CHARACTER TO BUCKET AND INCREMENT POINTER				
					5220	*				
0BB0	6C	00	00 00		5221	BCF550 MVC *-*(,@BR),B@CHAR(1,@XR)	MOVE CHARACTER TO BUCKET			
0BB4	1E	00	0BB2 9D		5222	ALC BCFBCP,BCFBN1(1,@BR)	INCREMENT THE BUCKET POINTER			
0BB9	5E	00	A6 9D		5223	ALC BCFBKS(,@BR),BCFBN1(1,@BR)	INCREMENT THE STATUS COUNTER			
					5224	*				
					5225	* TEST FOR FULL BUCKET - REPEAT FILL LOOP IF SPACE AVAILABLE				
					5226	*				
0BBD	3D	B8	0BB2		5227	BCF560 CLI BCFBCP,BCFBC2-BCF800	IF THE BUCKET IS NOT FULL			
0BC1	C0	04	0B96		5228	BNH BCF530	* GO PROCESS NEXT CHARACTER			
					5229	*				
					5230	* CHECK DISPOSITION OF BUCKET ELEMENT				
					5231	*				
0BC5	78	07	22		5232	BCF570 TBN BCFSSW(,@BR),BCFSMK	IF THIS IS NOT A STRING SEGMENT			

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0BC8	F2	90	08	5233	JF	BCF580	* BRANCH TO SET LIMIT SWITCH
0BCB	C0	87	0C03	5234	B	BCF800	LINK TO STORE SEGMENT IN VM
0BCF	C0	87	0B88	5235	B	BCF520	BRANCH TO PROCESS NEXT SEGMENT
				5236	*		
				5237	*	TURN ON THE BUCKET LIMIT SWITCH	
				5238	*		
0BD3	3A	07	0BAD	5239	BCF580 SBN	BCFBSW,BCFBMK	SET BUCKET LIMIT SWITCH ON
0BD7	C0	87	0B96	5240	B	BCF530	CONTINUE LOOP TO SCAN PAST
				5241	*		
				5242	*	TEST FOR CHARACTER CONSTANT OR NULL STRING SEGMENT	
				5243	*		
0BDB	78	07	22	5244	BCF590 TBN	BCFSSW(,@BR),BCFSMK	IF THIS IS NOT A CHAR SIRING
0BDE	F2	90	09	5245	JF	BCF600	* BRAWN TO SET CHAR CON STATUS
0BE1	79	1F	A6	5246	TBF	BCFBKS(,@BR),B@CCNT	IF THIS IS NULL STRING SEGMENT
0BE4	F2	10	0A	5247	JT	BCF620	* BYPASS SEGMENT OUTPUT TO NM
0BE7	F2	87	03	5248	J	BCF610	* ELSE GO PERFORM SEGMENT 0/P
				5249	*		
				5250	*	MODIFY STATUS BYTE TO INDICATE CHARACTER CONSTANT	
				5251	*		
0BEA	7B	20	A6	5252	BCF600 SBF	BCFBKS(,@BR),B@CTYP	SET STATUS FOR CHAR CONSTANT
				5253	*		
				5254	*	STORE THE CHARACTER CONSTANT OR FINAL STRING SEGMENT	
				5255	*		
0BED	C0	87	0C03	5256	BCF610 B	BCF800	LINK TO STORE ELEMENT IN VM
				5257	*		
				5258	*	ACCESS FIRST NON-BLANK FOLLOWING DELIMITER - BRANCH TO EXIT	
				5259	*		
0BF1	3A	01	08AF	5260	BCF620 SBN	BZGBSW,BZGBMK	ENABLE BLANK CHARACTER BYPASS
0BF5	BD	40	00	5261	CLI	B@CHAR(,@XR),B@BLNK	IF CHAR AFTER DELIMITER
0BF8	F2	01	04	5262	JNE	BCF630	* NOT A BLANK. SKIP TO EXIT
0BFB	C0	87	0867	5263	B	BAGETC	LINK TO GET TEXT NON-BLANK
0BFF	C0	87	0A60	5264	BCF630 B	BCF030	GO EXECUTE GENERATOR EXIT RTN

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/07/20	PAGE 68
					5266	*****				
					5267	*SUBROUTINE-	PUT GENERATED CONSTANT IN VIRTUAL MEMORY			*
					5268	*				*
					5269	*INPUT-				*
					5270	* BCFBKL-	1 BYTE, FOR LENGTH CF CONSTANT. CONTAINS THE NUMBER OF			*
					5271	* BYTES	(VIRTUAL MEMORY FORMAT) OCCUPIED BY THE CONSTANT IN THE			*
					5272	* CONSTANT	GENERATION BUCKET.			*
					5273	* BCFSSW-	1BYTE, FOR THE CHARACTER STRING SWITCH. SWITCH IS SET			*
					5274	* USING	MASK BCFSMK. 'ON' CONDITION SPECIFIES CHARACTER STRING.			*
					5275	*OUTPUT-				*
					5276	* BZBCKT-	2 BYTES, FOR THE CONSTANT ADDRESS BUCKET. CONTAINS THE			*
					5277	* VIRTUAL	ADDRESS OF THE LEFTMOST BYTE OF THE STORED CONSTANT.			*
					5278	* PROVIDING	IT DOES NOT ALREADY CONTAIN A NON-ZERO VALUE.			*
					5279	* BCFPCT-	1 BYTE, FOR THE CONSTANT PUT COUNT. THIS COUNTER IS			*
					5280	* SIMPLY	INCREMENTED BY 1 EACH TIME THE SUBROUTINE IS EXECUTED.			*
					5281	*****				
					5282	*				
					5283	* SUBROUTINE	ENTRY - PERFORM REGISTER OPERATIONS			
					5284	*				
				0C03	5285	BCF800 EQU *	SUBROUTINE ENTRY POINT			
				0C03	5286	USING BCF800,@BR	DEFINE SUBR BASE ADDRESS			
0C03	C2	01	0C03		5287	LA BCF800,@BR	LOAD SUBROUTINE BASE ADDRESS			
0C07	74	08	9B		5288	ST BCF950+@OP1(,@BR),@ARR	SAVE RETURN ADDRESS			
					5289	*				
					5290	* INITIALIZE	THE ELEMENT PROCESSING INSTRUCTIONS			
					5291	*				
0C0A	5C	00	20 4C		5292	BCF810 MVC BCFBKD(,@BR),BCFBKL(1,@BR)	ESTABLISH BUCKET ELEMENT			
0C0E	5F	00	20 9D		5293	SLC BCFBKD(,@BR),BCFBN1(1,@BR)	* DISP FROM LENGTH PARAMETER			
0C12	5C	00	4A 20		5294	MVC BCFCEL(,@BR),BCFBKD(1,@BR)	SET ELEMENT COMPARE LNG CODE			
0C16	5C	00	59 20		5295	MVC BCFMEL(,@BR),BCFBKD(1,@BR)	SET ELEMENT MOVE LENGTH CODE			
0C1A	5C	00	30 5A		5296	MVC BCFBP2(,@BR),BCFBP1(1,@BR)	SET SECONDARY BUFFER POINTER			
					5297	*				
					5298	* ESTABLISH	THE DATA BUCKET POINTER			
					5299	*				
0C1E	D2	01	A6		5300	BCF820 LA BCFBKT(,@BR),@BR	LOAD CORE ADDRESS OF BUCKET			
0C21	D2	01	00		5301	BCF825 LA *-*(,@BR),@BR	* ELEMENT RIGHTMOST BYTE			
					5302	*				
					5303	* TEST FOR	CHARACTER STRING SEGMENT IN BUCKET			
					5304	*				
0C24	F2	00	30		5305	BCF830 JC BCF880,*-*	IF CHARACTER STRING SWITCH ON			
0C25					5306	ORG BCF830+@Q	* BYPASS THE BUFFER SEARCH -			
0C25	80			0C25	5307	DC AL1(@NOP)	* INITIALIZE CHARACTER STRING			
0C27					5308	ORG BCF830+@INST3	* SWITCH TO 'OFF' CONDITION			
					5309	*				
					5310	* BUCKET	ELEMENT IS EITHER ARITHMETIC OR CHARACTER CONSTANT ACCESS			
					5311	* THE NEXT	DATA ELEMENT IN THE OUTPUT BUFFER FOR COMPARISON			
					5312	*				
0C27	0C	00	0CA6 0C33		5313	BCF840 MVC BCFVPD,BCFBP2(1)	SET VIRTUAL PAGE DISPLACEMENT			
0C2D	C2	02	0CBC		5314	LA BCFBFR,@XR	LOAD CORE ADDRESS OF BYTE			
0C31	E2	02	00		5315	BCF845 LA *-*(,@XR),@XR	* PRECEDING NEXT BUFFER ELEMENT			
					5316	*				
					5317	* ADJUST	BUFFER POINTER FOR CONSTANT TYPE IN BUFFER			
					5318	*				
0C34	B8	40	01		5319	BCF850 TBN BCFBFS(,@XR),B@DTYP	IF NEXT ELEMENT IS A CHAR CON			
0C37	F2	10	09		5320	JT BCF855	* GO ADJUST POINTER ACCORDINGLY			
0C3A	0E	00	0C33 0CA4		5321	ALC BCFBP2,BCFPFL(1)	ADJUST POINTER FOR PACKED ARITH			

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	0C40	F2 87 06		5322	J	BCF860	* AND GO CHECK BUFFER BOUNDARY
	0C43	0E 00 0C33 0CA1		5323	BCF855 ALC	BCFBP2,BCFCRL(1)	ADJUST POINTER FOR CHAR ELEMENT
	0C49	F2 02 0B		5324	BCF860 JNL	BCF880	IF THIS ELEMENT EXTENDS PAST
				5325	*		* BUFFER END, EXIT SEARCH LOOP
				5326	*		
				5327	*	COMPARE THE BUCKET ELEMENT WITH THE CURRENT BUFFER ELEMENT	
				5328	*		
	0C4C	6D 00 00 00		5329	BCF870 CLC	BCFBKV(, @BR), *-*(@VQ, @XR)	IF BUCKET VALUE ALREADY IN BFR
	0C50	F2 81 2B		5330	JE	BCF930	* GO COMPUTE VIRTUAL ADDRESS
	0C53	C0 87 0C27		5331	B	BCF840	* ELSE GO TRY NEXT BUFFER ITEM
				5332	*		
				5333	*	CURRENT BUFFER ELEMENTS DO NOT INCLUDE. THE BUCKET ELEMENT	
				5334	*	MOVE THE BUCKET ELEMENT TO NEXT AVAILABLE BUFFER POSITION	
				5335	*		
	0C57	C2 02 0CBC		5336	BCF880 LA	BCFBFR, @XR	LOAD BUFFER BASE CORE ADDRESS
				5337	*		
	0C5B	9C 00 00 00		5338	BCF885 MVC	*-*(, @XR), BCFBKV(@VQ, @BR)	MOVE THE BUCKET VALUE TO THE
	0C5D			5339	ORG	BCF885+@D1	* OUTPUT BUFFER - INITIALIZE
	0C5D	FF	0C5D	5340	DC	AL1(BCFBND)	* BUFFER POINTER TO REFERENCE
	0C5F			5341	ORG	BCF885+@INST4	* THE RIGHTMOST BUFFER BYTE
				5342	*		
				5343	*	DECREMENT BUFFER POINTER AND TEST FOR FULL BUFFER	
				5344	*		
	0C5F	C2 01 0C03		5345	BCF890 LA	BCF800, @BR	LOAD SUBROUTINE BASE ADDRESS
	0C63	5F 00 5A 4C		5346	SLC	BCFBP1(, @BR), BCFBKL(1, @BR)	DECREMENT THE BUFFER POINTER
	0C67	F2 02 10		5347	JNL	BCF920	BRANCH IF BUFFER NOT FULL
				5348	*		
				5349	*	BUFFER IS FULL - OUTPUT THE BUFFER TO VIRTUAL MEMORY AND STORE THE	
				5350	*	CONSTANT RESIDUAL AS THE 1ST DATA ENTRY IN THE NEW BUFFER LOAD	
				5351	*		
	0C6A	3C 15 094E		5352	BCF900 MVI	BZPFNC, BZPFWP	SET PUT ROUTINE TO WRITE BFR
	0C6E	C0 87 093A		5353	B	BBPUTC	LINK TO PUT THE CONSTANT PAGE
	0C72	5F 00 A2 9D		5354	SLC	BCFVPG(, @BR), BCFBN1(1, @BR)	DECR PAGE 40. FOR NEXT OUTPUT
				5355	*		
				5356	*	STORE POSSIBLE BUFFER OVERFLOW RESIDUAL AS FIRST ENTRY IN BUFFER	
				5357	*		
	0C76	9C 12 FF B8		5358	BCF910 MVC	BCFBND(, @XR), BCFBKN(B@LCRV, @BR)	MOVE POSSIBLE RESIDUAL
				5359	*		* TO RIGHT END OF BUFFER
				5360	*	SET VIRTUAL ADDRESS FOR BYTE PRECEDING THE NEW CONSTANT	
				5361	*		
	0C7A	5C 00 A3 5A		5362	BCF920 MVC	BCFVPD(, @BR), BCFBP1(1, @BR)	SET VIRTUAL PAGE DISPLACEMENT
				5363	*		
				5364	*	DETERMINE VIRTUAL ADDRESS OUTPUT PARAMETER	
				5365	*		
	0C7E	C2 01 0C03		5366	BCF930 LA	BCF800, @BR	LOAD SUBROUTINE BASE ADDRESS
	0C82	3D 00 158F		5367	CLI	BZBCKT-1, @ZERO	IF THE OUTPUT PARAM CONTAINS
	0C86	F2 01 0A		5368	JNE	BCF940	* A VADDR. GO EXIT SUBROUTINE
	0C89	1C 01 1590 A3		5369	MVC	BZBCKT, BCFVAD(@VADDR, @BR)	MOVE VADDR TO OUTPUT PARAM AND
	0C8E	1E 01 1590 9D		5370	ALC	BZBCKT, BCFBN1(@VADDR, @BR)	* UPDATE TO CONSTANT VADDR
				5371	*		
				5372	*	INCREMENT THE PUT COUNTER AND EXIT SUBROUTINE	
				5373	*		
	0C93	5E 00 A5 9D		5374	BCF940 ALC	BCFPCT(, @BR), BCFBN1(1, @BR)	INCREMENT THE PUT COUNTER
	0C97	35 02 0878		5375	L	BZGPTR, @XR	RESTORE TEXT CHARACTER POLITER
	0C9B	C0 87 0000		5376	BCF950 B	*-*	RETURN TO BCFCN MAINLINE

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				5378	*****	
				5379	* BCFCON PROGRAM CONSTANTS	
				5380	*****	
				5381	*	
0C9F	0001		0CA0	5382	BCFBN1 DC IL2'1'	BINARY INTEGER '1'
0CA1	13		0CA1	5383	BCFCRL DC AL1(B@LCRV)	CHARACTER ELEMENT LENGTH
				5385	*****	
				5386	* BCFCON WORKAREA - PRECISION DEPENDENT	
				5387	*****	
				5388	*	
0CA2			0CA2	5389	BCFPRC DS CL1	ARITH PRECISION STATUS INDR
0CA2				5390	ORG BCFPRC	INITIALIZE STATUS INDICATOR
0CA2	00		0CA2	5391	DC XL1'00'	* FOR STANDARD PRECISION
				5392	*	
0CA3			0CA3	5393	BCFMNL DS CL1	UNPACKED FLOATING MANTISSA LNG
0CA3				5394	ORG BCFMNL	INITIALIZE MANTISSA LENGTH
0CA3	07		0CA3	5395	DC AL1(B@LESP-1)	* FOR STANDARD PRECISION
				5396	*	
0CA4			0CA4	5397	BCFPFL DS CL1	PACKED FLOATING ELEMENT LENGTH
0CA4				5398	ORG BCFPFL	INITIALIZE ELEMENT LENGTH
0CA4	05		0CA4	5399	DC AL1(B@LISP)	* FOR STANDARD PRECISION
				5400	*	
0CA5			0CA6	5401	BCFVAD DS CL(@VADDR)	VIRTUAL ADDRESS WORK AREA
			0CA5	5402	BCFVPG EQU *-@VADDR	VIRTUAL PAGE NUMBER
			0CA6	5403	BCFVPD EQU *-1	VIRTUAL PAGE DISPLACEMENT
0CA5				5404	ORG *-@VADDR	INITIALIZE VIRTUAL ADDRESS
0CA5	F4E5		0CA6	5405	DC AL(@VADDR)(B@VMSB-B@LVPG)	* TO RIGHTMOST BYTE OF FIRST
0CA6				5406	ORG *-1	* PAGE ALLOCATED FOR CONSTANTS
0CA6	FF		0CA6	5407	DC AL1(B@LVPG-1)	* USING STANDARD PRECISION
			0CA6	5408	BCFPWA EQU *-1	PRECISION AREA CORE ADDRESS
				5410	*****	
				5411	* BCFCON WORK AREA - PRECISION INDEPENDENT	
				5412	*****	
				5413	*	
0CA7			0CA7	5414	BCFCNT DS CL1	GENERAL PURPOSE COUNTER
0CA8			0CA8	5415	BCFPCT DS CL1	ELEMENT OUTPUT COUNTER
			0CA9	5416	BCFBKT EQU *	DATA ELEMENT BUCKET BASE CADDR
0CA9			0CBB	5417	DS CL(B@LCRV)	DATA ELEMENT BUCKET AREA
			0CBB	5418	BCFBKN EQU *-1	DATA ELEMENT BUCKET RIGHT BYTE
			0CBC	5419	BCFBFR EQU *	CONSTANT BUFFER BASE CADDR
0CBC			0DBB	5420	DS CL(B@BLSZ)	CONSTANT BUFFER AREA
			0DBB	5421	BCFBFN EQU *-1	CONSTANT BUFFER RIGHT BYTE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/07/20	PAGE	71	
					5423	*****						
					5424	* BCFCON FUNCTION PARAMETER EQUATES						
					5425	*****						
					5426	*						
				0A5F	5427	BCFTYP EQU	BCF020+@D1	FUNCTION CONTROL PARAM ADDRESS				
				0023	5428	BCFACN EQU	BCF200-BCF010	FUNCTION CODE - ARITHMETIC				
				001F	5429	BCFCCN EQU	BCF110-BCF010	FUNCTION CODE - CHARACTER				
				001B	5430	BCFSCN EQU	BCF100-BCF010	FUNCTION CODE - CHAR STRING				
					5432	*****						
					5433	* BCFCON PROGRAM SWITCH EQUATES						
					5434	*****						
					5435	*						
				0BAD	5436	BCFBSW EQU	BCF540+@Q	DATA BUCKET LIMIT SWITCH				
				0007	5437	BCFBMK EQU	@UCB-@NOP	DATA BUCKET LIMIT MASK				
				0ACE	5438	BCFFSW EQU	BCF280+@Q	FRACTION PROCESSING SWITCH				
				0007	5439	BCFFMK EQU	@UCB-@NOP	FRACTION PROCESSING MASK				
				0C25	5440	BCFSSW EQU	BCF830+@Q	CHAR STRING ELEMENT SWITCH				
				0007	5441	BCFSMK EQU	@UCB-@NOP	CHAR STRING ELEMENT MASK				
				0B24	5442	BCFXSW EQU	BCF345+@Q	EXPONENT DECREMENT SWITCH				
				0007	5443	BCFXMK EQU	@UCB-@NOP	EXPONENT DECREMENT MASK				

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 72
		5445		*****	
		5446	*	BCFCON EQUATES REFERENCING CONSTANTS	
		5447		*****	
		5448	*		
	0001	5449	BCFBFS EQU 1	DISP FOR BUFFER ELEMENT STATUS	
	0000	5450	BCFBKV EQU 0	DISP FOR BUCKET ELEMENT RH BYTE	
	0000	5451	BCFBPM EQU 0	DISP FOR PACKED MANTISSA BYTE	
	0000	5452	BCFBUM EQU 0	DISP FOR UNPACKED MANTISSA BYTE	
	0001	5453	BCFPDL EQU 1	PACKED DIGIT PAIR BYTE LENGTH	
	0002	5454	BCFUDL EQU 2	UNPACKED DIGIT PAIR BYTE LENGTH	
		5455	*		
		5456		*****	
		5457	*	BCFCON EQUATES REFERENCING PROGRAM	
		5458		*****	
		5459	*		
	0BB2	5460	BCFBCP EQU BCF550+@D1	BUCKET CHARACTER POINTER DISP	
	0CAA	5461	BCFBC1 EQU BCFBKT+1	DATA BUCKET 1ST CHARACTER BYTE	
	0CBB	5462	BCFBC2 EQU BCFBC1+B@LCRV-2	DATA BUCKET LAST CHARACTER BYTE	
	0C4F	5463	BCFBFV EQU BCF870+@DD2	DISP FOR BUFFER ELEMENT RH BYTE	
	0C23	5464	BCFBKD EQU BCF825+@D1	DISP FOR BUCKET ELEMENT RH BYTE	
	0C4F	5465	BCFBKL EQU BCFBFV	DATA BUCKET ELEMENT LENGTH	
	0CA9	5466	BCFBKS EQU BCFBKT+B@STAT	DATA BUCKET STATUS BYTE	
	0CBB	5467	BCFBKX EQU BCFBKN	DATA BUCKET EXPONENT BYTE	
	0CAA	5468	BCFBM1 EQU BCFBKS+1	DATA BUCKET 1ST MANTISSA BYTE	
	0CB8	5469	BCFBM2 EQU BCFBM1+B@LELP-2	DATA BUCKET LAST MANTISSA BYTE	
	0ADD	5470	BCFBMP EQU BCF295+@D1	BUCKET MANTISSA POINTER DISP	
	00FF	5471	BCFBND EQU BCFBFN-BCFBFR	DISP FOR BUFFER RIGHT BYTE	
	0C5D	5472	BCFBP1 EQU BCF885+@D1	PRIMARY BUFFER POINTER DISP	
	0C33	5473	BCFBP2 EQU BCF845+@D1	SECONDARY BUFFER POINTER 9ISP	
	0C4D	5474	BCFCEL EQU BCF870+@Q	BUCKET/EFR DATA COMPARE JAG CZ	
	0CA7	5475	BCFDLM EQU BCFCNT	CHARACTER FIELD DELIMITER	
	0C5C	5476	BCFMEL EQU BCF885+@Q	BUCKET/BFR DATA MOVE LNG CODE	
	0001	5477	BCFPDX EQU 1	DISP FOR PACKED VALUE EXPONENT	
	0B55	5478	BCFUPL EQU BCF395+@D1	UNPACKED DIGIT PAIR BYTE LENGTH	
		5479	*		
		5480		*****	
		5481	*		
		5482	*	END OF COMPILER CONSTANT GENERATOR CODING	
		5483	*		

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/07/20	PAGE 73
5485				*****			
5486	*			5703-XM1 COPYRIGHT IBM CORP. 1970			*
5487	*			REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083			*
5488	*						*
5489				*****			*
5490				*STATUS			*
5491	*			VERSION 1 MODIFICATION 0			*
5492	*						*
5493				*FUNCTION			*
5494	*			* BDSYMB ANALYZES A SYMBOL WITHIN A BASIC STATEMENT. ALLOCATES			*
5495	*			STORAGE IN VIRTUAL MEMORY AS REQUIRED FOR AN ELEMENT ASSOCIATED			*
5496	*			WITH THIS SYMBOL, AND RETURNS THE VIRTUAL ADDRESS OF THE SYMBOL			*
5497	*			A ELEMENT STORAGE AREA OR INTRINSIC FUNCTION ENTRY POINT.			*
5498	*			* THE TEXT POINTER IS REQUIRED TO REFERENCE THE FIRST CHARACTER			*
5499	*			OF A BASIC IDENTIFIER, AND THIS IDENTIFIER IS CATEGORIZED INTO			*
5500	*			ONE OF THE FOLLOWING CLASSIFICATIONS -			*
5501	*			* ARITHMETIC (LETTER) VARIABLE			*
5502	*			* ARITHMETIC (LETTER-DIGIT) VARIABLE			*
5503	*			* ARITHMETIC ARRAY REFERENCE			*
5504	*			* CHARACTER VARIABLE			*
5505	*			* CHARACTER ARRAY REFERENCE			*
5506	*			* USER FUNCTION REFERENCE			*
5507	*			* INTRINSIC FUNCTION REFERENCE			*
5508	*			* STATEMENT SECONDARY KEYWORD.			*
5509	*			* EACH OCCURRENCE OF A NEW VARIABLE, ARRAY, OR USER FUNCTION			*
5510	*			IDENTIFIER CAUSES VIRTUAL MEMORY TO BE ALLOCATED FOR THE ELE-			*
5511	*			MENT ASSOCIATED WITH THAT IDENTIFIER, AND THE VIRTUAL ADDRESS			*
5512	*			OF THIS ALLOCATED AREA IS STORED IN A TABLE SPECIFIC TO THE			*
5513	*			IDENTIFIER CLASS BEING REFERENCED. POSITIONS WITHIN EACH TABLE			*
5514	*			ARE UNIOUELY DEFINED BY THE IDENTIFIER NAME.			*
5515	*			* ELEMENTS ASSOCIATED WITH VARIABLE. ARRAY, OR USER FUNCTION			*
5516	*			IDENTIFIERS ARE AS FOLLOWS.			*
5517	*			* ARITHMETIC VARIABLES - PACKED FLOATING POINT VALUE			*
5518	*			(5 BYTES FOR STANDARD PRECISION, 9 BYTES FOR LONG).			*
5519	*			* ARITHMETIC ARRAY REFERENCES - ARITHMETIC ARRAY DOPE			*
5520	*			VECTOR (8 BYTES).			*
5521	*			* CHARACTER VARIABLES - CHARACTER ELEMENT FIELD (19 BYTES).			*
5522	*			* CHARACTER ARRAY REFERENCES - CHARACTER ARRAY DOPE			*
5523	*			VECTOR (4 BYTES).			*
5524	*			* USER FUNCTION REFERENCE - FUNCTION RUN-TIME ENTRY POINT			*
5525	*			VIRTUAL ADDRESS (2 BYTES).			*
5526	*			* THE OCCURENCE OF AN INTRINSIC FUNCTION REFERENCE CAUSES THE			*
5527	*			FUNCTION IDENTIFIER TO BE LOCATED IN A FUNCTION NAME TABLE			*
5528	*			WHICH ASSOCIATES THE NAME WITH THE VIRTUAL ADDRESS OF THE RUN-			*
5529	*			TIME ENTRY POINT TO THAT FUNCTION.			*
5530	*			* IN EACH OF THESE CASES, THE TABULATED VIRTUAL ADDRESS DETER-			*
5531	*			MINED FOR THE IDENTIFIER IS RETURNED TO THE CALLING PROGRAM.			*
5532	*			THE PRESENCE OF A SIMPLE KEYWORD CAUSES NO VIRTUAL ADDRESS TO			*
5533	*			BE RETURNED.			*
5534	*			* EACH OCCURENCE OF AN ARRAY OR USER FUNCTION IDENTIFIER ALSO			*
5535	*			CAUSES A CORE ADDRESS PARAMETER REFERENCING THE ATTRIBUTE FIELD			*
5536	*			FOR THAT IDENTIFIER TO BE RETURNED TO THE CALLING PROGRAM.			*
5537	*			THIS FIELD, CONTAINED WITH THE IDENTIFIER VIRTUAL ADDRESS IN			*
5538	*			THE APPROPRIATE SYMBOL TABLE, IS USED FOR THE STORAGE OF FUNC-			*
5539	*			TION AND ARRAY PARAMETERS WHICH ARE ESTABLISHED AND USED DURING			*
5540	*			COMPILATION.			*

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 74
		5541	*		*
		5542	*	*ENTRY POINTS	*
		5543	*	* THIS ROUTINE HAS A SINGLE ENTRY POINT - BDSTMB - WHOSE FUNCTION	*
		5544	*	IS DEFINED ABOVE. CALLING SEQUENCE IS	*
		5545	*	B BDSYMB	*
		5546	*	SUBJECT TO INPUT CONDITIONS DESCRIBED BELOW.	*
		5547	*	* ENTRY POINT BDSYMB MAY ALSO BE SPECIFIED AS ISSYMB WHEN CALLED	*
		5548	*	FROM ONE OF THE DISK-RESIDENT STATEMENT PROCESSORS.	*
		5549	*		*
		5550	*	*INPUT	*
		5551	*	* REGISTER @XR - FOR THE TEXT CHARACTER POINTER REGISTER. THIS	*
		5552	*	CONTAINS THE CORE ADDRESS OF THE LEADING CHARACTER OF A BASIC	*
		5553	*	IDENTIFIER, AND IS NORMALLY EQUIVALENT TO THE COMPILER INPUT	*
		5554	*	ROUTINE TEXT POINTER (BZGPTR). BY DEFINITION, THE LEADING	*
		5555	*	CHARACTER IN A BASIC IDENTIFIER MUST BE ONE OF THE EXTENDED	*
		5556	*	ALPHABETIC LETTERS (\$, #, @, A,B,...,Z).	*
		5557	*	* COMPILER INPUT BUFFER - THIS CONTAINS SOURCE PROGRAM TEXT	*
		5558	*	INCLUDING, IN GENERAL, THE IDENTIFIER TO BE PROCESSED.	*
		5559	*	* BDSMSN (EXTERNAL BZMRSW, B\$MRSW) - 1 BYTE, FOR THE MATRIX REFER-	*
		5560	*	ENCE SWITCH. THIS SWITCH, NORMALLY OFF, IS SET USING MASK	*
		5561	*	BDSMMK (EXTERNAL BZNRMK, B\$MRMK).	*
		5562	*	* SWITCH ON - CAUSES REFERENCES WHICH NORMALLY WOULD BE	*
		5563	*	INTERPRETED AS SIMPLE LETTER VARIABLES TO BE PROCESSED AS	*
		5564	*	ARITHMETIC ARRAY REFERENCES.	*
		5565	*	* SWITCH OFF - ONLY SIMPLE LETTER IDENTIFIERS FOLLOWED WITH	*
		5566	*	A LEFT PARENTHESIS ARE INTERPRETED AND PROCESSED AS ARITH-	*
		5567	*	METIC ARRAY REFERENCES.	*
		5568	*	* BDSFSW (EXTERNAL BIFSSW, B\$FSSW) - 1 BYTE, FOR THE FUNCTION SCAN	*
		5569	*	SWITCH. THIS SWITCH, NORMALLY OFF, IS SET USING MASK BDSFMK	*
		5570	*	(EXTERNAL BZFSMK, B\$FSMK).	*
		5571	*	* SWITCH ON - FORCES ALL ARITHMETIC VARIABLE REFERENCES TO	*
		5572	*	BE MATCHED AGAINST A USER FUNCTION DUMMY ARGUMENT IDENTI-	*
		5573	*	FIER. MATCHING REFERENCES ARE ASSIGNED THE DUMMY ARGUMENT	*
		5574	*	VIRTUAL ADDR RATHER THAN THAT DERIVED FROM A SYMBOL TABLE.	*
		5575	*	* SWITCH OFF - ALL ARITHMETIC VARIABLE REFERENCES ARE PRO-	*
		5576	*	CESSED USING APPROPRIATE SYMBOL TABLES FOR VIRTUAL ADDRESS	*
		5577	*	DEFINITION.	*
		5578	*	* BDSDV1 (EXTERNAL BZFSC1, B\$FSC1) - 1 BYTE, FOR THE FUNCTION SCAN	*
		5579	*	IDENTIFIER 1ST CHARACTER. THIS CONTAINS THE LEADING CHARACTER	*
		5580	*	OF THE USER FUNCTION DUMMY ARGUMENT IDENTIFIER DURING A FUNC-	*
		5581	*	TION SCAN OPERATION.	*
		5582	*	* BDSDV2 (EXTERNAL BZFSC2, B\$FSC2) - 1 BYTE, FOR THE FUNCTION SCAN	*
		5583	*	IDENTIFIER 2ND CHARACTER. THIS CONTAINS THE DIGIT PORTION OF	*
		5584	*	THE USER FUNCTION DUMMY ARGUMENT IDENTIFIER (SHOULD IT EXIST)	*
		5585	*	DURING A FUNCTION SCAN OPERATION. WHEN NO DIGIT EXISTS, THIS	*
		5586	*	BYTE IS TO CONTAIN A BLANK CHARACTER.	*
		5587	*	* BDSDVA (EXTERNAL BZFSVA, B\$FSVA) - 2 BYTES, FOR THE FUNCTION	*
		5588	*	SCAN VIRTUAL ADDRESS. THIS CONTAINS THE USER FUNCTION DUMMY	*
		5589	*	ARGUMENT VIRTUAL ADDRESS ASSIGNED DURING A FUNCTION SCAN.	*
		5590	*		*
		5591	*	*OUTPUT	*
		5592	*	* REGISTER @XR - FOR THE TEXT CHARACTER POINTER REGISTER (SEE	*
		5593	*	INPUT). THIS WILL BE POSITIONED DEPENDING ON THE NATURE OF THE	*
		5594	*	PROCESSED IDENTIFIER.	*
		5595	*	* VARIABLE, ARRAY, OR FUNCTION IDENTIFIER - THE TEXT POINTER	*
		5596	*	WILL REFERENCE THE CHARACTER FOLLOWING THE ALPHANUMERIC	*

S/3 BASIC COMPILER SYMBOL TRANSLATION RTN.

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5597 *          SYMBOL IDENTIFIER.
5598 *          * KEYWORD IDENTIFIER - THE TEXT POINTER WILL REFERENCE THE
5599 *          2ND CHARACTER OF THE KEYWORD.
5600 *          * LETTER VARIABLE FOLLOWED WITH A KEYWORD - THE TEXT POINTER
5601 *          WILL REFERENCE THE 2ND CHARACTER OF THE KEYWORD.
5602 *          * BZBCKT - 2 BYTES, FOR THE IDENTIFIER VIRTUAL ADDRESS BUCKET.
5603 *          THIS CONTAINS THE VIRTUAL ADDRESS OF THE LEFT BYTE OF THE ELE-
5604 *          MENT ASSOCIATED WITH THE PROCESSED IDENTIFIER. WHEN THE MEN-
5605 *          TIFIER WAS A SIMPLE KEYWORD, BZBCKT IS LEFT UNCHANGED.
5606 *          * BZADSW - 1 BYTE, FOR THE ADDRESS AVAILABILITY SWITCH. THIS
5607 *          SWITCH, WHICH IS NOT RESET AT BDSYMB ENTRY. IS SET ON USING
5608 *          MASK BZADMK WHEN AN IDENTIFIER VIRTUAL ADDRESS IS DEFINED AND
5609 *          STORED IN BZBCKT.
5610 *          * BZFRSW - 1 BYTE, FOR THE FUNCTION REFERENCE SWITCH. THIS
5611 *          SWITCH, WHICH IS NOT RESET AT BDSYMB ENTRY, IS SET ON USING
5612 *          MASK BZFRMK WHEN THE PROCESSED IDENTIFIER IS ANY TYPE OF FUNC-
5613 *          TION REFERENCE.
5614 *          * BZIFSW - 1 BYTE, FOR THE INTRINSIC FUNCTION REFERENCE SWITCH.
5615 *          THIS SWITCH, WHICH IS NOT RESET AT BDSYMB ENTRY, IS SET ON
5616 *          USING MASK BZIFMK WHEN THE PROCESSED IDENTIFIER IS AN INTRINSIC
5617 *          FUNCTION REFERENCE.
5618 *          * BDSCSW (EXTERNAL BZCRSW, B$CRSW) - 1 BYTE. FOR THE CHARACTER
5619 *          REFERENCE SWITCH. THIS SWITCH, WHICH IS SET OFF AT BDSYMB
5620 *          ENTRY, IS SET ON USING MASK BDSCHK WHEN THE PROCESSED IDENTI-
5621 *          FIER IS EITHER A CHARACTER VARIABLE OR A CHARACTER ARRAY
5622 *          REFERENCE.
5623 *          * BZKWSW - 1 BYTE, FOR THE EXPRESSION KEYWORD SWITCH. THIS
5624 *          SWITCH, WHICH IS NOT RESET AT BDSYMB ENTRY, IS SET ON USING
5625 *          MASK BZKWSW WHEN A STATEMENT SECONDARY KEYWORD (ALONE OR FOL-
5626 *          LOWING A SIMPLE LETTER VARIABLE, IS ENCOUNTERED DURING SYMBOL
5627 *          TRANSLATION.
5628 *          * BDSMSW (EXTERNAL BZMRSW, B$MRSW) - 1 BYTE, FOR THE MATRIX REFER-
5629 *          ENCE SWITCH (SEE INPUT). THIS SWITCH IS SET ON BY BDSYMB WHEN
5630 *          A MATRIX-DIRECTED INTRINSIC FUNCTION (E.G. DET) IS ENCOUNTERED.
5631 *          * BDSFAA (EXTERNAL BZFACA, B$FACA) - 2 BYTES, FOR THE FUNCTION OR
5632 *          ARRAY ATTRIBUTE ADDRESS. THIS CONTAINS THE CORE ADDRESS OF THE
5633 *          LEFTMOST BYTE OF THE SYMBOL TABLE ATTRIBUTE FIELD ASSOCIATED
5634 *          WITH THE PROCESSED USER FUNCTION OR ARRAY IDENTIFIER.
5635 *          * ARITHMETIC ARRAY REFERENCES - EACH ATTRIBUTE FIELD CON-
5636 *          SISTS OF 4 BYTES, AND CONTAINS ARRAY USAGE INDICATORS AND
5637 *          SPECIFIED DIMENSIONS.
5638 *          * CHARACTER ARRAY REFERENCES - EACH ATTRIBUTE FIELD CONSISTS
5639 *          OF 2 BYTES, AND CONTAINS AN ARRAY USAGE INDICATOR AND
5640 *          SPECIFIED DIMENSION.
5641 *          * USER FUNCTION REFERENCES - EACH ATTRIBUTE FIELD CONSISTS
5642 *          OF 2 BYTES, AND CONTAINS THE VIRTUAL ADDRESS ENTRY POINT
5643 *          TO THE USER FUNCTION RUN-TIME PMC.
5644 *          * SYMBOL TABLES (SEE TABLES/WORK AREAS) - AS NEW IDENTIFIERS OR
5645 *          IDENTIFIER ATTRIBUTES ARE ASSIGNED, THESE TABLES ARE UPDATED
5646 *          WITH ELEMENT VIRTUAL ADDRESSES AND ATTRIBUTE DATA.
5647 *          * BDSVRB (EXTERNAL BZSVRB, B$SVRID - 2 BYTES, FOR THE VARIABLE
5648 *          REFERENCE BASE VIRTUAL ADDRESS. THIS CONTAINS THE VIRTUAL
5649 *          ADDRESS OF THE LEFTMOST BYTE OF THE NEXT VIRTUAL MEMORY LOCA-
5650 *          TION AVAILABLE FOR SCALAR VARIABLE ALLOCATION. AND IS INCRE-
5651 *          MENTED WHENEVER SUCH AN ALLOCATION IS PERFORMED.
5652 *          * BDSFAB (EXTERNAL BZSFAB, B$SFAB) - 2 BYTES, FOR THE RUN-TIME

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S/3 BASIC COMPILER SYMBOL TRANSLATION RTN.

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		5653	*	FUNCTION AND ARRAY TABLE BASE VIRTUAL ADDRESS. THIS CONTAINS	*
		5654	*	THE VIRTUAL ADDRESS OF THE LEFTMOST BYTE OF THE LAST ARRAY DOPE	*
		5655	*	VECTOR OR USER FUNCTION EXECUTION ADDRESS ALLOCATED, AND IS	*
		5656	*	DECREMENTED WHENEVER SUCH AN ALLOCATION IS PERFORMED.	*
		5657	*		*
		5658	*	EXTERNAL REFERENCES	*
		5659	*	* BAGETC - ENTRY POINT FOR COMPILER SOURCE TEXT INPUT ROUTINE.	*
		5660	*	* BZGPTR - 2 BYTES, FOR COMPILER SOURCE TEXT CHARACTER POINTER.	*
		5661	*	* BZBCKT - 2 BYTES, FOR COMPILER SYMBOL VIRTUAL ADDRESS PARAMETER.	*
		5662	*	* BZADSW - 1 BYTE, FOR THE SYMBOL ADDRESS AVAILABILITY SWITCH.	*
		5663	*	* BZFRSW - 1 BYTE, FOR THE FUNCTION REFERENCE SWITCH.	*
		5664	*	* BZIFSW - 1 BYTE, FOR THE INTRINSIC FUNCTION REFERENCE SWITCH.	*
		5665	*	* BZKWSW - 1 BYTE, FOR THE EXPRESSION ENCOUNTERED KEYWORD SWITCH.	*
		5666	*		*
		5667	*	EXITS, NORMAL	*
		5668	*	CONTROL IS ALWAYS RETURNED TO THE FIRST INSTRUCTION FOLLOWING THE	*
		5669	*	BDSYMB CALLING SEQUENCE.	*
		5670	*		*
		5671	*	EXITS, ERROR	*
		5672	*	N/A	*
		5673	*		*
		5674	*	TABLES/WORK AREAS	*
		5675	*	* COMPILER SYMBOL TABLE - THIS IS A COMPOSITE OF EIGHT SUBTABLES.	*
		5676	*	SIZES AND ENTRY CONFIGURATIONS FOR SUBTABLES FOLLOW, WHERE EACH	*
		5677	*	LABEL REFERENCES THE FIRST BYTE IN A SUBTABLE.	*
		5678	*	* BDSLVT (EXTERNAL BZSLVT, B\$SLVT) - LETTER VARIABLE TABLE.	*
		5679	*	THIS CONTAINS 29 2-BYTE ENTRY LOCATIONS. EACH ENTRY MAY	*
		5680	*	CONTAIN A 2-BYTE VIRTUAL ADDRESS.	*
		5681	*	* BDSLDT (EXTERNAL BZSLDT, B\$SLDT) - LETTER-DIGIT VARIABLE	*
		5682	*	TABLE. THIS CONTAINS 290 2-BYTE ENTRY LOCATIONS. EACH	*
		5683	*	ENTRY MAY CONTAIN A 2-BYTE VIRTUAL ADDRESS.	*
		5684	*	* BDSCVT (EXTERNAL BZSCVT, B\$SCVT) - CHARACTER VARIABLE TBL.	*
		5685	*	THIS CONTAINS 29 2-BYTE ENTRY LOCATIONS. EACH ENTRY MAY	*
		5686	*	CONTAIN A 2-BYTE VIRTUAL ADDRESS.	*
		5687	*	* BDSNAT (EXTERNAL BZSNAT, B\$SNAT) - NUMERIC (ARITHMETIC)	*
		5688	*	ARRAY TABLE. THIS CONTAINS 29 6-BYTE ENTRY LOCATIONS.	*
		5689	*	EACH ENTRY MAY CONTAIN A 2-BYTE VIRTUAL ADDRESS AND	*
		5690	*	4-BYTE ARRAY ATTRIBUTE FIELD.	*
		5691	*	* BDSCAT (EXTERNAL BZSCAT, B\$SCAT) - CHARACTER ARRAY TABLE.	*
		5692	*	THIS CONTAINS 29 4-BYTE ENTRY LOCATIONS. EACH ENTRY MAY	*
		5693	*	CONTAIN A 2-BYTE VIRTUAL ADDRESS AND A 2-BYTE ARRAY ATTRI-	*
		5694	*	BUTE FIELD.	*
		5695	*	* BDSFNT (EXTERNAL BZSFNT, B\$SFNT) - USER FUNCTION TABLE.	*
		5696	*	THIS CONTAINS 29 4-BYTE ENTRY LOCATIONS. EACH ENTRY MAY	*
		5697	*	CONTAIN A 2-BYTE VIRTUAL ADDRESS AND A 2-BYTE FUNCTION	*
		5698	*	ATTRIBUTE FIELD.	*
		5699	*	* BDSIFT - INTRINSIC FUNCTION TABLE. CONTAINING 24 5-BYTE	*
		5700	*	ENTRIES. EACH ENTRY CONTAINS CONSTANT INFORMATION INCLUD-	*
		5701	*	ING A 3-BYTE BASIC INTRINSIC FUNCTION NAME (E.G. LOG, SQR)	*
		5702	*	AND A 2-BYTE VIRTUAL ADDRESS ENTRY POINT FOR THIS FUNCTION.	*
		5703	*	* BDSKWT - KEYWORD TABLE, CONTAINING 4 2-BYTE ENTRIES. EACH	*
		5704	*	ENTRY CONTAINS CONSTANT INFORMATION CONSISTING OF A 2-BYTE	*
		5705	*	CHARACTER STRING WHICH DEFINES THE LEADING CHARACTERS IN	*
		5706	*	A STATEMENT SECONDARY KEYWORD.	*
		5707	*	* ALL SUBTABLES, EXCEPT FOR BDSIFT AND BDSNAT, ARE INITIALIZED	*
		5708	*	AT COMPILER ENTRY TO BINARY ZEROS. ARRAY DIMENSIONS FOR BDSNAT	*

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		5709	*	AND BDSCAT ATTRIBUTE FIELDS ARE INSERTED ONLY DURING 'DIM'	*		
		5710	*	STATEMENT PROCESSING, AND USER FUNCTION EXECUTION ADDRESSES FOR	*		
		5711	*	BDSFNT ATTRIBUTE FIELDS ARE INSERTED ONLY DURING 'DEF' STATE-	*		
		5712	*	MENT PROCESSING. SUBTABLE ENTRIES ARE GENERALLY ARRANGED IN	*		
		5713	*	THE ORDER (\$, #, @, A,B,...,Z). BDSLDT TABLE ENTRIES ARE	*		
		5714	*	ARRANGED IN THE ORDER (\$0, \$1, \$2,...,Z9).	*		
		5715	*	* ALPHABETIC REFERENCE TABLE - THIS TABLE, WITH FIRST BYTE REFER-	*		
		5716	*	DICED BY THE LABEL BDSART, CONTAINS IS ALPHABETIC CHARACTERS	*		
		5717	*	(\$, @, B, D,...,Z), AND IS USED TO DETERMINE SYMBOL TABLE DIS-	*		
		5718	*	PLACEMENTS BASED ON THE 'LETTER' COMPONENT IN BASIC VARIABLE	*		
		5719	*	SYMBOL IDENTIFIERS.	*		
		5720	*	* BDSBKT - 3 BYTES, FOR THE IDENTIFIER CHARACTER ACCUMULATOR.	*		
		5721	*	* BDSSTP - 2 BYTES, FOR THE SYMBOL TABLE DISPLACEMENT POINTER.	*		
		5722	*	* BDSFAA (EXTERNAL BZFACA, B\$FACA) - 2 BYTES, FOR THE FUNCTION OR	*		
		5723	*	ARRAY ATTRIBUTE CORE ADDRESS PARAMETER (SEE OUTPUT).	*		
		5724	*	* BDSDV1 (EXTERNAL BZFSC1, B\$FSC1) - 1 BYTE, FOR THE USER FUNC-	*		
		5725	*	TION DUMMY ARGUMENT IDENTIFIER 1ST CHARACTER (SEE INPUT).	*		
		5726	*	* BDSDV2 (EXTERNAL BZFSC2, BITSC2) - 1 BYTE, FOR THE USER FUNC	*		
		5727	*	TION DUMMY ARGUMENT IDENTIFIER 2ND CHARACTER (SEE INPUT).	*		
		5728	*	* BDSDVA (EXTERNAL BZFSVA, B\$FSVA) - 2 BYTES, FOR THE USER FUNC-	*		
		5729	*	TION DUMMY ARGUMENT VIRTUAL ADDRESS (SEE INPUT).	*		
		5730	*	* BDSVRB (EXTERNAL BZSVRB, B\$SVRB) - 2 BYTES, FOR THE VARIABLE	*		
		5731	*	ELEMENT ALLOCATION POINTER. THIS IS INITIALIZED AT COMPILER	*		
		5732	*	ENTRY TO CONTAIN A VIRTUAL ADDRESS LOW ENOUGH TO PERMIT ALL	*		
		5733	*	THEORETICALLY POSSIBLE SYMBOL ELEMENTS TO BE ALLOCATED STORAGE	*		
		5734	*	BEGINNING AT BDSVRB AND EXTENDING TO THE RUN-TIME FUNCTION AND	*		
		5735	*	ARRAY TABLE (SEE OUTPUT).	*		
		5736	*	* BDSFAB (EXTERNAL BZSFAB, B\$SFAB) - 2 BYTES, FOR THE RUN-TIME	*		
		5737	*	FUNCTION AND ARRAY TABLE ALLOCATION POINTER. THIS IS INITIAL-	*		
		5738	*	IZED AT COMPILER ENTRY TO CONTAIN A VIRTUAL ADDRESS ONE BYTE	*		
		5739	*	BEYOND THE MAXIMUM VIRTUAL ADDRESS OF 65,535 (SEE OUTPUT).	*		
		5740	*	* BDSPFL - 2 BYTES, FOR THE LENGTH OF A PACKED FLOATING POINT	*		
		5741	*	VALUE. THIS IS INITIALIZED AT COMPILER ENTRY FOR STANDARD PRE-	*		
		5742	*	CISION (X'0005'), AND MODIFIED FOR A LONG PRECISION SPECIFICA-	*		
		5743	*	TION TO X'0009' DURING COMPILER INITIATOR (BGINIT) EXECUTION.	*		
		5744	*	* BDSFSW (EXTERNAL BZFSSW, B\$FSSW) - 1 BYTE, FOR THE FUNCTION SCAN	*		
		5745	*	SWITCH. THIS IS INITIALIZED AT COMPILER ENTRY TO THE OFF CON-	*		
		5746	*	DITION (SEE INPUT).	*		
		5747	*	* BDSCSW (EXTERNAL BZCRSW, B\$CRSW) - 1 BYTE, FOR THE CHARACTER	*		
		5748	*	REFERENCE SWITCH. THIS IS INITIALIZED AT COMPILER ENTRY TO THE	*		
		5749	*	OFF CONDITION (SEE OUTPUT).	*		
		5750	*	* BDSMSW (EXTERNAL BZMRSW, B\$MRSW) - 1 BYTE, FOR THE MATRIX REFER-	*		
		5751	*	ENCE SWITCH. THIS IS INITIALIZED AT COMPILER ENTRY TO THE OFF	*		
		5752	*	CONDITION (SEE INPUT, OUTPUT).	*		
		5753	*		*		
		5754	*	*ATTRIBUTES	*		
		5755	*	* REUSABLE	*		
		5756	*	* RELOCATABLE	*		
		5757	*		*		
		5758	*	**CHARACTER CODE DEPENDENCY	*		
		5759	*	THE OPERATION OF THIS MODULE DEPENDS UPON THE FOLLOWING PROPER-	*		
		5760	*	TIES OF THE INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.	*		
		5761	*	* MOST CODING HAS BEEN ARRANGED SO THAT REDEFINITION OF CHAR-	*		
		5762	*	ALTER CONSTANTS, BY REASSEMBLY, WILL RESULT IN A CORRECT	*		
		5763	*	MODULE FOR THE NEW DEFINITION.	*		
		5764	*	* ALPHABETIC LETTERS A THROUGH Z ARE PRESUMED TO BE CODED IN	*		

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		5765	*	INCREASING COLLATING SEQUENCE, AND THE RANGE OF CHARACTER	*
		5766	*	CONSTANTS FOR THIS SERIES IS EXPECTED TO EXCLUDE ALL OTHER	*
		5767	*	CHARACTER CONSTANTS.	*
		5768	*	* NUMERIC CHARACTERS 0 THROUGH 9 ARE PRESUMED TO BE CODED IN	*
		5769	*	INCREASING COLLATING SEQUENCE, AND THE RANGE OF CHARACTER	*
		5770	*	CONSTANTS FOR THIS SERIES IS EXPECTED TO COLLATE HIGHER THAN	*
		5771	*	THAT FOR ANY OTHER CHARACTER IN THE EXTERNAL CHARACTER SET.	*
		5772	*	* EXTENDED ALPHABETIC LETTERS (\$,#,@) ARE PRESUMED TO BE CODED	*
		5773	*	IN INCREASING COLLATING SEQUENCE, AND ARE ALL EXPECTED TO	*
		5774	*	COLLATE LOWER THAN LETTER (A).	*
		5775	*	* DECIMAL NUMBERS MUST BE CODED SO THAT THE LOW ORDER FOUR	*
		5776	*	BITS, WHEN CONSIDERED AS A BINARY INTEGER, IDENTIFY THE	*
		5777	*	VALUE OF THE DIGIT.	*
		5778	*	THE SPECIFIC INSTRUCTIONS (INSTRUCTION SEQUENCES) WHICH REQUIRE	*
		5779	*	MODIFICATION IF THESE PROPERTIES OF THE CHARACTER SET ARE CHANGED	*
		5780	*	MAY BE IDENTIFIED BY -	*
		5781	*	* THE 2 INSTRUCTIONS BEGINNING AT LABEL BDS020.	*
		5782	*	* THE 4 INSTRUCTIONS BEGINNING AT LABEL BDS070.	*
		5783	*	* THE INSTRUCTION FOLLOWING LABEL BDS220.	*
		5784	*	* THE TABLE IDENTIFIED BY LABEL BDSART.	*
		5785	*	COMMENTS ARE PROVIDED TO INDICATE THE CONSIDERATIONS INVOLVED AND	*
		5786	*	MECHANISMS FOR CHANGING THE CODE.	*
		5787	*	*NOTES	*
		5788	*	ERROR PROCEDURES	*
		5789	*	N/A	*
		5790	*	REGISTER USAGE	*
		5791	*	* REGISTER @BR IS SAVED, USED AS A BASE REGISTER, THEN	*
		5792	*	RESTORED AT BDSYMB EXIT.	*
		5793	*	* REGISTER @XR IS USED AS AN INPUT PARAMETER TO THIS ROUTINE,	*
		5794	*	AND ALSO TO CONTAIN AN OUTPUT PARAMETER AT BDSYMB EXIT.	*
		5795	*	SAVED/RESTORED AREAS	*
		5796	*	N/A	*
		5797	*	MODIFICATION CONSIDERATIONS	*
		5798	*	N/A	*
		5799	*	REQUIRED MODULES	*
		5800	*	* @SYSEQ - COMMON SYSTEM EQUATES.	*
		5801	*	* \$VSEQU - VIRTUAL MEMORY FIXED ADDRESS EQUATES.	*
		5802	*	* \$B@EQU - COMPILER PARAMETER AND CONSTANT EQUATES.	*
		5803	*	* BAGETC - COMPILER SOURCE TEXT INPUT ROUTINE.	*
		5804	*	* BZCOMN - COMPILER COMMON AREAS AND ADDRESS REFERENCE EQUATES.	*
		5805	*	OTHER	*
		5806	*	N/A	*
		5807	*	*****	*

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		5809		*****	
		5810		* COMPILER SYMBOL TRANSLATION ROUTINE ENTRY POINT	
		5811		*****	
		5812		*	
		5813		* ENTER BDSYMB - PERFORM REGISTER OPERATIONS	
		5814		*	
		0DBC 5815		BDSYMB EQU * BDSYMB ENTRY POINT	
		0E11 5816		USING BDS100,@BR DEFINE BDSYMB BASE ADDRESS	
0DBC 34 01 0FCC		5817		ST BDS930+@OP1,@BR SAVE CALLING PROGRAM BASE	
0DC0 C2 01 0E11		5818		LA BDS100,@BR LOAD BDSYMB BASE ADDRESS	
0DC4 34 08 0FD0		5819		ST BDS940+@OP1,@ARR SET RETURN BRANCH ADDRESS	
		5820		*	
		5821		* INITIALIZE THE SYMBOL ROUTINE SWITCHES	
		5822		*	
0DC8 7B 01 31		5823		BDS005 SBF BDSCSW(,@BR),BDSCMK SET CHARACTER REFERENCE SW OFF	
		5824		*	
		5825		* STORE FIRST SYMBOL CHARACTER - THIS IS ALWAYS A BASIC LETTER	
		5826		*	
0DCB 6C 00 38 00		5827		BDS010 MVC BDSCR1(,@BR),B@CHAR(1,@XR) SAVE THE 1ST SYMBOL CHARACTER	
		5828		*	
		5829		* GET AND SAVE THE CHARACTER FOLLOWING THE LEADING SYMBOL LETTER	
		5830		*	
0DCF C0 87 0867		5831		BDS020 B BAGETC LINK TO GET NEXT CHARACTER	
0DD3 6C 00 39 00		5832		MVC BDSCR2(,@BR),B@CHAR(1,@XR) SAVE THE 2ND TEXT CHARACTER	
		5833		*	
		5834		* TEST FOR A LETTER-DIGIT VARIABLE REFERENCE	
		5835		*	
0DD7 7D F0 39		5836		BDS030 CLI BDSCR2(,@BR),B@DEC0 IF 2ND CHARACTER IS A DIGIT	
0DDA F2 02 7A		5837		JNL BDS200 * GO PROCESS LETTER-DIGIT	
		5838		*	
		5839		* TEST FOR A MATRIX (LETTER ONLY) REFERENCE	
		5840		*	
0DDD F2 00 E0		5841		BDS040 JC BDS400,*-* IF MATRIX REFERENCE SWITCH IS	
0DDE		5842		ORG BDS040+@Q * ON, GO PROCESS ARRAY SYMBOL	
0DDE 80	0DDE	5843		DC AL1(@NOP) * - INITIALIZE MATRIX REFERENCE	
0DE0		5844		ORG BDS040+@INST3 * SWITCH TO 'OFF' CONDITION	
		5845		*	
		5846		* TEST FOR AN ARITHMETIC ARRAY REFERENCE	
		5847		*	
0DE0 7D 4D 39		5848		BDS050 CLI BDSCR2(,@BR),B@LPAR IF 2ND CHAR IS A LEFT PAREN	
0DE3 F2 81 DA		5849		JE BDS400 * GO PROCESS ARRAY SYMBOL	
		5850		*	
		5851		* TEST FOR A CHARACTER VARIABLE OR ARRAY REFERENCE	
		5852		*	
0DE6 7D 5B 39		5853		BDS060 CLI BDSCR2(,@BR),B@CVAR IF 2ND CHAR DENOTES CHAR VAR	
0DE9 F2 81 F1		5854		JE BDS500 * GO PROCESS CHARACTER SYMBOL	
		5855		*	
		5856		* TEST FOR A POSSIBLE KEYWORD OR FUNCTION REFERENCE	
		5857		*	
0DEC 7D C1 39		5858		BDS070 CLI BDSCR2(,@BR),B@LETA IF 2ND CHARACTER IS WITHIN	
0DEF F2 82 07		5859		JL BDS080 * RANGE OF STANDARD ALPHABET	
0DF2 7D E9 39		5860		CLI BDSCR2(,@BR),B@LETZ * GO TEST FOR A KEYWORD OR	
0DF5 C0 04 0F1C		5861		BNH BDS700 * FUNCTION REFERENCE	
0DF9 7D 7B 39		5862		BDS080 CLI BDSCR2(,@BR),B@LET# IF 2ND CHARACTER IS ONE OF	
0DFC C0 81 0F1C		5863		BE BDS700 * THE BASIC ALPHABET EXTRA	
0E00 7D 7C 39		5864		CLI BDSCR2(,@BR),B@LET@ * LETTERS. GO TEST FOR A KEY-	

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0E03	C0	81 0F1C	5865		BE	BDS700				* WORD OR FUNCTION REFERENCE
0E07	7D	5B 39	5866		CLI	BDSCR2(,@BR),B@LET\$				* NOTE - '9' IS INCLUDED HERE
0E0A	C0	81 0F1C	5867		BE	BDS700				* FOR WTC CONSIDERATIONS
			5868	*						
			5869	*	ASSUME THAT THE SYMBOL IS A SIMPLE LETTER VARIABLE REFERENCE					
			5870	*						
0E0E	F2	87 7A	5871	BDS090	J	BDS300				GO PROCESS THE LETTER VARIABLE

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		5873		*****	
		5874	*	SYMBOL LETTER TABLE DISPLACEMENT POINTER ROUTINE	
		5875		*****	
		5876	*		
		5877	*	SAVE RETURN ADDRESS TO BDSYMB CALLING ROUTINE	
		5878	*		
0E11	74 08 25	5879	BDS100 ST	BDS140+@OP1(,@BR),@ARR	SAVE THE RETURN ADDRESS
		5880	*		
		5881	*	INITIALIZE POINTERS FOR ALPHABET REFERENCE TABLE SEARCH	
		5882	*		
0E14	C2 02 0FD0	5883	BDS110 LA	BDSART-BDSATL,@XR	LOAD ALPHA REFERENCE TABLE BASE
0E18	7C 00 3F	5884		MVI BDSSTP-1(,@BR),@ZERO	INITIALIZE SYMBOL TABLE POINTER
0E1B	7C FC 40	5885		MVI BDSSTP(,@BR),BDSSPB	* TO COINCIDE WITH TABLE BASE
		5886	*		
		5887	*	SEARCH THE ALPHABET REFERENCE TABLE FOR MATCHING LETTER	
		5888	*		
0E1E	E2 02 01	5889	BDS120 LA	BDSATL(,@XR),@XR	INCREMENT ALPHA TABLE POINTER
0E21	5E 00 40 28	5890		ALC BDSSTP(,@BR),BDSP2I(1,@BR)	INCREMENT SYMBOL TABLE POINTER
0E25	6D 00 38 00	5891		CLC BDSLTR(,@BR),BDSATC(1,@XR)	COMPARE SYMBOL CHAR WITH TABLE
0E29	D0 84 0D	5892		BH BDS120(,@BR)	CHAR NOT FOUND - TRY NEXT ENTRY
		5893	*		
		5894	*	TEST FOR A TABLE MATCH - IF THE REFERENCE TABLE DOES NOT CONTAIN AN	
		5895	*	IDENTICAL LETTER, ADJUST POINTER TO LOWER INTERMEDIATE LETTER	
		5896	*		
0E2C	F2 81 04	5897	BDS130 JE	BDS140	SKIP ADJUSTMENT IF TABLE MATCH
0E2F	5F 00 40 27	5898		SLC BDSSTP(,@BR),BDSP1I(1,@BR)	* ELSE ADJUST TO INTERMEDIATE
		5899	*		
		5900	*	RETURN CONTROL TO THE CALLING SYMBOL PROCESSING ROUTINE	
		5901	*		
0E33	C0 87 0000	5902	BDS140 B	*-*	RETURN TO BDSYMB CALLING RTN

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5904 *****
5905 * SYMBOL ROUTINE PROGRAM CONSTANTS
5906 *****
5907 *
0E37 01      0E37 5908 BDSBN1 DC      IL1'1'          BINARY INTEGER +1
0E38 02      0E38 5909 BDSP1I DC      AL1(@VADDR)      ALPHA TABLE SINGLE ENTRY INCR
0E39 04      0E39 5910 BDSP2I DC      AL1(2*@VADDR)     ALPHA TABLE DOUBLE ENTRY INCR
0E3A 0008    0E3B 5911 BDSADL DC      AL(@VADDR)(B@LADV)  LENGTH OF ARITH DOPE VECTOR
0E3C 0004    0E3D 5912 BDSCDL DC      AL(@VADDR)(B@LCDV)  LENGTH OF CHAR DOPE VECTOR
0E3E 0013    0E3F 5913 BDSCVL DC      AL(@VADDR)(B@LCRV)  LENGTH OF CHARACTER VARIABLE
0E40 0002    0E41 5914 BDSFAL DC      AL(@VADDR)(B@LFNA)  LENGTH OF USER FUNCTION ADDR

5916 *****
5917 * SYMBOL ROUTINE PROGRAM SWITCH AREAS
5918 *****
5919 *
0E42      0E42 5920 BDSCSW DS      CL1          CHARACTER REFERENCE SWITCH
0E42      5921      ORG      BDSCSW          INITIALIZE CHARACTER REFERENCE
0E42 00      0E42 5922      DC      XL1'00'      A SWITCH TO 'OFF' CONDITION
0001 5923 BDSCMK EQU      X'01'      CHARACTER REFERENCE SWITCH MASK

5925 *****
5926 * BDSYMB WORK AREA - PRECISION DEPENDENT
5927 *****
5928 *
0E43      0E44 5929 BDSPFL DS      CL(@VADDR)      LENGTH OF PACKED FLOATING VALUE
0E43      5930      ORG      *-@VADDR          INITIALIZE PACKED FLOATING
0E43 0005    0E44 5931      DC      AL(@VADDR)(B@LISP)  * LENGTH FOR STANDARD PRECISION
5932 *
0E45      0E46 5933 BDSVRB DS      CL(@VADDR)      BASE VIRTUAL ADDRESS FOR
0E45      5934      ORG      *-@VADDR          * ALLOCATION OF VARIABLES
0E45 F5E5    0E46 5935      DC      AL(@VADDR)(B@VMSB)  INITIALIZE BASE VIRTUAL ADDRESS
0E46      5936      ORG      *-1              * TO FOLLOW INTERNAL ELEMENTS
0E46 36      0E46 5937      DC      AL1(B@NIEL*B@LISP+B@LCRV) * IN STANDARD PRECISION MDE 1-4
5938 *
0E46 5939 BDSPWA EQU      *-1              PRECISION AREA CORE ADDRESS

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		5941		*****		
		5942		* IDSYMB WORK AREA - PRECISION INDEPENDENT		
		5943		*****		
		5944		*		
0E47		0E48 5945	BDSFAB DS	CL(@VADDR)	BASE VIRTUAL ADDRESS FOR	
0E47		5946	ORG	*-@VADDR	* FUNC & ARRAY TBL ALLOCATION	
0E47 0000		0E48 5947	DC	AL(@VADDR) (B@VMTB)	INITIALIZE BASE VIRTUAL ADDRESS	
		5948	*		* TO MAXIMUM VM LOCATION + 1	
0E49		0E4B 5950	BDSBKT DS	CL3	TEXT SYMBOL CHARACTER BUCKET	
		0E49 5951	BDSCR1 EQU	BDSBKT-2	TEXT SYMBOL 1ST CHARACTER	
		0E4A 5952	BDSCR2 EQU	BDSBKT-1	TEXT SYMBOL 2ND CHARACTER	
		0E4B 5953	BDSCR3 EQU	BDSBKT-0	TEXT SYMBOL 3RD CHARACTER	
		0E49 5954	BDSLTR EQU	BDSBKT-2	SYMBOL KEY LETTER CHARACTER	
		0E4A 5955	BDSYM2 EQU	BDSBKT-1	2-CHARACTER TEXT IDENTIFIER	
		0E4B 5956	BDSYM3 EQU	BDSBKT-0	3-CHARACTER TEXT IDENTIFIER	
0E4C		0E4D 5957	BDSDVR DS	CL2	FUNCTION SCAN ARGUMENT SYMBOL	
		0E4C 5958	BDSDV1 EQU	BDSDV1-1	FUNCTION ARGUMENT 1ST CHAR	
		0E4D 5959	BDSDV2 EQU	BDSDV2-0	FUNCTION ARGUMENT 2ND CHAR	
0E4E		0E4F 5960	BDSDVA DS	CL2	FUNCTION SCAN ARGUMENT VADDR	
0E50		0E51 5961	BDSSTP DS	CL(@REGL)	SYMBOL TABLE ENTRY DISP VALUE	
0E52		0E53 5962	BDSFAA DS	CL(@CADDR)	FUNC & ARRAY ATTRIBUTE CADDR	
0E54		0E54 5963	BDSTCT DS	CL1	IDENTIFIER TABLE ENTRY COUNTER	
0E55		0E56 5965	BDSLND DS	CL(@REGL)	LETTER-DIGIT VARIABLE DIGIT	
0E55		5966	ORG	*-@REGL	* CONVERSION FIELD - INITLZ	
0E55 0000		0E56 5967	DC	XL(@REGL) '00'	* BITS 0-11 TO ZERO	

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5969 *****
5970 * LETTER-DIGIT VARIABLE PROCESSING ROUTINE
5971 *****
5972 *
5973 * ADVANCE TEXT POINTER TO CHARACTER FOLLOWING LETTER-DIGIT SYMBOL
5974 *
0E57 C0 87 0867 5975 BDS200 B BAGETC LINK TO GET NEXT CHARACTER
5976 *
5977 * TEST FOR SCAN OF USER DEFINED FUNCTION (DEF STATEMENT)
5978 *
0E5B F2 00 23 5979 BDS210 JC BDS230,*-* IF USER FUNCTION SCAN SWITCH
0E5C 5980 ORG BDS210+@Q * IS ON, GO TEST FOR A DUMMY
0E5C 80 0E5C 5981 DC AL1(@NOP) * VARIABLE - INITL2 FUNCTION
0E5E 5982 ORG BDS210+@INST3 * SCAN SW TU 'OFF' CONDITION
5983 *
5984 * CALCULATE LETTER-DIGIT VARIABLE LOCATION IN SYMBOL TABLE
5985 *
0E5E D0 87 00 5986 BDS220 B BDS100(,@BR) LINK TO GET SYMBOL LETTER DISP
0E61 58 03 45 39 5987 MNN BDSLDN(,@BR),BDSCR2(,@BR) CONVERT SYMBOL DIGIT TO BINARY
0E65 C2 02 109C 5988 LA BDSLDT,@XR LOAD THE LTR-DIG TABLE ADDRESS
0E69 5E 01 40 40 5989 ALC BDSSTP(,@BR),BDSSTP(@REGL,@BR) ADD 10 TIMES THE SYMBOL
0E6D 76 02 40 5990 A BDSSTP(,@BR),@XR * LETTER DISP PLUS TWICE
0E70 5E 01 40 40 5991 ALC BDSSTP(,@BR),BDSSTP(@REGL,@BR) * THE SYMBOL DIGIT VALUE
0E74 5E 01 40 45 5992 ALC BDSSTP(,@BR),BDSLDN(@REGL,@BR) * TO THE LTR-DIGIT SYMBOL
0E78 76 02 40 5993 A BDSSTP(,@BR),@XR * TABLE BASE CADDR TO GET
0E7B 76 02 40 5994 A BDSSTP(,@BR),@XR * THE SYMBOL LOCATION
0E7E F2 87 2D 5995 J BDS340 GO GET THE SYMBOL VIRTUAL ADDR
5996 *
5997 * USER DEFINED FUNCTION SCAN - TEST FOR A DUMMY VARIABLE REFERENCE
5998 *
0E81 5D 01 39 3C 5999 BDS230 CLC BDSYM2(,@BR),BDSDVR(2,@BR) IF SYMBOL NOT THE DUMMY VAR
0E85 D0 01 4D 6000 BNE BDS220(,@BR) * GO PROCESS THE LETTER-DIGIT
6001 *
6002 * BRANCH TO SET UP USER FUNCTION DUMMY VARIABLE VIRTUAL ADDRESS
6003 *
0E88 F2 87 10 6004 BDS240 J BDS320 GO SET UP DUMMY VARIABLE VADDR

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6006 *****
6007 * SIMPLE LETTER VARIABLE PROCESSING ROUTINE
6008 *****
6009 *
6010 * TEST FOR SCAN OF USER DEFINED FUNCTION (DEF STATEMENT)
6011 *
0E8B 78 07 4B 6012 BDS300 TBN BDSFSW(,@BR),BDSFMK IF FUNCTION NOT BEING SCANNED
0E8E F2 90 13 6013 JF BDS330 * GO PROCESS LETTER VARIABLE
6014 *
6015 * USER DEFINED FUNCTION SCAN - TEST FOR A DUMMY VARIABLE REFERENCE
6016 *
0E91 7C 40 39 6017 BDS310 MVI BDSCR2(,@BR),B@BLNK NORMALIZE 2ND SYMBOL CHARACTER
0E94 5D 01 39 3C 6018 CLC BDSYM2(,@BR),BDS DVR(2,@BR) IF SYMBOL NOT THE DUMMY VAR
0E98 F2 01 09 6019 JNE BDS330 * GO PROCESS LETTER VARIABLE
6020 *
6021 * RETURN THE USER FUNCTION DUMMY VARIABLE VIRTUAL ADDRESS TO CALLER
6022 *
0E9B 1C 01 1590 3E 6023 BDS320 MVC BZBCKT,BDS DVA(@VADDR,@BR) SET THE FUNCTION ARGUMENT VADDR
0EA0 C0 87 0FC1 6024 B BDS910 GO EXIT THE SYMBOL TABLE RTN
6025 *
6026 * CALCULATE SIMPLE LETTER VARIABLE LOCATION IN SYMBOL TABLE
6027 *
0EA4 D0 87 00 6028 BDS330 B BDS100(,@BR) LINK TO GET SYMBOL LETTER DISP
0EA7 C2 02 1062 6029 LA BDSLVT,@XR LOAD THE LETTER VAR TABLE ADDR
0EAB 76 02 40 6030 A BDSSTP(,@BR),@XR ADD SYMBOL LETTER DISPLACEMENT
6031 *
6032 * TEST WHETHER THE ARITHMETIC SYMBOL HAS ALREADY BEEN DEFINED -
6033 * ASSUME THAT NO SYMBOL WILL HAVE A VIRTUAL ADDRESS LESS THEN X'0100'
6034 *
0EAE BD 00 00 6035 BDS340 CLI BDSVPG(,@XR),BDSNUL IF THE SYMBOL HAS BEEN DEFINED
0EB1 C0 01 0FB6 6036 BNE BDS900 * GO EXIT THE SYMBOL TABLE RTN
6037 *
6038 * DEFINE THE SYMBOL USING THE CURRENT VARIABLE BASE VIRTUAL ADDRESS
6039 *
0EB5 9C 01 01 35 6040 BDS350 MVC BDSVAD(,@XR),BDSVRB(@VADDR,@BR) SET TABLE ENTRY + VADDR
0EB9 5E 01 35 33 6041 ALC BDSVRB(,@BR),BDSPFL(@VADDR,@BR) INCREMENT THE BASE VADDR
6042 *
6043 * BRANCH TO THE SYMBOL ROUTINE EXIT SEQUENCE
6044 *
0EBD F2 87 F6 6045 BDS360 J BDS900 GO EXIT THE SYMBOL TABLE RTN

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S/3 BASIC COMPILER SYMBOL TRANSLATION RTN.

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 86
		6047		*****	
		6048		* ARITHMETIC ARRAY SYMBOL PROCESSING ROUTINE	
		6049		*****	
		6050		*	
		6051		* CALCULATE ARITHMETIC ARRAY LOCATION IN SYMBOL TABLE	
		6052		*	
0EC0	D0 87 00	6053	BDS400 B	BDS100(,@BR)	LINK TO GET SYMBOL LETTER DISP
0EC3	C2 02 131A	6054	LA	BDSNAT,@XR	LOAD THE ARITH ARRAY TABLE ADDR
0EC7	76 02 40	6055	A	BDSSTP(,@BR),@XR	ADD 3 TIMES THE SYMBOL LETTER
0ECA	76 02 40	6056	A	BDSSTP(,@BR),@XR	* DISP TO THE ARITH ARRAY TABLE
0ECD	76 02 40	6057	A	BDSSTP(,@BR),@XR	* BASE TO GET SYMBOL ENTRY ADDR
		6058		*	
		6059		* TEST WHETHER THE ARITHMETIC ARRAY SYMBOL HAS ALREADY BEEN DEFINED -	
		6060		* ASSUME THAT NO SYMBOL WILL HAVE A VIRTUAL ADDRESS LESS THAN X'0100'	
		6061		*	
0ED0	BD 00 00	6062	BDS410 CLI	BDSVPG(,@XR),BDSNUL	IF THE SYMBOL HAS BEEN DEFINED
0ED3	F2 01 E0	6063	JNE	BDS900	* GO EXIT THE SYMBOL TABLE RTN
		6064		*	
		6065		* ADJUST FUNCTION AND ARRAY BASE VIRTUAL ADDRESS FOR ARRAY DESCRIPTOR	
		6066		*	
0ED6	5F 01 37 2A	6067	BDS420 SLC	BDSFAB(,@BR),BDSADL(@VADDR,@BR)	DECREMENT THE BASE VADDR
		6068		*	
		6069		* BRANCH TO DEFINE THE ARRAY SYMBOL VIRTUAL ADDRESS	
		6070		*	
0EDA	F2 87 D5	6071	BDS430 J	BDS890	GO DEFINE THE SYMBOL VADDR

S/3 BASIC COMPILER SYMBOL TRANSLATION RTN.

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 87
		6073		*****	
		6074		* CHARACTER REFERENCE SYMBOL PROCESSING ROUTINE	
		6075		*****	
		6076		*	
		6077		* SET SWITCH TO INDICATE CHARACTER REFERENCE PROCESSING	
		6078		*	
0EDD 7A 01 31		6079	BDS500 SBN	BDSCSW(,@BR),BDSCMK SET CHARACTER REFERENCE SW ON	
		6080		*	
		6081		* DETERMINE THE CHARACTER SYMBOL LETTER DISPLACEMENT	
		6082		*	
0EE0 D0 87 00		6083	BDS510 B	BDS100(,@BR) LINK TO GET SYMBOL LETTER DISP	
		6084		*	
		6085		* ADVANCE TEXT POINTER TO CHARACTER FOLLOWING CHAR REFERENCE SYMBOL	
		6086		*	
0EE3 C0 87 0867		6087	BDS520 B	BAGETC LINK TO GET NEXT CHARACTER	
		6088		*	
		6089		* TEST FOR CHARACTER VARIABLE OR ARRAY REFERENCE	
		6090		*	
0EE7 BD 4D 00		6091	BDS530 CLI	B@CHAR(,@XR),B@LPAR IF 3RD CHAR IS A LEFT PAREN	
0EEA F2 81 18		6092		JE BDS600 * GO PROCESS ARRAY SYMBOL	

S/3 BASIC COMPILER SYMBOL TRANSLATION RTN.

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 88
		6094		*****	
		6095		* CHARACTER VARIABLE SYMBOL PROCESSING ROUTINE	
		6096		*****	
		6097		*	
		6098		* CALCULATE CHARACTER VARIABLE LOCATION IN SYMBOL TABLE	
		6099		*	
0EED C2 02 12E0		6100	BDS550 LA	BDSCVT,@XR	LOAD THE LETTER VAR TABLE ADDR
0EF1 76 02 40		6101	A	BDSSTP(,@BR),@XR	ADD SYMBOL LETTER DISPLACEMENT
		6102		*	
		6103		* TEST WHETHER THE CHARACTER VARIABLE SYMBOL HAS ALREADY BEEN DEFINED -	
		6104		* ASSUME THAT NO SYMBOL WILL HAVE A VIRTUAL ADDRESS LESS THAN X'0100'	
		6105		*	
0EF4 BD 00 00		6106	BDS560 CLI	BDSVPG(,@XR),BDSNUL	IF THE SYMBOL HAS BEEN DEFINED
0EF7 F2 01 BC		6107	JNE	BDS900	* GO EXIT THE SYMBOL TABLE RTN
		6108		*	
		6109		* DEFINE THE SYMBOL USING THE CURRENT VARIABLE BASE VIRTUAL ADDRESS	
		6110		*	
0EFA 9C 01 01 35		6111	BDS570 MVC	BDSVAD(,@XR),BDSVRB(@VADDR,@BR)	SET TABLE ENTRY = VADDR
0EFE 5E 01 35 2E		6112	ALC	BDSVRB(,@BR),BDSCVL(@VADDR,@BR)	INCREMENT THE BASE VADDR
		6113		*	
		6114		* BRANCH TO THE SYMBOL ROUTINE EXIT SEQUENCE	
		6115		*	
0F02 F2 87 B1		6116	BDS580 J	BDS900	GO EXIT THE SYMBOL TABLE RTN

S/3 BASIC COMPILER SYMBOL TRANSLATION RTN.

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 89
		6118		*****	
		6119		* CHARACTER ARRAY SYMBOL PROCESSING ROUTINE	
		6120		*****	
		6121		*	
		6122		* CALCULATE CHARACTER ARRAY LOCATION IN SYMBOL TABLE	
		6123		*	
0F05	C2 02 13C8	6124	BDS600 LA	BDSCAT,@XR	LOAD THE CHAR ARRAY TABLE ADDR
		6125		*	
0F09	76 02 40	6126		A BDSSTP(,@BR),@XR	ADD TWICE THE SYMBOL LETTER
0F0C	76 02 40	6127		A BDSSTP(,@BR),@XR	A DISP TO GET SYMBOL ENTRY ADDR
		6128		*	
		6129		* TEST WHETHER THE CHARACTER ARRAY SYMBOL HAS ALREADY BEEN DEFINED -	
		6130		* ASSUME THAT NO SYMBOL WILL HAVE A VIRTUAL ADDRESS LESS THAN X'0100'	
		6131		*	
0F0F	BD 00 00	6132	BDS610 CLI	BDSVPG(,@XR),BDSNUL	IF THE SYMBOL HAS BEEN DEFINED
0F12	F2 01 A1	6133		JNE BDS900	* GO EXIT THE SYMBOL TABLE RTN
		6134		*	
		6135		* ADJUST FUNCTION AND ARRAY BASE VIRTUAL ADDRESS FOR ARRAY DESCRIPTOR	
		6136		*	
0F15	5F 01 37 2C	6137	BDS620 SLC	BDSFAB(,@BR),BDSCDL(@VADDR,@BR)	DECREMENT THE BASE VADDR
		6138		*	
		6139		* BRANCH TO DEFINE THE ARRAY SYMBOL VIRTUAL ADDRESS	
		6140		*	
0F19	F2 87 96	6141	BDS630 J	BDS890	GO DEFINE THE SYMBOL VADDR

S/3 BASIC COMPILER SYMBOL TRANSLATION RTN.

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 90
		6143		*****	
		6144		* KEYWORD OR FUNCTION REFERENCE DISCRIMINATION ROUTINE	
		6145		*****	
		6146		*	
		6147		* TEST FOR PRESENCE OF AN EMBEDDED STATEMENT KEYWORD - IT IS ASSUMED	
		6148		* THAT NO INTRINSIC FUNCTION NAME BEGINS WITH A KEYWORD IDENTIFIER	
		6149		*	
0F1C C2 02 0FDE		6150	BDS700 LA	BDSKWT-BDSKTL,@XR	LOAD KEYWORD TABLE BASE ADDR
0F20 7C 04 43		6151	MVI	BDSTCT(,@BR),B@NSKW	SET KEYWORD TABLE ENTRY COUNT
		6152		*	
		6153		* SEARCH THE KEYWORD TABLE FOR IDENTIFIER TO MATCH TEXT SYMBOL	
		6154		*	
0F23 E2 02 02		6155	BDS710 LA	BDSKTL(,@XR),@XR	INCREMENT THE TABLE POINTER
0F26 6D 01 39 01		6156	CLC	BDSYM2(,@BR),BDSKWI(B@LSKW,@XR)	COMPARE SYMBOL WITH ENTRY
0F2A F2 81 38		6157	JE	BDS800	* AND BRANCH IF EQUAL
0F2D 5F 00 43 26		6158	SLC	BDSTCT(,@BR),BDSBN1(1,@BR)	NO MATCH - DECR ENTRY COUNT
0F31 C0 84 0F23		6159	BH	BDS710	BRANCH IF MORE ENTRIES TO TRY
		6160		*	
		6161		* SYMBOL DOES NOT REFERENCE A SIMPLE STATEMENT KEYWORD - GET AND SAVE	
		6162		* THE 3RD SYMBOL CHARACTER FOR ADDITIONAL PROCESSING	
		6163		*	
0F35 C0 87 0867		6164	BDS720 B	BAGETC	LINK TO GET NEXT CHARACTER
0F39 6C 00 3A 00		6165	BD5725 MVC	BDSCR3(,@BR),B@CHAR(1,@XR)	SAVE THE 3RD SYMBOL CHARACTER
		6166		*	
		6167		* TEST FOR PRESENCE OF A USER DEFINED FUNCTION - IT IS ASSUMED THAT	
		6168		* NO INTRINSIC FUNCTION NAME BEGINS WITH A USER FUNCTION IDENTIFIER	
		6169		*	
0F3D 4D 01 39 0FE9		6170	BDS730 CLC	BDSYM2(,@BR),BDSUFI(B@LUFN)	COMPARE SYMBOL WITH USER FUNC
0F42 F2 81 4A		6171	JE	BDS840	* IDENT AND BRANCH IF EQUAL
		6172		*	
		6173		* TEST FOR PRESENCE OF AN INTRINSIC FUNCTION NAME - IT IS ASSUMED THAT	
		6174		* NO INTRINSIC FUNCTION NAME CONTAINS A KEYWORD IDENTIFIER	
		6175		*	
0F45 C2 02 0FE5		6176	BDS740 LA	BDSIFT-BDSFTL,@XR	LOAD FUNCTION TABLE BASE ADDR
0F49 7C 18 43		6177	MVI	BDSTCT(,@BR),B@NIFN	SET FUNCTION TABLE ENTRY COUNT
		6178		*	
		6179		* SEARCH THE FUNCTION TABLE FOR IDENTIFIER TO HATCH TEXT SYMBOL	
		6180		*	
0F4C E2 02 05		6181	BDS750 LA	BDSFTL(,@XR),@XR	INCREMENT THE TABLE POINTER
0F4F 6D 02 3A 02		6182	CLC	BDSYM3(,@BR),BDSIFI(B@LIFN,@XR)	COMPARE SYMB WITH ENTRY
0F53 F2 81 16		6183	JE	BDS810	* AND BRANCH IF EQUAL
0F56 5F 00 43 26		6184	SLC	BDSTCT(,@BR),BDSBN1(1,@BR)	NO MATCH - DECR ENTRY COUNT
0F5A C0 84 0F4C		6185	BH	BDS750	BRANCH IF MORE ENTRIES TO TRY
		6186		*	
		6187		* ASSUME THAT WE HAVE A SIMPLE LETTER VARIABLE FOLLOWED WITH AN	
		6188		* EMBEDDED STATEMENT KEYWORD	
		6189		*	
0F5E 3A 01 159E		6190	BDS760 SBN	BZKWSW,BZKWMK	SET THE KEYWORD SWITCH ON
0F62 D0 87 93		6191	B	BDS330(,@BR)	GO PROCESS THE LETTER VARIABLE

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 91
		6193		*****	
		6194	*	EMBEDDED STATEMENT KEYWORD PROCESSING ROUTINE	
		6195		*****	
		6196	*		
		6197	*	INDICATE END OF EXPRESSION AND BRANCH TO EXIT	
		6198	*		
		6199	*		
		6200	*	BRANCH TO THE ADDITIONAL CODE AT THE END OF THE COMPILER (X1892')	
		6201	*	TO MAKE NECESSARY KEYWORD TESTS AND TO SET THE KEYWORD SWITCH ON. IF	
		6202	*	REQUIRED.	
		6203	*		
0F65	C0 87 1B92	6204	BDS800 B	BDS802	BRANCH TO THE ADDITIONAL CODE
0F69	F2 87 59	6205	BDS805 J	BDS920	GO EXIT THE SYMBOL ROUTINE

S/3 BASIC COMPILER SYMBOL TRANSLATION RTN.

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 92
		6207		*****	
		6208		* INTRINSIC FUNCTION REFERENCE PROCESSING ROUTINE	
		6209		*****	
		6210		*	
		6211		* STORE INTRINSIC FUNCTION VIRTUAL ADDRESS ENTRY POINT FOR OUTPUT	
		6212		*	
0F6C 2C 01 1590 04		6213	BDS810 MVC	BZBCKT,BDSIFA(@VADDR,@XR) SET THE VADDR OUTPUT PARAMETER	
		6214		*	
		6215		* ADVANCE TEXT POINTER TO CHARACTER FOLLOWING FUNCTION IDENTIFIER	
		6216		*	
0F71 C0 87 0867		6217	BDS815 B	BAGETC LINK TO GET NEXT CHARACTER	
		6218		*	
		6219		* TEST FOR ARRAY PROCESSING FUNCTION 'DET' - THIS IS AN EXCEPTION IN	
		6220		* THAT THE ARGUMENT FOR 'DET' IS AN ARRAY RATHER THAN A SCALAR	
		6221		*	
0F75 4D 02 3A 105F		6222	BDS820 CLC	BDSYM3(,@BR),BDSDET(B@LIFN) IF SYMBOL IS NOT 'DET' SKIP	
0F7A F2 01 07		6223		JNE BDS830 * TO CONTINUE PROCESSING	
		6224		*	
		6225		* INDICATE PRESENCE OF AN ARRAY PROCESSING FUNCTION	
		6226		*	
0F7D 3A 07 0DDE		6227	BDS825 SBN	BDSMSW,BDSMMK SET MATRIX REFERENCE SWITCH ON	
0F81 F2 87 41		6228		J BDS920 GO EXIT THE SYMBOL ROUTINE	
		6229		*	
		6230		* INDICATE NORMAL (SCALAR) INTRINSIC FUNCTION PROCESSING	
		6231		*	
0F84 3A 07 16E5		6232	BDS830 SBN	BZIFSW,BZIFMK SET INTRINSIC FUNCTION SW ON	
0F88 3A 07 16CC		6233		SBN BZFRSW,BZFRMK SET FUNCTION REFERENCE SW ON	
0F8C F2 87 32		6234		J BDS910 GO EXIT THE SYMBOL ROUTINE	

S/3 BASIC COMPILER SYMBOL TRANSLATION RTN.

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 93
		6236		*****	
		6237		* USER DEFINED FUNCTION PROCESSING ROUTINE	
		6238		*****	
		6239		*	
		6240		* SET SWITCH TO INDICATE FUNCTION REFERENCE PROCESSING	
		6241		*	
0F8F 3A 07 16CC		6242	BDS840 SBN	BZFRSW,BZFRMK SET FUNCTION REFERENCE SW ON	
		6243		*	
		6244		* ADVANCE TEXT POINTER TO CHARACTER FOLLOWING FUNCTION NAME	
		6245		*	
0F93 C0 87 0867		6246	BDS845 B	BAGETC LINK TO GET NEXT CHARACTER	
		6247		*	
		6248		* DETERMINE THE FUNCTION SYMBOL LETTER DISPLACEMENT	
		6249		*	
0F97 5C 00 38 3A		6250	BDS850 MVC	BDSLTR(,@BR),BDSCR3(1,@BR) SET TABLE LOOKUP FOR FUNC LTR	
0F9B D0 87 00		6251	B	BDS100(,@BR) LINK TO GET SYMBOL LETTER DISP	
		6252		*	
		6253		* DETERMINE USER FUNCTION LOCATION IN SYMBOL TABLE	
		6254		*	
0F9E C2 02 143C		6255	BDS860 LA	BDSFNT,@XR LOAD USER FUNC TABLE BASE ADDR	
		6256		*	
0FA2 76 02 40		6257	A	BDSSTP(,@BR),@XR ADD TWICE THE FUNCTION LETTER	
0FA5 76 02 40		6258	A	BDSSTP(,@BR),@XR * DISP TO GET SYMBOL ENTRY ADDR	
		6259		*	
		6260		* TEST WHETHER THE USER FUNCTION HAS ALREADY BEEN DEFINED - ASSUME	
		6261		* THAT NO FUNCTION SYMBOL WILL HAVE AN ADDRESS LESS THAN X'0100'	
		6262		*	
0FA8 BD 00 00		6263	BDS870 CLI	BDSVPG(,@XR),BDSNUL IF FUNCTION HAS BEEN DEFINED	
0FAB F2 01 08		6264	JNE	BDS900 * GO EXIT THE SYMBOL ROUTINE	
		6265		*	
		6266		* ADJUST FUNCTION AND ARRAY VIRTUAL ADDRESS FOR FUNCTION ADDRESS	
		6267		*	
0FAE 5F 01 37 30		6268	BDS880 SLC	BDSFAB(,@BR),BDSFAL(@VADDR,@BR) DECREMENT THE BASE VADDR	
		6269		*	
		6270		* DEFINE THE SYMBOL USING THE NEW FUNCTION AND ARRAY VIRTUAL ADDRESS	
		6271		*	
0FB2 9C 01 01 37		6272	BDS890 MVC	BDSVAD(,@XR),BDSFAB(@VADDR,@BR) SET TABLE ENTRY = VADDR	

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 94
		6274		*****	
		6275		* SYMBOL ROUTINE EXIT SEQUENCE	
		6276		*****	
		6277		*	
		6278		* STORE THE SYMBOL TABLE VIRTUAL ADDRESS ENTRY FOR OUTPUT	
		6279		*	
0FB6	2C 01 1590 01	6280	BDS900 MVC	BZBCKT,BDSVAD(@VADDR,@XR) SET THE VADDR OUTPUT PARAMETER	
		6281		*	
		6282		* STORE THE POSSIBLE FUNCTION OR ARRAY SYMBOL ATTRIBUTE CORE ADDRESS	
		6283		*	
0FBB	E2 02 02	6284	BDS905 LA	BDSATR(,@XR),@XR INCR TABLE POINTER TO ATTRIBUTE	
0FBE	74 02 42	6285	ST	BDSFAA(,@BR),@XR SAVE THE CADDR AS OUTPUT PARAM	
		6286		*	
		6287		* INDICATE AVAILABILITY OF A SYMBOL VIRTUAL ADDRESS	
		6288		*	
0FC1	3A 01 159D	6289	BDS910 SBN	BZADSW,BZADMK SET AVAILABLE ADDRESS SWITCH ON	
		6290		*	
		6291		* RESTORE REGISTERS AND RETURN TO CALLING PROGRAM	
		6292		*	
0FC5	35 02 0878	6293	BDS920 L	BZGPTR,@XR RESTORE TEXT CHARACTER POINTER	
0FC9	C2 01 0000	6294	BDS930 LA	*-*,@BR RESTORE CALLING PROGRAM BASE	
0FCD	C0 87 0000	6295	BDS940 B	*-* RETURN TO CALLING PROGRAM	

S/3 BASIC COMPILER SYMBOL TRANSLATION RTN.

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 95
			6297		*****	
			6298		* SYMBOL ROUTINE ALPHABET REFERENCE TABLE	
			6299		*****	
			6300		*	
			0FD1	6301	BDSART EQU *	ADDRESS OF ALPHABET TABLE
			0001	6302	BDSATL EQU 1	LENGTH OF AN ALPHA TABLE ENTRY
			0000	6303	BDSATC EQU 0	DISP FOR ALPHABETIC CHARACTER
			6304		*	
0FD1	5B		0FD1	6305	DC AL1(B@LET\$)	BASIC ALPHABET 1ST LETTER
0FD2	7C		0FD2	6306	DC AL1(B@LET@)	BASIC ALPHABET 3RD LETTER
0FD3	C2		0FD3	6307	DC AL1(B@LETB)	BASIC ALPHABET 5TH LETTER
0FD4	C4		0FD4	6308	DC AL1(B@LETD)	BASIC ALPHABET 7TH LETTER
0FD5	C6		0FD5	6309	DC AL1(B@LETF)	BASIC ALPHABET 9TH LETTER
0FD6	C8		0FD6	6310	DC AL1(B@LETH)	BASIC ALPHABET 11TH LETTER
0FD7	D1		0FD7	6311	DC AL1(B@LETJ)	BASIC ALPHABET 13TH LETTER
0FD8	D3		0FD8	6312	DC AL1(B@LETL)	BASIC ALPHABET 15TH LETTER
0FD9	D5		0FD9	6313	DC AL1(B@LETN)	BASIC ALPHABET 17TH LETTER
0FDA	D7		0FDA	6314	DC AL1(B@LETP)	BASIC ALPHABET 19TH LETTER
0FDB	D9		0FDB	6315	DC AL1(B@LETR)	BASIC ALPHABET 21ST LETTER
0FDC	E3		0FDC	6316	DC AL1(B@LETT)	BASIC ALPHABET 23RD LETTER
0FDD	E5		0FDD	6317	DC AL1(B@LETV)	BASIC ALPHABET 25TH LETTER
0FDE	E7		0FDE	6318	DC AL1(B@LETX)	BASIC ALPHABET 27TH LETTER
0FDF	E9		0FDF	6319	DC AL1(B@LETZ)	BASIC ALPHABET 29TH LETTER

[illegible]

S/3 BASIC COMPILER SYMBOL TRANSLATION RTN.

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 97
			6339		*****	
			6340		* SYMBOL ROUTINE INTRINSIC FUNCTION TABLE	
			6341		*****	
			6342		*	
		0FEA	6343	BDSIFT EQU	* ADDRESS OF INTRINSIC FUNC TABLE	
		0005	6344	BDSFTL EQU	B@LIFN+@VADDR LENGTH OF FUNCTION TABLE ENTRY	
		0002	6345	BDSIFI EQU	B@LIFN-1 DISP FOR A FUNCTION IDENTIFIER	
		0004	6346	BDSIFA EQU	BDSFTL-1 DISP FOR A FUNCTION VADDR	
			6347		*	
	0FEA C1C2E2	0FEC	6348	DC	CL(B@LIFN) 'ABS' ABSOLUTE VALUE FUNCTION SYMBOL	
	0FED 1761	0FEE	6349	DC	AL(@VADDR) (V\$FABS) ABSOLUTE VALUE FUNCTION VADDR	
			6350		*	
	0FEF C9D5E3	0FF1	6351	DC	CL(B@LIFN) 'INT' INTEGER VALUE FUNCTION SYMBOL	
	0FF2 176C	0FF3	6352	DC	AL(@VADDR) (V\$FINT) INTEGER VALUE FUNCTION VADDR	
			6353		*	
	0FF4 E2C7D5	0FF6	6354	DC	CL(B@LIFN) 'SGN' SIGN FUNCTION SYMBOL	
	0FF7 17A7	0FF8	6355	DC	AL(@VADDR) (V\$FSGN) SIGN FUNCTION VADDR	
			6356		*	
	0FF9 E2D8D9	0FFB	6357	DC	CL(B@LIFN) 'SQR' SQUARE ROOT FUNCTION SYMBOL	
	0FFC 0900	0FFD	6358	DC	AL(@VADDR) (V\$FSQR) SQUARE ROOT FUNCTION VADDR	
			6359		*	
	0FFE D3D6C7	1000	6360	DC	CL(B@LIFN) 'LOG' LOG (BASE E) FUNCTION SYMBOL	
	1001 0219	1002	6361	DC	AL(@VADDR) (V\$FLOG) LOG (BASE E) FUNCTION VADDR	
			6362		*	
	1003 D3C7E3	1005	6363	DC	CL(B@LIFN) 'LGT' LOG (BASE 10) FUNCTION SYMBOL	
	1006 0200	1007	6364	DC	AL(@VADDR) (V\$FLGT) LOG (BASE 10) FUNCTION VADDR	
			6365		*	
	1008 D3E3E6	100A	6366	DC	CL(B@LIFN) 'LTW' LOG (BASE 2) FUNCTION SYMBOL	
	100B 020B	100C	6367	DC	AL(@VADDR) (V\$FLTW) LOG (BASE 2) FUNCTION VADDR	
			6368		*	
	100D C5E7D7	100F	6369	DC	CL(B@LIFN) 'EXP' EXPONENTIAL FUNCTION SYMBOL	
	1010 0500	1011	6370	DC	AL(@VADDR) (V\$FEXP) EXPONENTIAL FUNCTION VADDR	
			6371		*	
	1012 E3C1D5	1014	6372	DC	CL(B@LIFN) 'TAN' TANGENT FUNCTION SYMBOL	
	1015 0D28	1016	6373	DC	AL(@VADDR) (V\$FTAN) TANGENT FUNCTION VADDR	
			6374		*	
	1017 C3D6E3	1019	6375	DC	CL(B@LIFN) 'COT' COTANGENT FUNCTION SYMBOL	
	101A 0D00	101B	6376	DC	AL(@VADDR) (V\$FCOT) COTANGENT FUNCTION VADDR	
			6377		*	
	101C E2C9D5	101E	6378	DC	CL(B@LIFN) 'SIN' SINE FUNCTION SYMBOL	
	101F 0A1A	1020	6379	DC	AL(@VADDR) (V\$FSIN) SINE FUNCTION VADDR	
			6380		*	
	1021 C3D6E2	1023	6381	DC	CL(B@LIFN) 'COS' COSINE FUNCTION SYMBOL	
	1024 0A00	1025	6382	DC	AL(@VADDR) (V\$FCOS) COSINE FUNCTION VADDR	
			6383		*	
	1026 E2C5C3	1028	6384	DC	CL(B@LIFN) 'SEC' SECANT FUNCTION SYMBOL	
	1029 1700	102A	6385	DC	AL(@VADDR) (V\$FSEC) SECANT FUNCTION VADDR	
			6386		*	
	102B C3E2C3	102D	6387	DC	CL(B@LIFN) 'CSC' COSECANT FUNCTION SYMBOL	
	102E 1725	102F	6388	DC	AL(@VADDR) (V\$FCSC) COSECANT FUNCTION VADDR	
			6389		*	
	1030 C1E3D5	1032	6390	DC	CL(B@LIFN) 'ATN' ARCIANGENT FUNCTION SYBL	
	1033 1100	1034	6391	DC	AL(@VADDR) (V\$FATN) ARCTANGENT FUNCTION VADDR	
			6392		*	
	1035 C1E2D5	1037	6393	DC	CL(B@LIFN) 'ASN' ARCSINE FUNCTION SYMBOL	
	1038 1413	1039	6394	DC	AL(@VADDR) (V\$FASN) ARCSINE FUNCTION VADDR	

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/07/20	PAGE	98
					6395	*					
103A	C1C3E2	103C	6396	DC	CL(B@LIFN)	'ACS'	ARCCOSINE FUNCTION SYMBOL				
103D	1400	103E	6397	DC	AL(@VADDR)	(V\$FACS)	ARCCOSINE FUNCTION VADDR				
			6398	*							
103F	C8E3D5	1041	6399	DC	CL(B@LIFN)	'HTN'	HYPERBOLIC TANGENT FUNC SYMBOL				
1042	1593	1043	6400	DC	AL(@VADDR)	(V\$FHTN)	HYPERBOLIC TANGENT FUNC VADDR				
			6401	*							
1044	C8E2D5	1046	6402	DC	CL(B@LIFN)	'HSN'	HYPERBOLIC SINE FUNCTION SYMBOL				
1047	1557	1048	6403	DC	AL(@VADDR)	(V\$FHSN)	HYPERBOLIC SINE FUNCTION VADDR				
			6404	*							
1049	C8C3E2	104B	6405	DC	CL(B@LIFN)	'HCS'	HYPERBOLIC COSINE FUNC SYMBOL				
104C	1500	104D	6406	DC	AL(@VADDR)	(V\$FHCS)	HYPERBOLIC COSINE FUNC VADDR				
			6407	*							
104E	C4C5C7	1050	6408	DC	CL(B@LIFN)	'DEG'	CONVERT RAD TO DEG FUNC SYMBOL				
1051	17DA	1052	6409	DC	AL(@VADDR)	(V\$FDEG)	CONVERT RAD TO DEG FUNC VADDR				
			6410	*							
1053	D9C1C4	1055	6411	DC	CL(B@LIFN)	'RAD'	CONVERT DEG TO RAD FUNC SYMBOL				
1056	17CB	1057	6412	DC	AL(@VADDR)	(V\$FRAD)	CONVERT DEG TO RAD FUNC VADDR				
			6413	*							
1058	D9D5C4	105A	6414	DC	CL(B@LIFN)	'RND'	RANDOM NUMBER FUNCTION SYMBOL				
105B	1800	105C	6415	DC	AL(@VADDR)	(V\$FRND)	RANDOM NUMBER FUNCTION VADDR				
			6416	*							
105D	C4C5E3	105F	6417	BDSDET DC	CL(B@LIFN)	'DET'	DETERMINANT FUNCTION SYMBOL				
1060	4540	1061	6418	DC	AL(@VADDR)	(V\$FDET)	DETERMINANT FUNCTION VADDR				

S/3 BASIC COMPILER SYMBOL TRANSLATION RTN.

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/07/20 PAGE 99
		6420		*****		
		6421		* SYMBOL ROUTINE LETTER VARIABLE TABLE		
		6422		*****		
		6423		*		
		1062	6424	BDSLVT EQU *	ADDRESS OF LETTER VARIABLE TBL	
		0002	6425	BDSLTL EQU @VADDR	LENGTH OF LETTER VAR TBL ENTRY	
		6426		*		
1062		109B	6427	DS CL(B@NLRV*BDSLTL)	LETTER VARIABLE TABLE AREA	
1062			6428	ORG BDSLVT	SET THE TABLE INITIALLY	
1062	000000000000000000	109B	6429	DC XL(B@NLRV*BDSLTL)'00'	* TO BINARY ZEROS	
		6431		*****		
		6432		* SYMBOL ROUTINE LETTER-DIGIT VARIABLE TABLE		
		6433		*****		
		6434		*		
		109C	6435	BDSLDT EQU *	ADDRESS OF LETTER-DIGIT VAR TBL	
			6436	*		
		0002	6437	BDSLDT EQU @VADDR	LENGTH OF LTR-DIG TABLE ENTRY	
			6438	*		
109C		119B	6439	DS CL(B@BLSZ)	LTR-DIG VARIABLE TABLE BLOCK 1	
119C		129B	6440	DS CL(B@BLSZ)	LTR-DIG VARIABLE TABLE BLOCK 2	
129C		12DF	6441	DS CL(B@NLDV*BDSLDT-2*B@BLSZ)	LTR-DIG VARIABLE TABLE BLOCK 3	
109C			6443	ORG BDSLDT	RESET TO INITLZ LTR-DIG TABLE	
109C	000000000000000000	119B	6444	DC XL(B@BLSZ)'00'	INITLZ LDT 1ST BLOCK TO ZEROS	
119C	000000000000000000	129B	6445	DC XL(B@BLSZ)'00'	INITLZ LDT 2ND BLOCK TO ZEROS	
129C	000000000000000000	12DF	6446	DC XL(B@NLDV*BDSLDT-2*B@BLSZ)'00'	INITLZ LDT 3RD BLK TO ZERO	

S/3 BASIC COMPILER SYMBOL TRANSLATION RTN.

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/07/20 PAGE 100
		6448		*****		
		6449		* SYMBOL ROUTINE CHARACTER VARIABLE TABLE		
		6450		*****		
		6451		*		
		12E0	6452	BDSCVT EQU *	ADDRESS OF CHARACTER VAR TBL.	
		0002	6453	BDSCTL EQU @VADDR	LENGTH OF CHAR VAR TABLE ENTRY	
		6454		*		
12E0		1319	6455	DS CL(B@NCRV*BDSCTL)	CHARACTER VARIABLE TABLE AREA	
12E0			6456	ORG BDSCVT	SET THE TABLE INITIALLY	
12E0	000000000000000000	1319	6457	DC XL(B@NCRV*BDSCTL)'00'	* TO BINARY ZEROS	
		6459		*****		
		6460		* SYMBOL ROUTINE ARITHMETIC ARRAY TABLE		
		6461		*****		
		6462		*		
		131A	6463	BDSNAT EQU *	ADDRESS OF ARITHMETIC ARRAY TBL	
		0006	6464	BDSNAL EQU B@LCNA	LENGTH OF ARITH ARRAY TBL ENTRY	
		6465		*		
131A		13C7	6466	DS CL(B@NAAR*BDSNAL)	ARITHMETIC ARRAY TABLE AREA	
131A			6467	ORG BDSNAT	SET THE TABLE INITIZLY	
131A	000000000000000000	13C7	6468	DC XL(B@NAAR*BDSNAL)'00'	* TO BINARY ZEROS	

ERR LOC		OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 101
				6470	*****	
				6471	* SYMBOL ROUTINE CHARACTER ARRAY TABLE	
				6472	*****	
				6473	*	
			13C8	6474	BDSCAT EQU *	ADDRESS OF CHARACTER ARRAY FILL
			0004	6475	BDSCAL EQU B@LCCA	LENGTH OF CHAR ARRAY TBL ENTRY
				6476	*	
13C8			143B	6477	DS CL(B@NCAR*BDSCAL)	CHARACTER ARRAY TABLE AREA
13C8				6478	ORG BDSCAT	SET THE TABLE INITIALLY
13C8	000000000000000000		143B	6479	DC XL(B@NCAR*BDSCAL)'00'	* TO BINARY ZEROS
				6481	*****	
				6482	* SYMBOL ROUTINE USER DEFINED FUNCTION TABLE	
				6483	*****	
				6484	*	
			143C	6485	BDSFNT EQU *	ADDRESS OF USER FUNCTION TOL
			0004	6486	BDSFNL EQU B@LCFN	LENGTH OF USER FUNC TABLE ENTRY
				6487	*	
143C			14AF	6488	DS CL(B@NUFN*BDSFNL)	FUNCTION ADDRESS TABLE AREA
143C				6489	ORG BDSFNT	SET INC TABLE INITIALLY
143C	000000000000000000		14AF	6490	DC XL(B@NUFN*BDSFNL)'00'	* TO BINARY ZEROS

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 102
		6492		*****	
		6493		* SYMBOL ROUTINE PROGRAM SWITCH EQUATES	
		6494		*****	
		6495		*	
0E5C		6496	BDSFSW EQU	BDS210+@Q	USER FUNCTION SCAN SWITCH
0007		6497	BDSFMK EQU	@UCB-@NOP	USER FUNCTION SCAN SWITCH MASK
		6498		*	
0DDE		6499	BDSMSW EQU	BDS040+@Q	MATRIX REFERENCE SCAN SWITCH
0007		6500	BDSMMK EQU	@UCB-@NOP	MATRIX REFERENCE SCAN SW MASK
		6502		*****	
		6503		* SYMBOL ROUTINE EQUATES REFERENCING CONSTANTS	
		6504		*****	
		6505		*	
0000		6506	BDSVPG EQU	0	DISP FOR TBL ENTRY VIRTUAL PAGE
0001		6507	BDSVAD EQU	1	DISP FOR TABLE ENTRY VADDR
0002		6508	BDSATR EQU	@VADDR	DISP FOR TABLE ENTRY ATTRIBUTE
0000		6509	BDSNUL EQU	X'00'	PAGE NO. FOR UNDEFINED ENTRY
		6510		*	
00FC		6511	BDSSPB EQU	256-2*@VADDR	BASE VALUE FOR SYMBOL DISP WORD
		6512		*	
		6513		*****	
		6514		*	
		6515		* END OF SYMBOL ROUTINE CODING	
		6516		*	

S/3 BASIC COMPILER CHARACTER EXPRESSION SCAN

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/07/20	PAGE 103
		6518		*****			
		6519	*	5703-XM1 COPYRIGHT IBM CORP. 1970			*
		6520	*	REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083			*
		6521	*				*
		6522		*****			*
		6523	*	STATUS			*
		6524	*	VERSION 1 MODIFICATION 0			*
		6525	*				*
		6526	*	FUNCTION			*
		6527	*	* BECSN SCANS A BASIC SOURCE TEXT CHARACTER EXPRESSION AND			*
		6528	*	GENERATES CHARACTER FIELD STACKING PSEUDO INSTRUCTIONS IN			*
		6529	*	VIRTUAL MEMORY FOR THIS EXPRESSION.			*
		6530	*	* CHARACTER EXPRESSION IS DEFINED AS A CHARACTER VARIABLE			*
		6531	*	REFERENCE, A CHARACTER ARRAY ELEMENT REFERENCE, OR A CHARACTER			*
		6532	*	CONSTANT LITERAL.			*
		6533	*	* FIELD STACKING INSTRUCTIONS ARE GENERATED AS FOLLOWS -			*
		6534	*	* CHARACTER VARIABLE - STACK-CHARACTER-FIELD (STC).			*
		6535	*	* CHARACTER ARRAY ELEMENT - STACK-CHARACTER-ARRAY-ELEMENT			*
		6536	*	(SCI), PRECEDED WITH SUBSCRIPT EXPRESSION STACKING PMC.			*
		6537	*	* CHARACTER LITERAL - STACK-CHARACTER-FIELD (STC).			*
		6538	*	* THIS ROUTINE IS DESIGNED FOR INDEPENDENT EXECUTION, BUT MAY BE			*
		6539	*	USED FOLLOWING AN ATTEMPT TO SCAN THE CHARACTER EXPRESSION			*
		6540	*	USING BFSCAN, THE ARITHMETIC EXPRESSION PROCESSING ROUTINE.			*
		6541	*				*
		6542	*	ENTRY POINTS			*
		6543	*	* THIS ROUTINE HAS A SINGLE ENTRY POINT - BECSN - WHOSE FUNCTION			*
		6544	*	IS DEFINED ABOVE. CALLING SEQUENCE IS			*
		6545	*	B BECSN			*
		6546	*	SUBJECT TO INPUT CONDITIONS DESCRIBED BELOW.			*
		6547	*	* ENTRY POINT BECSN MAY ALSO BE SPECIFIED AS B\$CSCN WHEN CALLED			*
		6548	*	FROM ONE OF THE DISK-RESIDENT STATEMENT PROCESSORS.			*
		6549	*				*
		6550	*	INPUT			*
		6551	*	* TEXT CHARACTER POINTER (BZGPTR) - THIS IS TO CONTAIN THE CORE			*
		6552	*	ADDRESS OF A STATEMENT CHARACTER LOCATED RELATIVE TO THE CHAR-			*
		6553	*	ACTER EXPRESSION TO BE PROCESSED.			*
		6554	*	* NORMAL PROCESSING - THE TEXT POINTER REFERENCES THE CHAR-			*
		6555	*	ACTER PRECEDING THE FIRST EXPRESSION CHARACTER. THE			*
		6556	*	CALLING PROGRAM IS EXPECTED TO ENSURE THAT INPUT ROUTINE			*
		6557	*	BAGETC PARAMETER BZNUMC = 1.			*
		6558	*	* EXCEPTION PROCESSING - THE TEXT POINTER REFERENCES THE			*
		6559	*	FIRST CHARACTER OF THE EXPRESSION. THE CALLING PROGRAM IS			*
		6560	*	EXPECTED TO ENSURE THAT BAGETC PARAMETER BZNUMC = 0.			*
		6561	*	* POST-SCAN PROCESSING - BFSCAN HAS ATTEMPTED TO PROCESS THE			*
		6562	*	EXPRESSION AND HAS ENCOUNTERED A CHARACTER REFERENCE. THE			*
		6563	*	TEXT POINTER REFERENCES THE CHARACTER FOLLOWING THE '\$' IN			*
		6564	*	THE REFERENCE SYMBOL. SWITCH BECSSW IS EXPECTED TO BE			*
		6565	*	SET ON.			*
		6566	*	* COMPILER INPUT BUFFER - THIS CONTAINS SOURCE PROGRAM TEXT			*
		6567	*	INCLUDING THE CHARACTER EXPRESSION TO BE PROCESSED.			*
		6568	*	* BECSSW (EXTERNAL BZCSSW, B\$CSSW - 1 BYTE, FOR THE CHARACTER			*
		6569	*	REFERENCE SCAN SWITCH. THIS SWITCH, NORMALLY OFF, IS SET USING			*
		6570	*	MASK BECSMK (EXTERNAL BZCSMK, B\$CSMK).			*
		6571	*	* SWITCH ON - THE PROGRAM STEP WHICH TRANSLATES A CHARACTER			*
		6572	*	REFERENCE IDENTIFIER IS BYPASSED. THE CHARACTER REFERENCE			*
		6573	*	VIRTUAL ADDRESS IS EXPECTED TO BE STC-ED IN SYMBOL ROUTINE			*

S/3 BASIC COMPILER CHARACTER EXPRESSION SCAN

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 104
		6574	*	BDSYMB PARAMETER BZBCKT, AND THE TEXT POINTER IS TO BE	*
		6575	*	POSITIONED AS SPECIFIED FOR POST-SCAN PROCESSING ABOVE.	*
		6576	*	* SWITCH OFF - PROCESSING IS PERFORMED BEGINNING WITH THE	*
		6577	*	FIRST CHARACTER OF THE EXPRESSION.	*
		6578	*	* BZBCKT - 2 BYTES, FOR THE IDENTIFIER VIRTUAL ADDRESS BUCKET.	*
		6579	*	WHEN CONDITIONS ARE SUCH THAT SWITCH BECSSW HAS BEEN SET ON,	*
		6580	*	THIS IS TO CONTAIN THE VIRTUAL ADDRESS ASSOCIATED WITH THE	*
		6581	*	EXPRESSION CHARACTER SYMBOL.	*
		6582	*	* BZFACA - 2 BYTES, FOR THE FUNCTION OR ARRAY ATTRIBUTE FIELD	*
		6583	*	ADDRESS. WHEN CONDITIONS ARE SUCH THAT SWITCH BECSSW HAS BEEN	*
		6584	*	SET ON, THIS IS TO CONTAIN THE CORE ADDRESS OF THE ARRAY ATTRI-	*
		6585	*	BUTE FIELD IF THE CHARACTER EXPRESSION INVOLVES A CHARACTER	*
		6586	*	ARRAY REFERENCE.	*
		6587	*		*
		6588	*	*OUTPUT	*
		6589	*	* TEXT CHARACTER POINTER (REGISTER @XR AND BZGPTR) - THIS CON-	*
		6590	*	TAINS THE CORE ADDRESS OF THE CHARACTER WHICH DELIMITS THE	*
		6591	*	PROCESSED EXPRESSION.	*
		6592	*	* CHARACTER VARIABLE - THE TEXT POINTER REFERENCES THE CHAR-	*
		6593	*	ACTER FOLLOWING THE '\$' IDENTIFIER.	*
		6594	*	* CHARACTER ARRAY ELEMENT - THE TEXT POINTER REFERENCES THE	*
		6595	*	CHARACTER FOLLOWING THE SUBSCRIPT ENDING PARENTHESIS.	*
		6596	*	* CHARACTER LITERAL - THE TEXT POINTER REFERENCES THE CHAR-	*
		6597	*	ACTER FOLLOWING THE TERMINATING SINGLE QUOTE.	*
		6598	*	* VIRTUAL MEMORY - CHARACTER FIELD STACKING INSTRUCTIONS ARE GEN-	*
		6599	*	ERATED USING OUTPUT ROUTINE BBPUTC. THIS INCLUDES ANY PSEUDO	*
		6600	*	INSTRUCTIONS GENERATED AS REQUIRED FOR CHARACTER ARRAY REFER-	*
		6601	*	ENCE SUBSCRIPTS USING ARITHMETIC EXPRESSION PROCESSOR BFSCAN.	*
		6602	*	* CHARACTER ARRAY ATTRIBUTE FIELDS - WHENEVER A CHARACTER ARRAY	*
		6603	*	REFERENCE IS PROCESSED, THE ATTRIBUTE FIELD (COMPILE-TIME DOPE	*
		6604	*	VECTOR SEGMENT) FOR THAT ARRAY IS FLAGGED TO DEFINE ARRAY USAGE.	*
		6605	*	FOR THE FLAGGING PROCEDURE, BIT 0 IN THE FIRST BYTE OF THE	*
		6606	*	ATTRIBUTE FIELD IS SET ON.	*
		6607	*	* BECSSW (EXTERNAL BZCSSW, B\$CSSW) - 1 BYTE, FOR THE CHARACTER	*
		6608	*	REFERENCE SCAN SWITCH (SEE INPUT). THIS SWITCH IS ALWAYS SET	*
		6609	*	OFF AT BECSCN EXIT.	*
		6610	*		*
		6611	*	*EXTERNAL REFERENCES	*
		6612	*	* BAGETC - ENTRY POINT FOR COMPILER SOURCE TEXT INPUT ROUTINE.	*
		6613	*	* BBPUTC - ENTRY POINT FOR COMPILER VIRTUAL MEMORY OUTPUT ROUTINE.	*
		6614	*	* BCFCON - ENTRY POINT FOR COMPILER CONSTANT GENERATOR ROUTINE.	*
		6615	*	* BDSYMB - ENTRY POINT FOR COMPILER SYMBOL TRANSLATOR ROUTINE.	*
		6616	*	* BFSCAN - ENTRY POINT FOR COMPILER ARITHMETIC EXPRESSION ROUTINE.	*
		6617	*	* BZBCKT - 2 BYTES, FOR COMPILER SYMBOL VIRTUAL ADDRESS PARAMETER.	*
		6618	*	* BZFACA - 2 BYTES, FOR COMPILER FUNCTION OR ARRAY ATTRIBUTE	*
		6619	*	FIELD CORE ADDRESS.	*
		6620	*	* BZPARP - 3 BYTES, FOR THE BBPUTC 'ADD RECORD' PARAMETERS.	*
		6621	*	* BZCTYP - 1 BYTE, FOR THE BCFCON CONSTANT TYPE PARAMETER.	*
		6622	*		*
		6623	*	*EXITS, NORMAL	*
		6624	*	CONTROL IS ALWAYS RETURNED TO THE FIRST INSTRUCTION FOLLOWING THE	*
		6625	*	BECSCN CALLING SEQUENCE.	*
		6626	*		*
		6627	*	*EXITS, ERROR	*
		6628	*	N/A	*
		6629	*		*

S/3 BASIC COMPILER CHARACTER EXPRESSION SCAN

ERR LOC	OBJECT CODE	ADDR STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20	PAGE 105
		6630	*TABLES/WORK AREAS		*
		6631	* * BECSSW (EXTERNAL BZCSSW, B\$CSSW) - 1 BYTE, FOR THE CHARACTER		*
		6632	* REFERENCE SCAN SWITCH. THIS IS INITIALIZED AT COMPILER ENTRY		*
		6633	* TO THE OFF CONDITION (SEE INPUT, OUTPUT).		*
		6634	* * CHARACTER STACKING PMC IMAGE AND PARAMETERS - USED TO GENERATE		*
		6635	* 'SIC' OR 'SCI' PSEUDO INSTRUCTIONS USING THE BBPUTC 'ADD RECORD'		*
		6636	* FUNCTION.		*
		6637	*		*
		6638	*ATTRIBUTES		*
		6639	* * REUSABLE		*
		6640	* * RELOCATABLE		*
		6641	*		*
		6642	*CHARACTER CODE DEPENDENCY		*
		6643	* THE OPERATION OF THIS MODULE DEPENDS UPON AN INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET WHICH IS EQUIVALENT TO THE		*
		6644	* ONE USED AT ASSEMBLY TIME. THE CODING HAS BEEN ARRANGED SO THAT		*
		6645	* REDEFINITION OF CHARACTER CONSTANTS, BY REASSEMBLY. WILL RESULT		*
		6646	* IN A CURRENT MODULE FOR THE NEW DEFINITIONS.		*
		6647	*		*
		6648	*		*
		6649	*NOTES		*
		6650	* ERROR PROCEDURES		*
		6651	* N/A		*
		6652	* REGISTER USAGE		*
		6653	* * REGISTER @BR IS SAVED. USED AS A BASE REGISTER, THEN		*
		6654	* RESTORED AT BECSCN EXIT.		*
		6655	* * REGISTER BXR IS NOT SAVED. IT IS USED AS A TEXT CHARACTER		*
		6656	* POINTER REGISTER, AND CONTAINS AN OUTPUT PARAMETER AT BECSCN		*
		6657	* EXIT.		*
		6658	* SAVED/RESTORED AREAS		*
		6659	* N/A		*
		6660	* MODIFICATION CONSIDERATIONS		*
		6661	* N/A		*
		6662	* REQUIRED MODULES		*
		6663	* * @SYSEQ - COMMON SYSTEM EQUATES.		*
		6664	* * \$B@EQU - COMPILER PARAMETER AND CONSTANT EQUATES.		*
		6665	* * BAGETC - COMPILER SOURCE TEXT INPUT ROUTINE.		*
		6666	* * BBPUTC - COMPILER VIRTUAL MEMORY OUTPUT ROUTINE.		*
		6667	* * BCFCN - COMPILER CONSTANT GENERATOR ROUTINE.		*
		6668	* * BDSYMB - COMPILER SYMBOL TRANSLATOR ROUTINE.		*
		6669	* * BFSCAN - COMPILER ARITHMETIC EXPRESSION PROCESSING ROUTINE.		*
		6670	* * BZCOMN - COMPILER COMMON AREAS AND ADDRESS REFERENCE EQUATES.		*
		6671	* OTHER		*
		6672	* N/A		*
		6673	*****		*

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6675 *****
6676 * CHARACTER EXPRESSION PROCESSING ROUTINE ENTRY POINT
6677 *****
6678 *
6679 * ENTER BECSCN - PERFORM REGISTER OPERATIONS
6680 *
14B0 34 01 1509 14B0 6681 BECSCN EQU * BECSCN ENTRY POINT
14B4 C2 01 14BB 14BB 6682 USING BEC010,@BR DEFINE BECSCN BASE ADDRESS
14B8 74 08 52 6683 ST BEC150+@OP1,@BR SAVE CALLING PROGRAM BASE
6684 LA BEC010,@BR LOAD BECSCN BASE ADDRESS
6685 ST BEC160+@OP1(,@BR),@ARR SET RETURN BRANCH ADDRESS
6686 *
6687 * TEST THE CHARACTER SCAN SWITCH - THIS SWITCH HAS BEEN SET ON IF AN
6688 * ATTEMPT HAS BEEN MADE TO SCAN THE CHARACTER EXPRESSION USING THE
6689 * ARITHMETIC EXPRESSION SCAN ROUTINE, AND THE EXPRESSION CONSISTS OF
6690 * EITHER A CHARACTER VARIABLE OR A CHARACTER ARRAY REFERENCE
6691 *
14BB D0 00 1C 6692 BEC010 BC BEC060(,@BR),*-* IF CHARACTER SCAN SWITCH IS
14BC 6693 ORG BEC010+@Q * ON, GO PROCESS THE CHARACTER
14BC 80 14BC 6694 DC AL1(@NOP) * REFERENCE VADDR - INITIALIZE
14BE 6695 ORG BEC010+@INST3 * SWITCH TO 'OFF' CONDITION
6696 *
6697 * ACCESS THE FIRST CHARACTER OF THE CHARACTER EXPRESSION
6698 *
14BE C0 87 0867 6699 BEC020 B BAGETC LINK TO GET NEXT CHARACTER
6700 *
6701 * TEST THE EXPRESSION FOR A CHARACTER CONSTANT
6702 *
14C2 BD 7D 00 6703 BEC030 CLI B@CHAR(,@XR),B@SQUO IF A QUOTE DELIMITER IS FOUND
14C5 F2 81 07 6704 JE BEC050 * GO PROCESS THE CHAR CONSTANT
6705 *
6706 * PROCESS THE CHARACTER VARIABLE OR ARRAY REFERENCE
6707 *
14C8 C0 87 0DBC 6708 BEC040 B BDSYMB LINK TO GET THE SYMBOL VADDR
6709 * 1-4
6710 * THE NEXT INSTRUCTION IS ENTERED FROM THE PSEUDO CODE 1-4
6711 * GENERATION ROUTINES FOR SUBSTRING STATEMENTS. 1-4
6712 * 1-4
14CC F2 87 08 6713 BECSTR J BEC060 GO PROCESS THE VADDR 1-4
6714 *
6715 * PROCESS THE CHARACTER CONSTANT
6716 *
14CF 3C 1F 0A5F 6717 BEC050 MVI BZCTYP,BZCCON SET CONSTANT RTN FOR CHARACTERS
14D3 C0 87 0A46 6718 B BCFCON LINK TO GET THE CONSTANT VADDR
6719 *
6720 * ESTABLISH THE ELEMENT VIRTUAL ADDRESS AS THE OPERAND OF A
6721 * CHARACTER FIELD STACKING PSEUDO INSTRUCTION
6722 *
14D7 4C 01 55 1590 6723 BEC060 MVC BECSO(,@BR),BZBCKT(@VADDR) SET VADDR AS 'STK CHAR' OPRND
6724 *
6725 * TEST FOR A CHARACTER ARRAY REFERENCE
6726 *
14DC BD 4D 00 6727 BEC070 CLI B@CHAR(,@XR),B@LPAR IF CHARACTER ARRAY INDICATED
14DF D0 81 2D 6728 BE BEC090(,@BR) * GO PROCESS ARRAY A SUBSCRIPT
6729 *
6730 * ESTABLISH THE EXPRESSION ELEMENT AS A SCALAR FIELD

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[illegible][illegible][illegible]

S/3 BASIC COMPILER CHARACTER EXPRESSION SCAN

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 108
		6735		*****	
		6736		* CHARACTER ARRAY REFERENCE PROCESSING	
		6737		*****	
		6738		*	
		6739		* ESTABLISH THE EXPRESSION ELEMENT AS AN ARRAY FIELD	
		6740		*	
14E8	7C 2A 53	6741	BEC090 MVI	BECSCC(,@BR),B@CSC1	SET PMC OPCODE FOR 'SC1' INST
		6742		*	
		6743		* ACCESS THE ARRAY SYMBOL TABLE ENTRY ATTRIBUTE FIELD	
		6744		*	
14EB	35 02 0E53	6745	BEC100 L	BZFACA,@XR	LOAD THE ATTRIBUTE FIELD CADDR
		6746		*	
		6747		* ESTABLISH THE CHARACTER REFERENCE AS A DEFINED ARRAY	
		6748		*	
14EF	BA 80 00	6749	BEC110 SBN	B@AFLG(,@XR),B@DAMK	DEFINE ARRAY AS REFERENCED
		6750		*	
		6751		* GENERATE VALUE STACKING INSTRUCTIONS FOR THE ARRAY ELEMENT SUBSCRIPT	
		6752		*	
14F2	C0 87 1514	6753	BEC120 B	BFSCAN	LINK TO SCAN SUBSC EXPRESSION
14F6	C0 87 0867	6754		B BAGETC	LINK TO GET CHAR FOLLOWING ') '

S/3 BASIC COMPILER CHARACTER EXPRESSION SCAN

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/07/20	PAGE 109
				6756		*****				
				6757		* INSTRUCTION GENERATION AND SUBROUTINE EXIT				
				6758		*****				
				6759		*				
				6760		* OUTPUT THE CHARACTER ELEMENT STACKING PSEUDO INSTRUCTION				
				6761		*				
14FA	1C	02	0A41 58	6762	BEC130	MVC	BZPARP,BECSCP(@CADDR+1,@BR) SET PUT RTN FOR 'STK CHAR'			
14FF	C0	87	093A	6763		B	BBPUTC LINK TO OUTPUT 'STK CHAR' INST			
				6764		*				
				6765		* RESET THE CHARACTER EXPRESSION SCAN SWITCH				
				6766		*				
1503	7B	07	01	6767	BEC140	SBF	BECSSW(,@BR),BECSMK SET CHARACTER SCAN SWITCH OFF			
				6768		*				
				6769		* RESTORE THE BASE REGISTER AND RETURN TO CALLER				
				6770		*				
1506	C2	01	0000	6771	BEC150	LA	*-*,@BR RESTORE CALLING PROGRAM BASE			
150A	C0	87	0000	6772	BEC160	B	*-* RETURN TO CALLING PROGRAM			

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 110			
				6774	*****				
				6775	* PSEUDO MACHINE INSTRUCTION SEQUENCES AND STORAGE PARAMETERS				
				6776	*****				
				6777	*				
150E			150E	6778	BECSCC DS	CL(B@LCOP)	'STACK CHAR FLD'	OPCODE AREA	
150F			1510	6779	BECSCO DS	CL(B@LCVA)	'STACK CHAR FLD'	OPERAND AREA	
1511	150E		1512	6780		DC	AL(@CADDR)	(BECSCC)	'STACK CHAR' INST CORE ADDRESS
1513	02		1513	6781	BECSCP DC	AL1(B@LSTC-1)	'STACK CHAR'	INST LENGTH CODE	
				6783	*****				
				6784	* CHARACTER EXPRESSION SCAN ROUTINE SWITCH EQUATES				
				6785	*****				
				6786	*				
			14BC	6787	BECSSW EQU	BEC010+@Q	CHARACTER EXPR SCAN SWITCH		
			0007	6788	BECSMK EQU	@UCB-@NOP	CHARACTER EXPR SCAN SW MASK		
				6789	*				
				6790	*****				
				6791	*				
				6792	* END OF CHARACTER EXPRESSION SCAN ROUTINE CODING				
				6793	*				

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/07/20	PAGE 111
		6795		*****			
		6796	*	5703-XM1 COPYRIGHT IBM CORP. 1970			*
		6797	*	REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083			*
		6798	*				*
		6799		*****			*
		6800	*	STATUS			*
		6801	*	VERSION 1 MODIFICATION 0			*
		6802	*				*
		6803	*	FUNCTION			*
		6804	*	* BFSCAN SCANS A BASIC SOURCE TEXT ARITHMETIC EXPRESSION AND			*
		6805	*	GENERATES PSEUDO INSTRUCTIONS NECESSARY TO EVALUATE THE EXPRES-			*
		6806	*	SION AT RUN-TIME. THE EXECUTION OF THESE PSEUDO INSTRUCTIONS			*
		6807	*	AT RUN-TIME RESULTS IN THE VALUE OF THE EXPRESSION BEING PLACED			*
		6808	*	AT THE TOP OF THE RUN-TIME STACK.			*
		6809	*	* AN ARITHMETIC EXPRESSION IS DEFINED AS A SINGLE SCALAR OPERAND			*
		6810	*	OR SERIES OF OPERANDS SEPARATED BY SINGLE BINARY ARITHMETIC			*
		6811	*	OPERATORS. OPERANDS CAN BE ANY OF THESE BASIC COMPONENTS -			*
		6812	*	* ARITHMETIC VARIABLES			*
		6813	*	* ARITHMETIC ARRAY ELEMENTS			*
		6814	*	* ARITHMETIC (NUMERIC) CONSTANTS			*
		6815	*	* ARITHMETIC (INTERNAL) CONSTANTS			*
		6816	*	* INTRINSIC FUNCTIONS			*
		6817	*	* USER-DEFINED FUNCTIONS			*
		6818	*	* COMPLETE EXPRESSIONS ENCLOSED IN PARENTHESES			*
		6819	*	(CALLED SUBEXPRESSIONS).			*
		6820	*	* THERE ARE FIVE BINARY ARITHMETIC OPERATORS -			*
		6821	*	* '+' FOR ADDITION			*
		6822	*	* '-' FOR SUBTRACTION			*
		6823	*	* '*' FOR MULTIPLICATION			*
		6824	*	* '/' FOR DIVISION			*
		6825	*	* 'UP-ARROW' OR '**' FOR EXPONENTIATION.			*
		6826	*	EACH EXPRESSION CAN ALSO BE PRECEDED WITH A UNARY '*' OR '-'			*
		6827	*	OPERATOR.			*
		6828	*	* PSEUDO INSTRUCTIONS ARE GENERATED SUCH THAT OPERATIONS WITHIN			*
		6829	*	AN EXPRESSION ARE PERFORMED AT RUN-TIME IN THE FOLLOWING ORDER.			*
		6830	*	* 'UP-ARROW' OR '**' HIGHEST PRIORITY			*
		6831	*	* UNARY '+' OR '-'			*
		6832	*	* '*' OR '/'			*
		6833	*	* BINARY '*' OR '-' LOWEST PRIORITY			*
		6834	*	OPERATIONS AT THE SAME PRIORITY LEVEL ARE ESTABLISHED TO BE			*
		6835	*	PERFORMED FROM LEFT TO RIGHT IN ANY SINGLE EXPRESSION.			*
		6836	*	* THE NORMAL EXECUTION SEQUENCE CAN BE MODIFIED BY ENCLOSING SUB-			*
		6837	*	EXPRESSIONS IN PARENTHESES. SUBEXPRESSIONS ARE ESTABLISHED TO			*
		6838	*	BE PERFORMED BEGINNING WITH THE INNERMOST SET OF PARENTHESES.			*
		6839	*	PRIORITIES OF FUNCTION AND ARRAY REFERENCES ARE DETERMINED BY			*
		6840	*	THE FACT THAT ARGUMENTS FOR THESE OPERATIONS ARE ENCLOSED IN			*
		6841	*	PARENTHESES.			*
		6842	*	* BFSCAN MAY BE EXECUTED TO PROCESS AN EXPRESSION WHOSE TYPE			*
		6843	*	(ARITHMETIC OR CHARACTER) IS UNKNOWN. THE RESULTS OF ATTEMPT-			*
		6844	*	ING A CHARACTER EXPRESSION SCAN ARE GIVEN UNDER 'OUTPUT' BELOW.			*
		6845	*	AS A RULE. THE CALLING PROGRAM CAN DETERMINE THE EXPRESSION			*
		6846	*	TYPE, FOLLOWING BFSCAN EXECUTION, BY TESTING THE PMC GENERATION			*
		6847	*	SWITCH, BZARSW.			*
		6848	*				*
		6849	*	ENTRY POINTS			*
		6850	*	* THIS ROUTINE HAS A SINGLE ENTRY POINT - BFSCAN - WHOSE FUNCTION			*

S/3 BASIC COMPILER ARITHMETIC EXPRESSION SCAN

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 112
		6851	*	IS DEFINED ABOVE. CALLING SEQUENCE IS	*
		6852	*	B BFSCAN	*
		6853	*	SUBJECT TO INPUT CONDITIONS DESCRIBED BELOW.	*
		6854	*	* ENTRY POINT BFSCAN MAY ALSO BE SPECIFIED AS BFSCAN WHEN CALLED	*
		6855	*	FROM ONE OF THE DISK-RESIDENT STATEMENT PROCESSORS.	*
		6856	*		*
		6857	*	*INPUT	*
		6858	*	* TEXT CHARACTER POINTER (BZGPTR) - THIS IS TO CONTAIN THE CORE	*
		6859	*	ADDRESS OF A STATEMENT CHARACTER LOCATED RELATIVE TO THE ARITH-	*
		6860	*	METIC EXPRESSION TO BE PROCESSED.	*
		6861	*	* NORMAL PROCESSING - THE TEXT POINTER REFERENCES THE CHAR-	*
		6862	*	ACTER PRECEDING THE FIRST EXPRESSIOK CHARACTER. THE	*
		6863	*	CALLING PROGRAM IS EXPECTED TO ENSURE THAT INPUT ROUTINE	*
		6864	*	BAGETC PARAMETER BZNUMC = 1.	*
		6865	*	* EXCEPTION PROCESSING - THE TEXT POINTER REFERENCES THE	*
		6866	*	FIRST CHARACTER OF THE EXPRESSION. THE CALLING PROGRAM	*
		6867	*	IS EXPECTED TO ENSURE THAT RAGETC PARAMETER BZNUMC = 0.	*
		6868	*	* COMPILER INPUT BUFFER - THIS CONTAINS SOURCE PROGRAM TEXT	*
		6869	*	INCLUDING THE ARITHMETIC EXPRESSION TO BE PROCESSED.	*
		6870	*		*
		6871	*	*OUTPUT	*
		6872	*	* TEXT CHARACTER POINTER (REGISTER @XR AND BZGPTR) - THIS CON-	*
		6873	*	TAINS THE CORE ADDRESS OF A BASIC STATEMENT CHARACTER LOCATED	*
		6874	*	RELATIVE TO THE PROCESSED EXPRESSION. DEPENDING ON THE TYPE	*
		6875	*	AND ENVIRONMENT OF THE EXPRESSION.	*
		6876	*	* ARITHMETIC EXPRESSION, NON-KEYWORD DELIMITER - THE TEXT	*
		6877	*	POINTER REFERENCES THE DELIMITING CHARACTER WHICH FOLLOWS	*
		6878	*	THE FINAL CHARACTER IN THE EXPRESSION.	*
		6879	*	* ARITHMETIC EXPRESSION, KEYWORD DELIMITER - TEXT POINTER	*
		6880	*	REFERENCES THE 2ND CHARACTER IN THE DELIMITING KEYWORD.	*
		6881	*	* CHARACTER VARIABLE REFERENCE - THE TEXT POINTER REFERENCES	*
		6882	*	THE CHARACTER WHICH FOLLOWS THE '\$' IN THE REFERENCE	*
		6883	*	SYMBOL.	*
		6884	*	* CHARACTER CONSTANT - THE TEXT POINTER REFERENCES THE LEAD-	*
		6885	*	ING SINGLE QUOTE WHICH DEFINES THE PRESENCE OF THE LITERAL.	*
		6886	*	* VIRTUAL MEMORY - PSEUDO INSTRUCTIONS ARE GENERATED TO EVALUATE	*
		6887	*	THE ARITHMETIC EXPRESSION AND TO PLACE THE RESULTING VALUE IN	*
		6888	*	THE RUN-TIME STACK. NO PMC IS GENERATED WHEN THE EXPRESSION IS	*
		6889	*	NON-ARITHMETIC.	*
		6890	*	* ARITHMETIC ARRAY ATTRIBUTE FIELDS - WHENEVER AN ARITHMETIC	*
		6891	*	ARRAY REFERENCE IS PROCESSED, THE ATTRIBUTE FIELD (COMPILE-TIME	*
		6892	*	DOPE VECTOR SEGMENT) FOR THAT ARRAY IS PROCESSED.	*
		6893	*	* FOR PREVIOUSLY UNDEFINED ARRAYS, THE ATTRIBUTE FIELD IS	*
		6894	*	FLAGGED TO DEFINE CURRENT ARRAY USAGE. FOR THE FLAGGING	*
		6895	*	PROCEDURE -	*
		6896	*	* BIT 0 IN THE FIRST BYTE OF THE ATTRIBUTE FIELD IS	*
		6897	*	SET ON WHEN THE ARRAY IS SPECIFIED WITH 1 DIMENSION.	*
		6898	*	A BITS 0,1 IN THE FIRST BYTE OF THE ATTRIBUTE FIELD ARE*	*
		6899	*	SET ON WHEN THE ARRAY IS SPECIFIED WITH 2 DIMENSIONS.*	*
		6900	*	* FOR PREVIOUSLY DEFINED ARRAYS, THE ATTRIBUTE FIELD IS	*
		6901	*	CHECKED FOR CONSISTENT USAGE (SEE ERROR PROCEDURS).	*
		6902	*	* BZNUMC - 1 BYTE. FOR THE TEXT CHARACTER SKIP COUNT. THIS	*
		6903	*	BAGETC PARAMETER IS ALWAYS LEFT WITH A VALUE OF 1 AT BFSCAN	*
		6904	*	EXIT	*
		6905	*	* BZARSW - 1 BYTE, FOR THE 'ADD RECORD' OPERATION SWITCH. THIS	*
		6906	*	SWITCH, WHICH IS RESET OFF AT BFSCAN ENTRY USING MASK BZARMK,	*

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6907 *      IS SET ON WHEN BFSCAN CALLS BBPUTC TO OUTPUT PMC TO VIRTUAL *
6908 *      MEMORY. *
6909 *      * BZCSSW - 1 BYTE, FOR THE CHARACTER REFERENCE SCAN SWITCH. THIS *
6910 *      SWITCH, WHICH IS NOT RESET AT BFSCAN ENTRY, IS SET ON USING *
6911 *      MASK BZCSMK WHENEVER AN ATTEMPT IS MADE TO PROCESS A CHARACTER *
6912 *      VARIABLE OR CHARACTER ARRAY REFERENCE USING BFSCAN. *
6913 *      * BFSBKT (EXTERNAL BZBCKT, B$BCKT) - 2 BYTES, FOR THE IDENTIFIER *
6914 *      (OPERAND) VIRTUAL ADDRESS BUCKET. WHEN BFSCAN ENCOUNTERS *
6915 *      CHARACTER VARIABLE OR CHARACTER ARRAY REFERENCE, THIS IS RE- *
6916 *      TURNED TO THE CALLING PROGRAM WITH THE VIRTUAL ADDRESS OF THE *
6917 *      CHARACTER REFERENCE SYMBOL. *
6918 *      * BZFACA - 2 BYTES, FOR THE FUNCTION OR ARRAY ATTRIBUTE FIELD *
6919 *      ADDRESS. WHEN BFSCAN ENCOUNTERS A CHARACTER ARRAY REFERENCE, *
6920 *      THIS IS RETURNED TO THE CALLING PROGRAM WITH THE CORE ADDRESS *
6921 *      OF THE ARRAY ATTRIBUTE FIELD (COMPILE-TIME DOPE VECTOR SEGMENT). *
6922 * *
6923 *EXTERNAL REFERENCES *
6924 *      * BAGETC - ENTRY POINT FOF. COMPILER SOURCE TEXT INPUT ROUTINE. *
6925 *      * BBPUTC - ENTRY POINT FOR COMPILER VIRTULL MEMORY OUTPUT ROUTINE. *
6926 *      * BCFCON - ENTRY POINT FCR COMPILER CONSTANT GENERATOR ROUTINE. *
6927 *      * BDSYMB - ENTRY POINT FOR COMPILER SYMBOL TRANSLATOR ROUTINE. *
6928 *      * BMA@XR - ENTRY POINT FOR COMPILER MATRIX REFERENCE ROUTINE. *
6929 *      * BZNUMC - 1 BYTE, FOR THE BAGETC TEXT CHARACTER SKIP PARAMETER. *
6930 *      * BZGPTR - 2 BYTES, FOR THE TEXT CHARACTER POINTER. *
6931 *      * BZFACA - 2 BYTES, FOR THE FUNCTION OR ARRAY ATTRIBUTE CORE *
6932 *      ADDRESS. *
6933 *      * BZPARP - 3 BYTES, FOR THE BBPUTC 'ADD RECORD' FUNCTION PARMS *
6934 *      THIS IS EQUIVALENT TO THE TWO FOLLOWING REFERENCES. *
6935 *      * BZPCAD - 2 BYTES, FOR THE BBPUTC 'ADD RECORD' CORE ADDRESS PARM. *
6936 *      THIS IS EQUIVALENT TO THE FIRST 2 BYTES IN BZPARP. *
6937 *      * BZPNBY - 1 BYTE, FOR THE BBPUTC 'ADD RECORD' LENGTH CODE PARA- *
6938 *      METER. (HIS IS EQUIVALENT TO THE 3RD BYTE IN BZPARP. *
6939 *      * BZPERC - 1 BYTE, FOR THE BBPUTC 'ADD ERROR' ERROR MESSAGE CODE *
6940 *      PARAMETER. *
6941 *      * BZPFNC - 1 BYTE, FOR THE BBPUTC FUNCTION CODE PARAMETER. *
6942 *      * BZARSW - 1 BYTE, FOR THE SBPUTC 'ADD RECORD' FUNCTION OPERATION *
6943 *      SWITCH. *
6944 *      * BZCRSW - 1 BYTE, FOR THE BDSYMB CHARACTER REFERENCE SWITCH. *
6945 *      * BZMRSW - 1 BYTE, FOR THE BDSYMB MATRIX REFERENCE SWITCH. *
6946 *      * BZCSSW - 1 BYTE, FOR THE BECSN CHARACTER REFERENCE SCAN SWITCH. *
6947 * *
6948 *EXITS, NORMAL *
6949 *      CONTROL IS ALWAYS RETURNED TO THE FIRST INSTRUCTION FOLLOWING THE *
6950 *      BFSCAN CALLING SEQUENCE. *
6951 * *
6952 *EXITS, ERROR *
6953 *      ERROR CONDITIONS ENCOUNTERED DURING BFSCAN PROCESSING (SEE ERROR *
6954 *      PROCEDURES) ARE LOGGED IN VIRTUAL MEMORY, AND THE COMPILER IS *
6955 *      PLACED IN ERROR MODE (BZERSW IS SET ON). PROCESSING IS ALLOWED *
6956 *      TO PROCEED TO A NORMAL EXIT, EXCEPT GENERATED PMC IS NO LONGER *
6957 *      OUTPUT TO VIRTUAL MEMORY *
6958 * *
6959 *TABLES/WORK AREAS *
6960 *      * OPERATOR BRANCH TABLE - THIS TABLE, WITH FIRST BYTE DEFINED BY *
6961 *      LABEL BFSTBL, IS USED TO DETERMINE THE ACTIONS TO BE TAKEN FOR *
6962 *      ALL SPECIAL CHARACTERS ENCOUNTERED DURING AN EXPRESSION SCAN. *

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6963	*	EACH OF THE 13 TABLE ENTRIES IS 5 BYTES LONG. THE 1ST BYTE	*
6964	*	CONTAINS ONE OF THE SPECIAL CHARACTERS WHICH MAY OCCUR IN AN	*
6965	*	EXPRESSION. THE 2ND AND 3RD BYTES CONTAIN THE BRANCH ADDRESS	*
6966	*	FOR THE ROUTINE WHICH PROCESSES THIS SPECIAL CHARACTER. THE	*
6967	*	4TH AND 5TH BYTES CONTAIN AN OPCODE AND PRIORITY, RESPECTIVELY,	*
6968	*	TO BE USED IN PROCESSING THE CHARACTER.	*
6969	*	* COMPILE-TIME STACK - THE STACK IS USED TO RETAIN INFORMATION	*
6970	*	FROM THE ARITHMETIC EXPRESSION UNTIL THE TIME THAT IT CAN BE	*
6971	*	USED TO GENERATE PSEUDO CODE. EACH STACK ENTRY LOCATION IS	*
6972	*	2 BYTES LONG, AND NORMALLY CONTAINS A SINGLE-BYTE PSEUDO OPCODE	*
6973	*	AND A SINGLE-BYTE PRIORITY CODE. WHEN PROCESSING FUNCTION	*
6974	*	REFERENCES, A STACK ENTRY MAY ALSO CONTAIN A VIRTUAL ADDRESS.	*
6975	*	WHEN PROCESSING ARRAY REFERENCES, A STACK ENTRY MAY ALSO CON-	*
6976	*	TAIN A VIRTUAL ADDRESS OR AN ARRAY ATTRIBUTE FIELD CORE ADDRESS.	*
6977	*	THERE ARE 53 2-BYTE ENTRY LOCATIONS IN THE STACK. THE BOTTOM	*
6978	*	(LEFTMOST) ENTRY IS INITIALIZED TO X'0000' TO REPRESENT THE	*
6979	*	LOWEST POSSIBLE PRIORITY FOR STACK UNLOADING OPERATIONS, AND	*
6980	*	IS REFERENCED BY THE LABEL BFSSTK.	*
6981	*	* INTERNAL ELEMENT VIRTUAL ADDRESS TABLE - THIS TABLE, WITH FIRST	*
6982	*	ADDRESS DEFINED BY THE LABEL BFSAIW, CONTAINS SEVEN 2-BYTE	*
6983	*	VIRTUAL ADDRESSES FOR ALL SIGNED INTERNAL CONSTANTS AND FOR THE	*
6984	*	INTERNAL VARIABLE &WRK. THESE ADDRESSES ARE PRECISION DEPENDENT,	*
6985	*	AND ALL ARE INITIALIZED AT COMPILER ENTRY FOR STANNARD	*
6986	*	PRECISION. WHEN REQUIRED, THEY ARE MODIFIED FOR LONG PRECISION	*
6987	*	BY THE COMPILER INITIATOR, BGINIT. NOTE THAT &WRK IS NOT	*
6988	*	DEFINED BASIC LANGUAGE COMPONENT, BUT IS USED FOR INTERNAL	*
6989	*	PROCESSOR PURPOSES ONLY.	*
6990	*	* VALUE STACKING PMC IMAGES AND PARAMETERS - THESE ARE USED TO	*
6991	*	GENERATE 'STF', 'FN0', OR 'MF1-STF' PSEUDO INSTRUCTION SEQUENCES	*
6992	*	USING THE BBPUTC 'ADD RECORD' FUNCTION.	*
6993	*	* BFSBKT (EXTERNAL BZBCKT, B\$BCKT) - 2 BYTES, FOR THE AVAILABLE	*
6994	*	OPERAND (BASIC IDENTIFIER) VIRTUAL ADDRESS PARAMETER.	*
6995	*	* BFSPTR - 2 BYTES, FOR THE COMPILE-TIME STACK POINTER. THIS IS	*
6996	*	INITIALIZED TO REFERENCE THE BOTTOM POSITION IN THE STACK AT	*
6997	*	BFSCAN ENTRY.	*
6998	*	* BFSCEN - 2 BYTES, FOR THE CURRENT OPERATOR AND PRIORITY SAVE	*
6999	*	AREA. THIS FIELD HAS TWO COMPONENTS -	*
7000	*	* BFSCOP IS THE LEFTMOST (OPERATOR) BYTE.	*
7001	*	* BFSCPY IS THE RIGHTMOST (PRIORITY) BYTE.	*
7002	*	* BFSFSW (EXTERNAL BZADSW, B\$ADSW) - 1 BYTE, FOR THE OPERAND	*
7003	*	ADDRESS AVAILABILITY SWITCH. THIS IS INITIALIZED AT COMPILER	*
7004	*	ENTRY TO THE OFF CONDITION, AND IS SET USING MASK BFSAMK	*
7005	*	(EXTERNAL BZADMK, B\$ADMK).	*
7006	*	* BFSFSW (EXTERNAL BZFRSW, B\$FRSW) - 1 BYTE, FOR THE FUNCTION	*
7007	*	REFERENCE SWITCH. THIS IS INITIALIZED AT COMPILER ENTRY TO THE	*
7008	*	OFF CONDITION, AND IS SET USING MASK BFSFMK (EXTERNAL BZFRMK,	*
7009	*	B\$FRMK).	*
7010	*	* BFSISW (EXTERNAL BZIFSW, B\$IFSW) - 1 BYTE, FOR THE INTRINSIC	*
7011	*	FUNCTION REFERENCE SWITCH. THIS IS INITIALIZED AT COMPILER	*
7012	*	ENTRY TO THE OFF CONDITION, AND IS SET USING MASK BFSIMK	*
7013	*	(EXTERNAL BZIFMK, B\$IFMK).	*
7014	*	* BFSFSW (EXTERNAL BZKWSW, B\$KWSW) - 1 BYTE, FOR THE SECONDARY	*
7015	*	KEYWORD (SCAN TERMINATION) SWITCH. THIS IS INITIALIZED AT	*
7016	*	COMPILER ENTRY TO THE OFF CONDITION, AND IS SET USING MASK	*
7017	*	BFSKMK (EXTERNAL BZKWMK, B\$KWMK).	*
7018	*		*

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```

7019 *ATTRIBUTES *
7020 *   * REUSABLE *
7021 *   * RELOCATABLE *
7022 * *
7023 *CHARACTER CODE DEPENDENCY *
7024 *   THE OPERATION OF THIS MODULE DEPENDS UPON THE FOLLOWING PROPER- *
7025 *   TIES OF THE INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET. *
7026 *   * MOST CODING HAS BEEN ARRANGED SO THAI REDEFINITION OF CHAR- *
7027 *   ACTER CONSTANTS, BY REASSEMBLY, WILL RESULT IN A CORRECT *
7028 *   MODULE FOR THE NEW DEFINITION. *
7029 *   * ALPHABETIC LETTERS A THROUGH Z ARE PRESUMED TO BE CODED IN *
7030 *   INCREASING COLLATING SEQUENCE, AND THE RANGE OF CHARACTER *
7031 *   CONSTANTS FOR THIS SERIES IS EXPECTED TO EXCLUDE ALL OTHER *
7032 *   CHARACTER CONSTANTS. *
7033 *   * NUMERIC CHARACTERS 0 THROUGH 9 ARE PRESUMED TO BE CODED IN *
7034 *   INCREASING COLLATING SEQUENCE, AND THE RANGE OF CHARACTER *
7035 *   CONSTANTS FOR THIS SERIES IS EXPECTED TO COLLATE HIGHER THAN *
7036 *   THAT FOR ANY OTHER CHARACTER IN THE EXTERNAL CHARACTER SET. *
7037 *   THE SPECIFIC INSTRUCTIONS (INSTRUCTION SEQUENCES) WHICH REQUIRE *
7038 *   MODIFICATION IF THESE PROPERTIES OF THE CHARACTER SET ARE CHANGED *
7039 *   MAY BE IDENTIFIED BY - *
7040 *   * THE 4 INSTRUCTIONS BEGINNING AT LABEL BFS070. *
7041 *   * THE 2 INSTRUCTIONS BEGINNING AT LABEL BFS080. *
7042 *   COMMENTS ARE PROVIDED TO INDICATE THE CONSIDERATIONS INVOLVED AND *
7043 *   MECHANISMS FOR CHANGING THE CODE. *
7044 * *
7045 *NOTES *
7046 *   ERROR PROCEDURES *
7047 *   TWO ERROR CONDITIONS ARE DETECTED. BOTH REFERENCING INCONSIS- *
7048 *   TENT ARRAY SUBSCRIPT SPECIFICATIONS. *
7049 *   * ERROR 1 - AN ENCOUNTERED ARRAY REFERENCE IS SPECIFIED *
7050 *   WITH 2 SUBSCRIPTS BUT WAS ORIGINALLY DEFINED WITH *
7051 *   SINGLE DIMENSION. AN ERROR CODE FOR THE MESSAGE 'VECTOR *
7052 *   REFERENCED AS MATRIX' IS LOGGED IN VIRTUAL MEMORY. *
7053 *   * ERROR 2 - AN ENCOUNTERED ARRAY REFERENCE IS SPECIFIED *
7054 *   WITH 1 SUBSCRIPT BUT WAS ORIGINALLY DEFINED WITH DOUBLE *
7055 *   DIMENSIONS. AN ERROR CODE FOR THE MESSAGE 'MATRIX REFER- *
7056 *   ENCED AS VECTOR' IS LOGGED IN VIRTUAL MEMORY. *
7057 *   IN EITHER OF THESE EVENTS, THE COMPILER IS PLACED IN ERROR *
7058 *   MODE (OUTPUT ROUTINE BBPUTC IS CALLED USING FUNCTION 'ADD *
7059 *   ERROR'), AND STATEMENT PROCESSING IS PERMITTED TO CONTINUE. *
7060 * *
7061 *   REGISTER USAGE *
7062 *   * REGISTER @BR IS SAVED, USED AS A BASE REGISTER, THEN *
7063 *   RESTORED AT BFSCAN EXIT. *
7064 *   * REGISTER @XR IS NOT SAVED. IT IS USED AS A GENERAL PURPOSE *
7065 *   REGISTER, AND CONTAINS AN OUTPUT PARAMETER AL BFSCAN EXIT. *
7066 * *
7067 *   SAVED/RESTORFD AREAS *
7068 *   N/A *
7069 * *
7070 *   MODIFICATION CONSIDERATIONS *
7071 *   THE COMPILE-TIME STACK IS ESTABLISHED TO EXACTLY SUPPORT THE *
7072 *   MAXIMUM NUMBER OF ENTRY LOCATIONS REQUIRED TO PROCESS AN *
7073 *   EXPRESSION CONTAINING EIGHT NESTED PARENTHESES. THIS MAXIMUM *
7074 *   IS DERIVED BY CONSIDERING CONTINUED SEQUENCES OF THE EXPRES- *

```

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		7075	*	SION SEGMENT	*
		7076	*	A+B*C**D(...	*
		7077	*	EACH OF WHICH UTILIZES 6 STACK ENTRY LOCATIONS. THUS, THE	*
		7078	*	NUMBER OF STACK ENTRIES (BFSNEN) REQUIRED FOR AN EXPRESSION	*
		7079	*	CONTAINING (N) NESTED PARENTHESES IS GIVEN BY	*
		7080	*	BFSNEN = 6*N + 5	*
		7081	*	WHERE THE CONSTANT (5) ACCOUNTS FOR THE WORST-CASE INNERMOST	*
		7082	*	EXPRESSION IN ADDITION TO STACK TOP AND BOTTOM GUARD ENTRIES.	*
		7083	*		*
		7084	*	REQUIRED MODULES	*
		7085	*	* @SYSEQ - COMMON SYSTEM EQUATES.	*
		7086	*	* @ERMEQ - SYSTEM ERROR MESSAGE CODE EQUATES.	*
		7087	*	* \$B@EQU - COMPILER PARAMETER AND CONSTANT EQUATES.	*
		7088	*	* BAGETC - COMPILER SOURCE TEXT INPUT ROUTINE.	*
		7089	*	* BBPUTC - COMPILER VIRTUAL MEMORY OUTPUT ROUTINE.	*
		7090	*	* BCFCON - COMPILER CONSTANT GENERATOR ROUTINE.	*
		7091	*	* BDSYMB - COMPILER SYMBOL TRANSLATOR ROUTINE.	*
		7092	*	* BECSCN - COMPILER CHARACTER EXPRESSION SCAN ROUTINE.	*
		7093	*	* BMA@XR - COMPILER MATRIX REFERENCE ROUTINE.	*
		7094	*	* BZCOMN - COMPILER COMMON AREAS AHD ADDRESS REFERENCE EQUATES.	*
		7095	*		*
		7096	*	OTHER	*
		7097	*	N/A	*
		7098	*	*****	*

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```
7100 *****
7101 * ARITHMETIC EXPRESSION PROCESSING ROUTINE ENTRY POINT
7102 *****
7103 *
7104 * ENTER BFSCAN - PERFORM REGISTER OPERATIONS
7105 *
1514 7106 BFSCAN EQU * BFSCAN ENTRY POINT
152B 7107 USING BFS020,@BR DEFINE BFSCAN BASE ADDRESS
1514 34 01 17A3 7108 ST BFS730+@OP1,@BR SAVE CALLING PROGRAM BASE
1518 C2 01 152B 7109 LA BFS020,@BR LOAD BFSCAN BASE ADDRESS
151C 34 08 17A7 7110 ST BFS740+@OP1,@ARR SET RETURN BRANCH ADDRESS
7111 *
7112 * INITIALIZE THE SCAN ROUTINE
7113 *
1520 7B 01 72 7114 BFS010 SBF BFSASW(,@BR),BFSAMK SET AVAILABLE ADDR SWITCH OFF
1523 3B 07 16CC 7115 SBF BFSFSW,BFSFMK SET FUNCTION REFERENCE SW OFF
1527 3B 01 0A45 7116 SBF BZARSW,BZARMK SET PMC GENERATIGN INDR OFF
7117 *
7118 * GET FIRST CHARACTER (OR FIRST CHARACTER FOLLOWING A LEFT PARENTHESIS)
7119 *
152B C0 87 0867 7120 BFS020 B BAGETC LINK TO GET NEXT CHARACTER
7121 *
7122 * TEST FOR A UNARY OPERATOR
7123 *
152F BD 4E 00 7124 BFS030 CLI B@CHAR(,@XR),B@PLUS IF CHARACTER IS 'PLUS'
1532 F2 81 10 7125 JE BFS050 * SKIP TO GET NEXT CHARACTER
1535 BD 60 00 7126 CLI B@CHAR(,@XR),B@MINS IF CHARACTER IS NOT 'MINUS'
1538 F2 01 0E 7127 JNE BFS060 * SKIP TO CONTINUE PROCESSING
7128 *
7129 * PROCESS THE UNARY MINUS
7130 *
153B 75 02 88 7131 BFS040 L BFSPTR(,@BR),@XR LOAD THE STACK POINTER
153E 5C 01 86 62 7132 MVC BFSCEN(,@BR),BFSUME(BFSCEN,@BR) SET CURR ENTRY TO 'NEG'
1542 F2 87 72 7133 J BFS140 GO STACK THE CURYENT ENTRY
7134 *
7135 * GET THE NEXT SOURCE TEXT CHARACTER
7136 *
1545 C0 87 0867 7137 BFS050 B BAGETC LINK TO GET NEXT CHARACTER
7138 *
7139 * SAVE CURRENT CHARACTER FOR PROCESSING
7140 *
1549 6C 00 84 00 7141 BFS060 MVC BFSCHR(,@BR),B@CHAR(1,@XR) SAVE THE CURRENT CHARACTER
```

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7143 *****
7144 * ARITHMETIC EXPRESSION CHARACTER ANALYSIS ROUTINE
7145 *****
7146 *
7147 * TEST CURRENT CHARACTER FOR A NORMAL LETTER (A-Z)
7148 *
154D 7D E9 84 7149 BFS070 CLI BFSCHR(, @BR), B@LETZ IF CHAR EXCEEDS LETTER RANGE
1550 F2 84 06 7150 JH BFS080 * SKIP TO TEST FOR A DIGIT
1553 7D C1 84 7151 CLI BFSCHR(, @BR), B@LETA IF CHARACTER IS LETTER (A-Z)
1556 F2 02 C2 7152 JNL BFS320 * SKIP TO SYMBOL PROCESSING
7153 *
7154 * TEST CURRENT CHARACTER FOR A DIGIT (0-9)
7155 *
1559 7D F0 84 7156 BFS080 CLI BFSCHR(, @BR), B@DEC0 IF CHARACTER IS A DIGIT
155C C0 02 1661 7157 BNL BFS370 * SKIP TO CONSTANT PROCESSING
7158 *
7159 * SEARCH THE BRANCH TABLE FOR THE ENTRY CORRESPONDING TO THE CURRENT
7160 * CHARACTER, IF NO ENTRY IS FOUND, GO TERMINATE THE SCAN.
7161 *
1560 C2 02 180D 7162 BFS090 LA BFSTBL-BFSTEL, @XR INITIALIZE BRANCH TABLE INDEX
7163 *
1564 E2 02 05 7164 BFS100 LA BFSTEL(, @XR), @XR INCREMENT BRANCH TABLE INDEX
1567 74 02 83 7165 ST BFSTMP(, @BR), @XR SET UP INDEX FOR COMPARISON
156A 5D 01 83 5E 7166 CLC BFSTMP(, @BR), BFSTND(@CADDR, @BR) IF NO MORE TABLE ENTRIES
156E C0 02 1793 7167 BNL BFS710 * GO TERMINATE THE SCAN
1572 6D 00 84 00 7168 CLC BFSCHR(, @BR), BFSTCR(1, @XR) IF CHAR NOT EQUAL TO TABLE
1576 D0 01 39 7169 BNE BFS100(, @BR) * ENTRY, GO TRY NEXT ENTRY
7170 *
7171 * USING THE INFORMATION FROM THE SELECTED BRANCH TABLE ENTRY,
7172 * GO PROCESS THE CURRENT CHARACTER
7173 *
1579 6C 01 5C 02 7174 BFS110 MVC BFS120+@OP1(, @BR), BFSTAD(@CADDR, @XR) SET UP BRANCH INST
157D 6C 01 86 04 7175 MVC BFSCEN(, @BR), BFSTPO(BFSCSEL, @XR) SET CURR OP AND PRIORITY
1581 75 02 88 7176 L BFSPTR(, @BR), @XR LOAD THE STACK POINTER
1584 C0 87 0000 7177 BFS120 B *- * BRANCH TO APPROPRIATE ROUTINE

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7179 *****
7180 * BFSCAN PROGRAM CONSTANTS
7181 *****
7182 *

1588 1853 1589 7183 BFSTND DC AL(@CADDR)(BFSTBL+BFSTNE*BFSTEL) ADDR OF BRANCH TABLE END
7184 *

158A FFFE 158B 7185 BFSSDC DC AL(@REGL)(-BFSSEL) STACK INDEXING DECREMENT
7186 *

158C 10 158C 7187 BFSNEG DC AL1(B@CNEG) 'NEGATE' PSEUDO OPCODE
158D 06 158D 7188 BFSUMP DC AL1(BFSPUM) UNARY MINUS PRIORITY
158D 7189 BFSUME EQU *-1 UNARY MINUS ENTRY

7191 *****
7192 * PSEUDO MACHINE CODE SEQUENCES AND STORAGE PARAMETERS
7193 *****
7194 *

158E 158E 7195 BFSPMC DS CL(B@LCOP) 'STF' OR 'FN0' OPCODE AREA
158F 1590 7196 BFSPMO DS CL(B@LCVA) 'STF' OR 'FN0' OPERAND AREA
1591 158E 1592 7197 DC AL(@CADDR)(BFSPMC) 'STF' OR 'FN0' INST CORE ADDR
1593 02 1593 7198 BFSPMP DC AL1(B@LCOP+B@LCVA-1) 'STF' OR 'FN0' INST LENGTH CODE
7199 *

1594 18 1594 7200 BFSMFC DC AL(B@LCOP)(B@CMF1) '1-ARRAY MAT FUNC' OPCODE
1595 1596 7201 BFSMFO DS CL(B@LCVA) '1-ARRAY MAT FUNC' OPERAND
7202 *

1597 20 1597 7203 BFSSFC DC AL(B@LCOP)(B@CSTF) 'STACK FLOATING VALUE' OPCODE
1598 1599 7204 BFSSFO DS CL(B@LCVA) 'STACK FLOATING VALUE' OPERAND
7205 *

159A 1594 159B 7206 DC AL(@CADDR)(BFSMFC) 'MF1' / 'STF' SEQUENCE CADDR
159C 05 159C 7207 BFSMSP DC AL1(B@LMF1+B@LSTF-1) 'MF1' / 'STF' SEQ LENGTH CODE

7209 *****
7210 * BFSCAN PROGRAM SWITCH AREAS
7211 *****
7212 *

159D 159D 7213 BFSASW DS CL1 AVAILABLE ADDRESS SWITCH
159D 7214 ORG BFSASW SET AVAILABLE ADDRESS
159D 00 159D 7215 DC XL1'00' SWITCH INITIALLY TO OFF
0001 7216 BFSAMK EQU X'01' AVAILABLE ADDR SWITCH MASK
7217 *

159E 159E 7218 BFSKSW DS CL1 EXPRESSION KEYWORD SWITCH
159E 7219 ORG BFSKSW SET EXPRESSION KEYWORD
159E 00 159E 7220 DC XL1'00' * SWITCH INITIALLY OFF
0001 7221 BFSKMK EQU X'01' EXPRESSION KEYWORD SWITCH MASK

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7223 *****
7224 * BFSCAN WORK AREA - PRECISION DEPENDENT
7225 *****
7226 *

159F 15A0 7227 BFSAIW DS CL (@VADDR) VIRTUAL ADDRESS OF &WRK
159F 7228 ORG *-@VADDR INITIALIZE VIRTUAL ADDRESS
159F F5E5 15A0 7229 DC AL (@VADDR) (B@VMSB) * FOR STANDARD PRECISION
15A0 7230 ORG *-1 * IN FIRST PAGE ALLOCATED
15A0 31 15A0 7231 DC AL1 (B@PROD+B@LCRV-1*B@LISP) * FOR PROGRAM VARIABLES 1-4
7232 *

15A1 15A2 7233 BFSAME DS CL (@VADDR) VIRTUAL ADDRESS OF -&E
15A1 7234 ORG *-@VADDR INITIALIZE VIRTUAL ADDRESS
15A1 F5E5 15A2 7235 DC AL (@VADDR) (B@VMSB) * FOR STANDARD PRECISION
15A2 7236 ORG *-1 * IN FIRST PAGE ALLOCATED
15A2 2C 15A2 7237 DC AL1 (B@PROD+B@LCRV-2*B@LISP) * FOR PROGRAM VARIABLES 1-4
7238 *

15A3 15A4 7239 BFSAMP DS CL (@VADDR) VIRTUAL ADDRESS OF -&PI
15A3 7240 ORG *-@VADDR INITIALIZE VIRTUAL ADDRESS
15A3 F5E5 15A4 7241 DC AL (@VADDR) (B@VMSB) * FOR STANDARD PRECISION
15A4 7242 ORG *-1 * IN FIRST PAGE ALLOCATED
15A4 27 15A4 7243 DC AL1 (B@PROD+B@LCRV-3*B@LISP) * FOR PROGRAM VARIABLES 1-4
7244 *

15A5 15A6 7245 BFSAMS DS CL (@VADDR) VIRTUAL ADDRESS OF -&SQR2
15A5 7246 ORG *-@VADDR INITIALIZE VIRTUAL ADDRESS
15A5 F5E5 15A6 7247 DC AL (@VADDR) (B@VMSB) * FOR STANDARD PRECISION
15A6 7248 ORG *-1 * IN FIRST PAGE ALLOCATED
15A6 22 15A6 7249 DC AL1 (B@PROD+B@LCRV-4*B@LISP) * FOR PROGRAM VARIABLES 1-4
7250 *

15A7 15A8 7251 BFSAIE DS CL (@VADDR) VIRTUAL ADDRESS OF &E
15A7 7252 ORG *-@VADDR INITIALIZE VIRTUAL ADDRESS
15A7 F5E5 15A8 7253 DC AL (@VADDR) (B@VMSB) * FOR STANDARD PRECISION
15A8 7254 ORG *-1 * IN FIRST PAGE ALLOCATED
15A8 1D 15A8 7255 DC AL1 (B@PROD+B@LCRV-5*B@LISP) * FOR PROGRAM VARIABLES 1-4
7256 *

15A9 15AA 7257 BFSAIP DS CL (@VADDR) VIRTUAL ADDRESS OF &PI
15A9 7258 ORG *-@VADDR INITIALIZE VIRTUAL ADDRESS
15A9 F5E5 15AA 7259 DC AL (@VADDR) (B@VMSB) * FOR STANDARD PRECISION
15AA 7260 ORG *-1 * IN FIRST PAGE ALLOCATED
15AA 18 15AA 7261 DC AL1 (B@PROD+B@LCRV-6*B@LISP) * FOR PROGRAM VARIABLES 1-4
7262 *

15AB 15AC 7263 BFSAIS DS CL (@VADDR) VIRTUAL ADDRESS OF &SQR2
15AB 7264 ORG *-@VADDR INITIALIZE VIRTUAL ADDRESS
15AB F5E5 15AC 7265 DC AL (@VADDR) (B@VMSB) * FOR STANDARD PRECISION
15AC 7266 ORG *-1 * IN FIRST PAGE ALLOCATED
15AC 13 15AC 7267 DC AL1 (B@PROD+B@LCRV-7*B@LISP) * FOR PROGRAM VARIABLES 1-4
7268 *

15AC 7269 BFSPWA EQU *-1 PRECISION AREA CORE ADDRESS

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/07/20 PAGE 121
		7271		*****		
		7272		* BFSCAN WORK AREA - PRECISION INDEPENDENT		
		7273		*****		
		7274		*		
15AD		1590	7275	BFSBKT EQU	BFSPMO	OPERAND ADDRESS BUCKET
15AF		15AE	7276	BFSTMP DS	CL(@REGL)	TEMPRARY REGISTER HOLD AREA
		15AF	7277	BFSCHR DS	CL1	CURRENT CHARACTER SAVE AREA
			7278	*		
15B0		15B0	7279	BFSCOP DS	CL1	CURRENT OPERATOR
15B1		15B1	7280	BFSCPY DS	CL1	CURRENT PRIORITY
		15B1	7281	BFSCEN EQU	*-1	CURRENT ENTRY ADDRESS
		0002	7282	BFSCEL EQU	2	CURRENT ENTRY LENGTH
			7283	*		
15B2		15B3	7284	BFSPTR DS	CL(@CADDR)	STACK POINTER
15B2			7285	ORG	*-@CADDR	INITIALIZE POINTER TO
15B2 17A8		15B3	7286	DC	AL(@CADDR)(BFSSTK)	* REFERENCE BOTTOM OF STACK

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		7288		*****	
		7289		* GENERAL STACK OPERATION PROCESSING ROUTINE	
		7290		*****	
		7291		*	
		7292		* POP THE STACK	
		7293		*	
15B4	D0 87 9F	7294	BFS130 B	BFS160(,@BR) LINK TO POP THE STACK	
		7295		*	
		7296		* STACK THE CURRENT ENTRY	
		7297		*	
15B7	E2 02 02	7298	BFS140 LA	BFSSEL(,@XR),@XR INCREMENT THE STACK POINTER	
15BA	9C 01 01 86	7299		MVC BFSEN(,@XR),BFSCEN(BFSSEL,@BR) STACK THE CURRENT ENTRY	
15BE	74 02 88	7300		ST BFSPTR(,@BR),@XR SAVE THE STACK POINTER	
		7301		*	
		7302		* IF THE ENTRY JUST STACKED WAS A LEFT PARENTHESIS, GO TEST FOR A	
		7303		* UNARY PLUS OR MINUS - OTHERWISE, GO PROCESS THE NEXT CHARACTER	
		7304		*	
15C1	7D 02 86	7305	BFS150 CLI	BFSCPY(,@BR),BFSPLP IF ENTRY NOT A LEFT PARENTHESIS	
15C4	D0 01 1A	7306		BNE BFS050(,@BR) * GO PROCESS NEXT CHARACTER	
15C7	D0 87 00	7307		B BFS020(,@BR) * ELSE GO TEST FOR UNARY OPTR	

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7309 *****
7310 * STACK POPPER ROUTINE
7311 *****
7312 *
7313 * STACK POPPER ENTRY - ESTABLISH THE RETURN ADDRESS
7314 *
15CA 74 08 EB 15CA 7315 BFS160 EQU * STACK POPPER ENTRY POINT
7316 ST BFS250+@OP1(,@BR),@ARR SET RETURN BRANCH ADDRESS
7317 *
7318 * TEST FOR AN AVAILABLE OPERAND ADDRESS
7319 *
15CD 78 01 72 7320 BFS170 TBN BFSASW(,@BR),BFSAMK IF NO ADDRESS IS AVAILABLE
15D0 F2 90 24 7321 JF BFS200 * GO POP THE STACK
7322 *
7323 * AN OPERAND ADDRESS IS AVAILABLE - TEST FOR A FUNCTION REFERENCE
7324 *
15D3 38 07 16E5 7325 BFS180 TBN BFSISW,BFSIMK IF NO INTRINSIC FUNCTION ADDR
15D7 F2 90 0E 7326 JF BFS186 * GO ESTABLISH AN 'STF' INST
7327 *
7328 * AVAILABLE ADDRESS IS DEFINED FOR AN INTRINSIC FUNCTION REFERENCE -
7329 * ESTABLISH A 'FUNCTION CALL' NO ARGUMENT. PSEUDO INSTRUCTION
7330 *
15DA 7C 12 63 7331 BFS182 MVI BFSPMC(,@BR),B@CFN0 SET 'FN0' PSEUDO INST OPCODE
7332 *
7333 * RESET FUNCTION REFERENCE SWITCHES AND BRANCH TO OUTPUT THE INST
7334 *
15DD 3B 07 16E5 7335 BFS184 SBF BFSISW,BFSIMK SET INTRINSIC FUNC SWITCH OFF
15E1 3B 07 16CC 7336 SBF BFSFSW,BFSFMK SET FUNC REFERENCE SWITCH OFF
15E5 F2 87 03 7337 J BFS188 GO OUTPUT THE 'FN0' INSTRUCTION
7338 *
7339 * AVAILABLE ADDRESS IMPLIES A NORMAL SCALAR REFERENCE - ESTABLISH A
7340 * 'STACK FLOATING VALUE' PSEUDO INSTRUCTION
7341 *
15E8 7C 20 63 7342 BFS186 MVI BFSPMC(,@BR),B@CSTF SET 'STF' PSEUDO INST OPCODE
7343 *
7344 * GENERATE THE ESTABLISHED VALUE STACKING PSEUDO INSTRUCTION - NOTE
7345 * THAT THE PSEUDO INSTRUCTION OPERAND FIELD IS EQUIVALENT TO THE
7346 * OPERAND ADDRESS BUCKET (BZBCKT) SO THAT NO OPERAND SETUP IS NEEDED
7347 *
15EB 1C 02 0A41 68 7348 BFS188 MVC BZPARP,BFSPMP(@CADDR+1,@BR) SET OUTPUT RTN PARAMETERS
15F0 C0 87 093A 7349 B BBPUTC LINK TO PUT THE INSTRUCTION
7350 *
7351 * INDICATE OPERAND ADDRESS NO LONGER AVAILABLE
7352 *
15F4 7B 01 72 7353 BFS190 SBF BFSASW(,@BR),BFSAMK SET AVAILABLE ADDR SWITCH OFF
7354 *
7355 * SET THE OUTPUT ROUTINE FOR ARITHMETIC PSEUDO INSTRUCTIONS
7356 *
15F7 3C 00 0A41 7357 BFS200 MVI BZPNBY,BFSARL SET 'PUT' RTN LENGTH PARAMETER
7358 *
7359 * TEST FOR CURRENT PRIORITY HIGHER THAN STACK PRIORITY
7360 *
15FB 6D 00 86 01 7361 BFS210 CLC BFSCPY(,@BR),BFSSPY(1,@XR) IF CURRENT PRIORITY GREATER
15FF F2 84 0E 7362 JH BFS240 * THAN STACK PRIORITY, GO EXIT
7363 *
7364 * OUTPUT THE STACKED ARITHMETIC PSEUDO INSTRUCTION

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ERR LOC		OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00		04/07/20	PAGE 124
				7365	*					
1602	34	02	0A40	7366	BFS220	ST BZPCAD,@XR			SET 'PUT' RTN CORE ADDR PARAM	
1606	C0	87	093A	7367		B BBPUTC			LINK TO PUT THE ARITH INST	
				7368	*					
				7369	*	DELETE THE STACK ENTRY AND CONTINUE PRIORITY TESTING				
				7370	*					
160A	76	02	60	7371	BFS230	A BFSSDC(,@BR),@XR			DECREMENT THE STACK POINTER	
160D	D0	87	D0	7372		B BFS210(,@BR)			GO TEST NEXT STACK ELEMENT	
				7373	*					
				7374	*	SAVE STACK POINTER AND EXIT STACK POPPING ROUTINE				
				7375	*					
1610	74	02	88	7376	BFS240	ST BFSPTR(,@BR),@XR			SAVE THE STACK POINTER	
1613	C0	87	0000	7377	BFS250	B *-*			RETURN TO BFSCAN MAINLINE	

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/07/20 PAGE 125
				7379		*****		
				7380		* LETTER CHARACTER PROCESSING ROUTINE		
				7381		*****		
				7382		*		
				7383		* PROCESS THE SYMBOL		
				7384		*		
1617	35	02	0878	7385	BFS310	L	BZGPTR,@XR	LOAD TEXT CHARACTER POINTER
				7386		*		
161B	C0	87	0DBC	7387	BFS320	B	BDSYMB	LINK TO GET A VIRTUAL ADDRESS
				7388		*		
				7389		* TEST FOR PRESENCE OF A CHARACTER REFERENCE		
				7390		*		
161F	38	01	0E42	7391	BFS330	TBN	BZCRSW,BZCRMK	IF CHARACTER SYMBOL NOT FOUND
1623	F2	90	08	7392		JF	BFS334	* SKIP TO CONTINUE THE SCAN
				7393		*		
				7394		* INDICATE A CHARACTER REFERENCE AND EXIT THE SCAN ROUTINE		
				7395		*		
1626	3A	07	14BC	7396	BFS332	SBN	BZCSSW,BZCSMK	SET CHARACTER SCAN SWITCH ON
162A	C0	87	17A0	7397		B	BFS730	GO EXIT THE SCAN ROUTINE
				7398		*		
				7399		* TEST FOR PRESENCE OF AN ARRAY PROCESSING FUNCTION		
				7400		*		
162E	38	07	0DDE	7401	BFS334	TBN	BZMRSW,BZMRMK	IF AN ARRAY FUNCTION NOT FOUND
1632	F2	90	1B	7402		JF	BFS340	* SKIP TO CONTINUE THE SCAN
				7403		*		
				7404		* AN ARRAY PROCESSING FUNCTION IF INDICATED - ESTABLISH THE REQUIRED		
				7405		* PSEUDO INSTRUCTIONS AND GENERATE AN APPROPRIATE SEQUENCE IN YM		
				7406		*		
1635	5C	01	6B 65	7407	BFS336	MVC	BFSMFO(,@BR),BFSBKT(@VADDR,@BR)	SET 'MF1' INST OPERAND
1639	5C	01	6E 75	7408		MVC	BFSSFO(,@BR),BFSAIW(@VADDR,@BR)	SET 'STF' INST OPERAND
163D	C0	87	18F3	7409		B	BMATXR	LINK TO PROCESS ARRAY SYMBOL
1641	7B	01	72	7410		SBF	BFSASW(,@BR),BFSAMK	SET AVAILABLE ADDR SWITCH OFF
1644	1C	02	0A41 71	7411		MVC	BZPARP,BFSMSP(@CADDR+1,@BR)	SET 'MF1'/'STF' OUTPUT PARMS
1649	C0	87	093A	7412		B	BBPUTC	LINK TO PUT 'MF1'/'STF' INSTS
164D	D0	87	1A	7413		B	BFS050(,@BR)	GO PROCESS CHAR FOLLOWING FUNC
				7414		*		
				7415		* TEST FOR ENCOUNTERED KEYWORD ('T0', 'STEP', 'THEN'. OR 'GOTO')		
				7416		*		
1650	78	01	73	7417	BFS340	TBN	BFSKSW(,@BR),BFSKMK	IF KEYWORD WAS NOT FOUND
1653	D0	90	1E	7418		BF	BFS060(,@BR)	* GO PROCESS NEXT CHARACTER
				7419		*		
				7420		* TERMINATE SCAN ON ENCOUNTERED KEYWORD		
				7421		*		
1656	7B	01	73	7422	BFS350	SBF	BFSKSW(,@BR),BFSKMK	SET EXPRESSION KEYWORD SW OFF
1659	C0	87	1793	7423		B	BFS710	GO TERMINATE THE SCAN

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				7425	*****		
				7426	* CONSTANT PROCESSING ROUTINE		
				7427	*****		
				7428	*		
				7429	* PROCESS CONSTANT AND DETERMINE ITS VIRTUAL ADDRESS		
				7430	*		
165D	35	02	0878	7431	BFS360 L	BZGPTR,@XR	LOAD TEXT CHARACTER POINTER
1661	C0	87	0A46	7432	BFS370 B	BCFCON	LINK TO GET VIRTUAL ADDRESS
1665	7A	01	72	7433		SBN BFSASW(,@BR),BFSAMK	SET AVAILABLE ADDR SWITCH ON
1668	D0	87	1E	7434		B BFS060(,@BR)	GO PROCESS NEXT CHARACTER

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		7436		*****	
		7437		* DOUBLE MULTIPLIER (EXPONENTIATION) PROCESSING ROUTINE	
		7438		*****	
		7439		*	
		7440		* GET THE NEXT SOURCE TEXT CHARACTER	
		7441		*	
166B	C0 87 0867	7442	BFS380 B	BAGETC LINK TO GET NEXT CHARACTER	
		7443		*	
		7444		* TEST FOR DOUBLE MULTIPLIER OPERATOR	
		7445		*	
166F	BD 5C 00	7446	BFS390 CLI	B@CHAR(, @XR), B@MULT IF EXPONENTIATION INDICATED	
1672	F2 81 07	7447		JE BFS400 * GO SET POWER OP AND PRIORITY	
1675	3C 00 0873	7448		MVI BZNUMC, B@GETS * ELSE DISABLE THE 'GET' RTN	
1679	F2 87 05	7449		J BFS405 * AND PROCESS MULTIPLICATION	
		7450		*	
		7451		* SET UP EXPONENTIATION PROCESSING	
		7452		*	
167C	4C 01 86 182A	7453	BFS400 MVC	BFSCEN(, @BR), BFSPWR(BFSCEL) SET POWER OP AND PRIORITY	
		7454		*	* FOR EXPONENTIATION
		7455		*	
		7456		* BRANCH TO STACK OPERATION PROCESSING ROUTINE	
		7457		*	
1681	75 02 88	7458	BFS405 L	BFSPTR(, @BR), @XR LOAD THE STACK POINTER	
1684	D0 87 89	7459		B BFS130(, @BR) GO PROCESS THE OPERATOR	

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/07/20 PAGE 128
				7461		*****		
				7462	*	INTERNAL CONSTANT OR VARIABLE PROCESSING ROUTINE		
				7463		*****		
				7464	*			
				7465	*	INDICATE AN AVAILABLE ADDRESS AND GET NEXT CHARACTER FOR TESTING		
				7466	*			
1687	7A	01	72	7467	BFS410	SBN	BFSASW(,@BR),BFSAMK	SET AVAILABLE ADDR SWITCH ON
168A	C0	87	0867	7468		B	BAGETC	LINK TO GET NEXT CHARACTER
				7469	*			
				7470	*	TEST FOR INTERNAL CONSTANT &E		
				7471	*			
168E	BD	C5	00	7472	BFS420	CLI	B@CHAR(,@XR),B@CIEX	TEST FOR &E
1691	F2	01	0B	7473		JNE	BFS440	BRANCH IF NOT &E
				7474	*			
				7475	*	PROCESS INTERNAL CONSTANT &E		
				7476	*			
1694	5C	01	65 7D	7477	BFS430	MVC	BFSBKT(,@BR),BFSAIE(@VADDR,@BR)	MOVE ADDR OF &E TO BKT
1698	3C	01	0873	7478		MVI	BZNUMC,BFSLIE	SET 'GET' ROUTINE TO SKIP GE
169C	D0	87	1A	7479		B	BFS050(,@BR)	GO PROCESS CHAR FOLLOWING &E
				7480	*			
				7481	*	TEST FOR INTERNAL CONSTANT &PI		
				7482	*			
169F	BD	D7	00	7483	BFS440	CLI	B@CHAR(,@XR),B@CIPI	TEST FOR &PI
16A2	F2	01	0B	7484		JNE	BFS460	BRANCH IF NOT &PI
				7485	*			
				7486	*	PROCESS INTERNAL CONSTANT &PI		
				7487	*			
16A5	5C	01	65 7F	7488	BFS450	MVC	BFSBKT(,@BR),BFSAIP(@VADDR,@BR)	MOVE ADDR OF &PI TO BKT
16A9	3C	02	0873	7489		MVI	BZNUMC,BFSLIP	SET 'GET' ROUTINE TO SKIP &PI
16AD	D0	87	1A	7490		B	BFS050(,@BR)	GO PROCESS CHAR FOLLOWING &PI
				7491	*			
				7492	*	ASSUME INTERNAL CONSTANT &SQR2 AND PROCESS IT		
				7493	*			
16B0	5C	01	65 81	7494	BFS460	MVC	BFSBKT(,@BR),BFSAIS(@VADDR,@BR)	MOVE ADDR OF &SQR2 TO BKT
16B4	3C	04	0873	7495		MVI	BZNUMC,BFSLIS	SET 'GET' ROUTINE TO SKIP &SQR2
16B8	D0	87	1A	7496		B	BFS050(,@BR)	GO PROCESS CHAR FOLLOWING &SQR2

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/07/20 PAGE 129
					7498	*****		
					7499	* LEFT PARENTHESIS PROCESSING ROUTINE		
					7500	*****		
					7501	*		
					7502	* TEST FOR A SIMPLE LEFT PARENTHESIS - A SIMPLE LEFT PARENTHESIS IS		
					7503	* IMPLIED IF THERE IS NO AVAILABLE OPERAND		
					7504	*		
16BB	78	01	72		7505	BFS470 TBN	BFSASW(,@BR),BFSAMK	IF NO ADDRESS IS AVAILABLE
16BE	D0	90	8C		7506	BF	BFS140(,@BR)	* GO STACK THE LEFT PARENTHESIS
					7507	*		
					7508	* STACK FUNCTION OR ARRAY ADDRESS AND INDICATE NO LONGER AVAILABLE		
					7509	*		
16C1	E2	02	02		7510	BFS480 LA	BFSSEL(,@XR),@XR	INCREMENT THE STACK POINTER
16C4	9C	01	01 65		7511	MVC	BFSSEN(,@XR),BFSBKT(BFSSEL,@BR)	STACK THE ADDRESS
16C8	7B	01	72		7512	SBF	BFSASW(,@BR),BFSAMK	SET AVAILABLE ADDR SWITCH OFF
					7513	*		
					7514	* TEST FOR PRESENCE OF A FUNCTION ADDRESS		
					7515	*		
16CB	F2	00	12		7516	BFS490 JC	BFS510,*-*	IF FUNCTION REFERENCE SWITCH
16CC					7517	ORG	BFS490+@Q	* IS ON, GO PROCESS FUNCTION -
16CC	80			16CC	7518	DC	AL1(@NOP)	* INITIALIZE FUNCTION REFERENCE
16CE					7519	ORG	BFS490+@INST3	* SWITCH TO 'OFF' CONDITION
					7520	*		
					7521	* AN ARRAY REFERENCE IS INDICATED - REPLACE THE ARRAY ADDRESS IN THE		
					7522	* STACK WITH THE ARRAY SYMBOL TABLE ATTRIBUTE CORE ADDRESS AND MAKE		
					7523	* THE ARRAY ADDRESS THE NEXT STACK ENTRY		
					7524	*		
16CE	AC	01	03 01		7525	BFS500 MVC	BFSEN+BFSEL(,@XR),BFSEN(BFSEL,@XR)	STACK ARRAY ADDR
16D2	8C	01	01 0E53		7526	MVC	BFSEN(,@XR),BZFACA(BFSEL)	MOVE ATTRIBUTE ADDR TO STACK
16D7	E2	02	02		7527	LA	BFSEL(,@XR),@XR	INCREMENT THE STACK POINTER
					7528	*		
					7529	* MAKE CURRENT OPERATOR 'STACK VECTOR VALUE' AND GO STACK IT		
					7530	*		
16DA	7C	22	85		7531	BFS505 MVI	BFSCOP(,@BR),B@CSF1	SET CURRENT OPERATOR TO 'SF1'
16DD	D0	87	8C		7532	B	BFS140(,@BR)	GO STACK THE 'SF1' ENTRY
					7533	*		
					7534	* BEGIN FUNCTION REFERENCE PROCESSING		
					7535	*		
16E0	3B	07	16CC		7536	BFS510 SBF	BFSFSW,BFSFMK	SET FUNCTION REFERENCE SW OFF
					7537	*		
					7538	* DETERMINE TYPE OF FUNCTION		
					7539	*		
16E4	F2	00	06		7540	BFS520 JC	BFS540,*-*	IF INTRINSIC FUNCTION SWITCH
16E5					7541	ORG	BFS520+@Q	* IS ON, GU PROCESS INTRINSIC
16E5	80			16E5	7542	DC	AL1(@NOP)	* FUNCTION - INITLZ INTRINSIC
16E7					7543	ORG	BFS520+@INST3	* FUNC SW TO 'OFF' CONDITION
					7544	*		
					7545	* PROCESS THE USER DEFINED FUNCTION		
					7546	*		
16E7	7C	16	85		7547	BFS530 MVI	BFSCOP(,@BR),B@CFCI	SET CURRENT OPERATOR TO 'FCI'
16EA	D0	87	8C		7548	B	BFS140(,@BR)	GO STACK THE 'FCI' ENTRY
					7549	*		
					7550	* PROCESS THE INTRINSIC FUNCTION - ASSUME SINGLE ARGUMENT FORM		
					7551	*		
16ED	3B	07	16E5		7552	BFS540 SBF	BFSISW,BFSIMK	SET INTRINSIC FUNCTION SW OFF
16F1	7C	14	85		7553	MVI	BFSCOP(,@BR),B@CFN1	SET CURRENT OPERATOR TO 'FN1'

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		7556		*****	
		7557		* COMMA PROCESSING ROUTINE	
		7558		*****	
		7559		*	
		7560		* POP THE STACK	
		7561		*	
16F7	D0 87 9F	7562	BFS550 B	BFS160(,@BR) LINK TO POP THE STACK	
		7563		*	
		7564		* GO TERMINATE THE SCAN IF NO LEFT PARENTHESIS WAS FOUND EM THE STACK	
		7565		*	
16FA	BD 02 01	7566	BFS560 CLI	BFSSPY(,@XR),BFSPLP TEST STACK FOR LEFT PAREN	
16FD	F2 01 93	7567	JNE	BFS710 BRANCH IF NOT A LEFT PAREN	
		7568		*	
		7569		* CHANGE THE OPERATOR IN THE TOP OF THE STACK TO 'STACK MATRIX VALUE'	
		7570		*	
1700	BC 24 00	7571	BFS570 MVI	BFSSOP(,@XR),B@CSF2 CHANGE OPCODE TO 'SF2'	
1703	D0 87 00	7572	B	BFS020(,@BR) GO TEST FOR UNARY OPERATOR	

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/07/20 PAGE 132
				7574		*****		
				7575	*	RIGHT PARENTHESIS PROCESSING ROUTINE		
				7576		*****		
				7577	*			
				7578	*	POP THE STACK		
				7579	*			
1706	D0	87	9F	7580	BFS580 B	BFS160(,@BR)	LINK TO POP THE STACK	
				7581	*			
				7582	*	GO TERMINATE THE SCAN IF NO LEFT PARENTHESIS WAS FOUND IN THE STACK		
				7583	*			
1709	BD	02	01	7584	BFS590 CLI	BFSSPY(,@XR),BFSPLP	TEST STACK FOR LEFT PARER	
170C	F2	01	84	7585	JNE	BFS710	BRANCH IF NOT A LEFT PARER	
				7586	*			
				7587	*	IF TOP OF STACK IS A SIMPLE LEFT PARENTHESIS, GO DELETE IT		
				7588	*			
170F	BD	FE	00	7589	BFS600 CLI	BFSSOP(,@XR),BFSCLP	TEST FOR A SIMPLE LEFT PAREN	
1712	F2	81	75	7590	JE	BFS700	BRANCH IF SIMPLE LEFT PAREN	
				7591	*			
				7592	*	SET UP THE FUNCTION OR ARRAY PSEUDO INSTRUCTION		
				7593	*			
1715	76	02	60	7594	BFS610 A	BFSSDC(,@BR),@XR	DECREMENT THE STACK POINTER	
1718	AC	01	04 01	7595	MVC	BFSSAD+BFSSSEL(,@XR),BFSSSEN(@VADDR,@XR)	APPEND ADDR TO OP	
171C	E2	02	02	7596	LA	BFSSSEL(,@XR),@XR	INCREMENT THE STACK POINTER	
				7597	*			
				7598	*	OUTPUT THE FUNCTION OR ARRAY PSEUDO INSTRUCTION		
				7599	*			
171F	34	02	0A40	7600	BFS620 ST	BZPCAD,@XR	SET 'PUT' RTN CORE ADDR PARAM	
1723	3C	02	0A41	7601	MVI	BZPNBY,BFSFAL	SET 'PUT' RTN INST LENGTH CODE	
1727	C0	87	093A	7602	B	BBPUTC	LINK TO PUT THE PSEUDO INST	
				7603	*			
				7604	*	TEST FOR INTRINSIC FUNCTION REFERENCE		
				7605	*			
172B	BD	14	00	7606	BFS630 CLI	BFSSOP(,@XR),B@CFN1	TEST STACK FOR 'TN1' OPERATOR	
172E	F2	81	56	7607	JE	BFS690	BRANCH IF 'TN1' OPERATOR	
				7608	*			
				7609	*	TEST FOR USER DEFINED FUNCTION REFERENCE		
				7610	*			
1731	BD	16	00	7611	BFS640 CLI	BFSSOP(,@XR),B@CFCI	TEST STACK FOR 'FCI' OPERATOR	
1734	F2	81	50	7612	JE	BFS690	BRANCH IF 'FCI' OPERATOR	
				7613	*			
				7614	*	ASSUME AN ARRAY REFERENCE - SET CURRENT ARRAY USAGE INDICATOR TO		
				7615	*	DEFINE A VECTOR OR MATRIX DEPENDING ON THE STACKED ARRAY OPCODE		
				7616	*			
1737	3C	80	1755	7617	BFS650 MVI	BFSUMK,B@D1MK	SET CURR ARRAY USE FOR VECTOR	
173B	BD	22	00	7618	CLI	BFSSOP(,@XR),B@CSF1	IF STACKED OPCODE IS FOR VECTOR	
173E	F2	81	04	7619	JE	BFS651	* GO ACCESS THE ARRAY ATTRIBUTE	
1741	3C	C0	1755	7620	MVI	BFSUMK,B@D2MK	SET CURR ARRAY USE FOR MATRIX	
				7621	*			
				7622	*	ACCESS THE ARRAY ATTRIBUTE CORE ADDRESS CONTAINED IN THE STACK JUST		
				7623	*	BEFORE THE ARRAY ENTRY ITSELF		
				7624	*			
1745	76	02	60	7625	BFS651 A	BFSSDC(,@BR),@XR	DECREMENT THE STACK POINTER	
1748	76	02	60	7626	A	BFSSDC(,@BR),@XR	DECREMENT THE STACK POINTER	
174B	B5	02	01	7627	L	BFSSSEN(,@XR),@XR	LOAD THE ARRAY ATTRIBUTE CADDR	
				7628	*			
				7629	*	TEST FOR PREVIOUS DEFINITION OF THE ARRAY		

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			7630 *			
174E	B8	80	00	7631	BFS652 TBN	B@AFLG(, @XR), B@DAMK IF ARRAY IS ALREADY DEFINED
1751	F2	10	06	7632	JT	BFS660 * GO CHECK FOR USAGE ERROR
			7633 *			
			7634 *	UNDEFINED ARRAY - ESTABLISH DEFINITION ACCORLING TO CURRENT USAGE		
			7635 *			
1754	BA	00	00	7636	BFS654 SBN	B@AFLG(, @XR), *- * DEFINE ARRAY AS CURRENTLY USED
1757	F2	87	27	7637	J	BFS680 GO ADJUST THE TTACK POINTER
			7638 *			
			7639 *	BEGIN DEFINED ARRAY ERROR ANALYSIS - TEST ARRAY DEFINITION TO		
			7640 *	CHECK CONSISTENT USAGE		
			7641 *			
175A	B8	C0	00	7642	BFS660 TBN	B@AFLG(, @XR), B@D2MK IF ARRAY REFINED AS MATRIX
175D	F2	10	0E	7643	JT	BFS670 * GO CHECK FOR MATRIX USAGE
			7644 *			
			7645 *	ARRAY DEFINED AS VECTOR - TEST FOR VECTOR CURRENT USAGE		
			7646 *			
1760	3D	80	1755	7647	BFS662 CLI	BFSUMK, B@D1MK IF CURRENT USAGE IS VELTOR
1764	F2	81	1A	7648	JE	BFS680 * GO ADJUST THE STACK POINTER
			7649 *			
			7650 *	ESTABLISH 'VECTOR REFERENCED AS MATRIX' ERROR CODE		
			7651 *			
1767	3C	A9	0A39	7652	BFS664 MVI	BZPERC, @@E603 SET THE ERROR MESSAGE CODE
176B	F2	87	0B	7653	J	BFS674 GO GENERATE THE ERROR CODE
			7654 *			
			7655 *	ARRAY DEFINED AS MATRIX - TEST FOR MATRIX CURRENT USAGE		
			7656 *			
176E	3D	C0	1755	7657	BFS670 CLI	BFSUMK, B@D2MK IF CURRENT USAGE IS MATRIX
1772	F2	81	0C	7658	JE	BFS680 * GO ADJUST THE STACK POINTER
			7659 *			
			7660 *	ESTABLISH 'MATRIX REFERENCED AS VECTOR' ERROR CODE		
			7661 *			
1775	3C	A8	0A39	7662	BFS672 MVI	BZPERC, @@E602 SET THE ERROR MESSAGE CODE
			7663 *			
			7664 *	GENERATE THE INCONSISTENT ARRAY USAGE ERROR IN VIRTUAL MEMORY		
			7665 *			
1779	3C	33	094E	7666	BFS674 MVI	BZPFNC, BZPFAE SET 'PUT' ROUTINE FOR ERRORS
177D	C0	87	093A	7667	B	BBPUTC LINK TO OUTPUT THE ERROR CODE
			7668 *			
			7669 *	RESTORE THE STACK POINTER FOR ENTRY DELETION		
			7670 *			
1781	75	02	88	7671	BFS680 L	BFSPTR(, @BR), @XR LOAD THE STACK POINTER
1784	76	02	60	7672	A	BFSSDC(, @BR), @XR DECREMENT THE STACK POINTER
			7673 *			
			7674 *	DELETE THE TOP ENTRY FROM THE STACK		
			7675 *			
1787	76	02	60	7676	BFS690 A	BFSSDC(, @BR), @XR DECREMENT THE STACK POINTER
			7677 *			
178A	76	02	60	7678	BFS700 A	BFSSDC(, @BR), @XR DECREMENT THE STACK POINTER
178D	74	02	88	7679	ST	BFSPTR(, @BR), @XR SAVE THE STACK POINTER
1790	D0	87	1A	7680	B	BFS050(, @BR) GO PROCESS THE NEXT CHARACTER

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				7682		*****				
				7683		* SCAN	TERMINATION ROUTINE			
				7684		*****				
				7685		*				
				7686		* EMPTY	THE STACK			
				7687		*				
1793	75	02	88	7688	BFS710	L	BFSPTR(,@BR),@XR			LOAD THE STACK POINTER
1796	7C	01	86	7689		MVI	BFSCPY(,@BR),BFSPRB			SET PRIORITY TO DUMP STACK
1799	D0	87	9F	7690		B	BFS160(,@BR)			LINK TO UNLOAD THE STACK
				7691		*				
				7692		* RESTORE	REGISTERS AND RETURN FROM BFSCAN			
				7693		*				
179C	35	02	0878	7694	BFS720	L	BZGPTR,@XR			LOAD TEXT CHARACTER POINTER
17A0	C2	01	0000	7695	BFS730	LA	*-*,@BR			RESTORE CALLING PROGRAM BASE
17A4	C0	87	0000	7696	BFS740	B	*-*			RETURN FROM BFSCAN

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			7698	*****		
			7699	* COMPILE TIME STACK		
			7700	*****		
			7701	*		
		17A8	7702	BFSSTK EQU	*	ADDR OF COMPILE TIME STACK
		0002	7703	BFSSEL EQU	2	STACK ENTRY LENGTH
		0035	7704	BFSSNE EQU	53	NO. OF STACK ENTRIES
17A8	0000	17A9	7705	DC	AL(BFSSEL)(BFSPLB)	MARKS BOTTOM OF STACK
17AA		1811	7706	DS	CL(BFSSNE*BFSSEL-BFSSEL)	COMPILE TIME STACK AREA

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7708 *****
7709 * SCAN ROUTINE BRANCH TABLE
7710 *****
7711 *
1812 7712 BFSTBL EQU * ADDRESS OF SCAN BRANCH TABLE
7713 *
1812 4E 1812 7714 DC AL1(B@PLUS) PLUS SIGN
1813 15B4 1814 7715 DC AL(@CADDR)(BFS130) ADDRESS OF STACKING ROUTINE
1815 06 1815 7716 DC AL1(B@CADD) ADD OPERATOR
1816 04 1816 7717 DC AL1(BFSPAD) ADD PRIORITY
7718 *
1817 60 1817 7719 DC AL1(B@MINS) MINUS SIGN
1818 15B4 1819 7720 DC AL(@CADDR)(BFS130) ADDRESS OF STACKING ROUTINE
181A 08 181A 7721 DC AL1(B@CSUB) SUBTRACT OPERATOR
181B 04 181B 7722 DC AL1(BFSPSB) SUBTRACT PRIORITY
7723 *
181C 5C 181C 7724 DC AL1(B@MULT) MULTIPLICATION SIGN
181D 166B 181E 7725 DC AL(@CADDR)(BFS380) ADDRESS OF MULT TEST ROUTINE
181F 0A 181F 7726 DC AL1(B@CMPY) MULTIPLY OPERATOR
1820 05 1820 7727 DC AL1(BFSPMY) MULTIPLY PRIORITY
7728 *
1821 61 1821 7729 DC AL1(B@DIVD) DIVISION SIGN
1822 15B4 1823 7730 DC AL(@CADDR)(BFS130) ADDRESS OF STACKING ROUTINE
1824 0C 1824 7731 DC AL1(B@CDIV) DIVISION OPERATOR
1825 05 1825 7732 DC AL1(BFSPDV) DIVISION PRIORITY
7733 *
1826 5A 1826 7734 DC AL1(B@POWR) POWER SIGN
1827 15B4 1828 7735 DC AL(@CADDR)(BFS130) ADDRESS OF STACKING ROUTINE
1829 0E 1829 7736 DC AL1(B@CPWR) POWER OPERATOR
182A 07 182A 7737 DC AL1(BFSPPW) POWER PRIORITY
7738 *
182A 7739 BFSPWR EQU *-1 ADDRESS OF POWER OP AND PRI
7740 *
182B 4D 182B 7741 DC AL1(B@LPAR) LEFT PARENTHESIS
182C 16BB 182D 7742 DC AL(@CADDR)(BFS470) ADDRESS OF LEFT PAREN ROUTINE
182E FE 182E 7743 DC AL1(BFSCLP) LEFT PARENTHESIS OPERATOR
182F 02 182F 7744 DC AL1(BFSPLP) LEFT PARENTHESIS PRIORITY
7745 *
1830 5D 1830 7746 DC AL1(B@RPAR) RIGHT PARENTHESIS
1831 1706 1832 7747 DC AL(@CADDR)(BFS580) ADDRESS OF RIGHT PAREN ROUTINE
1833 00 1833 7748 DC AL1(BFSFIL) FILL OPERATOR
1834 03 1834 7749 DC AL1(BFSRP) RIGHT PARENTHESIS PRIORITY
7750 *
1835 6B 1835 7751 DC AL1(B@CMMA) COMMA
1836 16F7 1837 7752 DC AL(@CADDR)(BFS550) ADDRESS OF COMMA ROUTINE
1838 00 1838 7753 DC AL1(BFSFIL) FILL OPERATOR
1839 03 1839 7754 DC AL1(BFSPCM) COMMA PRIORITY
7755 *
183A 4B 183A 7756 DC AL1(B@DPNT) DECIMAL POINT
183B 165D 183C 7757 DC AL(@CADDR)(BFS360) ADDRESS OF CONSTANT ROUTINE
183D 00 183D 7758 DC AL1(BFSFIL) FILL OPERATOR
183E 00 183E 7759 DC AL1(BFSFIL) FILL PRIORITY
7760 *
183F 50 183F 7761 DC AL1(B@ICON) INTERNAL CONSTANT DESIGNATOR
1840 1687 1841 7762 DC AL(@CADDR)(BFS410) ADDRESS OF INTERNAL CON RTN
1842 00 1842 7763 DC AL1(BFSFIL) FILL OPERATOR

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S/3 BASIC COMPILER ARITHMETIC EXPRESSION SCAN

ERR LOC		OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00		04/07/20	PAGE 137
1843	00		1843	7764		DC AL1(BFSFIL)			FILL PRIORITY	
				7765	*					
1844	5B		1844	7766		DC AL1(B@LET\$)			EXTRA LETTER - \$	
1845	1617		1846	7767		DC AL(@CADDR)(BFS310)			ADDRESS OF LETTER ROUTINE	
1847	00		1847	7768		DC AL1(BFSFIL)			FILL OPERATOR	
1848	00		1848	7769		DC AL1(BFSFIL)			FILL PRIORITY	
				7770	*					
1849	7B		1849	7771		DC AL1(B@LET#)			EXTRA LETTER - #	
184A	1617		184B	7772		DC AL(@CADDR)(BFS310)			ADDRESS OF LETTER ROUTINE	
184C	00		184C	7773		DC AL1(BFSFIL)			FILL OPERATOR	
184D	00		184D	7774		DC AL1(BFSFIL)			FILL PRIORITY	
				7775	*					
184E	7C		184E	7776		DC AL1(B@LET@)			EXTRA LETTER - @	
184F	1617		1850	7777		DC AL(@CADDR)(BFS310)			ADDRESS OF LETTER ROUTINE	
1851	00		1851	7778		DC AL1(BFSFIL)			FILL OPERATOR	
1852	00		1852	7779		DC AL1(BFSFIL)			FILL PRIORITY	

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7781 *****
7782 * BFSCAN PROGRAM SWITCH EQUATES
7783 *****
7784 *
16CC 7785 BFSFSW EQU   BFS490+@Q      FUNCTION REFERENCE SWITCH
0007 7786 BFSFMK EQU   @UCB-@NOP      FUNCTION REFERENCE SWITCH MASK
7787 *
16E5 7788 BFSISW EQU   BFS520+@Q      INTRINSIC FUNCTION SWITCH
0007 7789 BFSIMK EQU   @UCB-@NOP      INTRINSIC FUNCTION SWITCH MASK

7791 *****
7792 * BFSCAN PROGRAM EQUATES REFERENCING CONSTANTS
7793 *****
7794 *
7795 * BRANCH TABLE EQUATES
7796 *
0005 7797 BFSTEL EQU    5              BRANCH TABLE ENTRY SIZE
000D 7798 BFSTNE EQU   13             NO. OF BRANCH TABLE ENTRIES
0000 7799 BFSTCR EQU    0             TABLE ENTRY CHARACTER DISP
0002 7800 BFSTAD EQU    2             TABLE ENTRY ADDRESS DISP
0004 7801 BFSTPO EQU    4             TABLE ENTRY OP AND PRI DISP
7802 *
7803 * COMPILE TIME STACK EQUATES
7804 *
0000 7805 BFSSOP EQU    0             STACK ENTRY OPERATOR DISP
0001 7806 BFSSPY EQU    1             STACK ENTRY PRIORITY DISP
0001 7807 BFSSEN EQU    1             STACK ENTRY DISP
0002 7808 BFSSAD EQU    2             STACK :NTRY VIRTUAL AEON DISP
7809 *
7810 * OPERATOR PRIORITY EQUATES
7811 *
0007 7812 BFSPPW EQU    7             POWER (HIGHEST)
0006 7813 BFSPUM EQU    6             UNARY MINUS
0005 7814 BFSPMY EQU    5             MULTIPLY
0005 7815 BFSPDV EQU    5             DIVIDE
0004 7816 BFSPAD EQU    4             ADD
0004 7817 BFSPSB EQU    4             SUBTRACT
0003 7818 BFSPRP EQU    3             RIGHT PARENTHESIS
0003 7819 BFSPCM EQU    3             COMMA
0002 7820 BFSPLP EQU    2             LEFT PARENTHESIS
0001 7821 BFSPRB EQU    1             RIGHT EXPRESSION BRACKET
0000 7822 BFSPLB EQU    0             LEFT EXPR BRACKET (LOWEST)
7823 *
7824 * MISCELLANEQUS EQUATES
7825 *
00FE 7826 BFSCLP EQU   254            LEFT PAREN TEMPORARY OPCODE
0000 7827 BFSFIL EQU    0             FILL CHAR FOR TABLE ENTRIES
7828 *
0000 7829 BFSARL EQU    B@LCOP-1      ARITHMETIC INST LENGTH CODE
0002 7830 BFSFAL EQU    B@LCOP+B@LCVA-1  FUNC OR ARRAY INST LENGTH CODE
7831 *
0001 7832 BFSLIE EQU    B@LIEX-1      CODE TO SKIP &E
0002 7833 BFSLIP EQU    B@LIPI-1      CODE TO SKIP &PI
0004 7834 BFSLIS EQU    B@LIS2-1      CODE TO SKIP &SQR2
7835 *
1755 7836 BFSUMK EQU    BFS654+@Q     ARRAY REFERENCE USAGE MASK

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[illegible]

S/3 BASIC COMPILER LIST ADDRESS RTN

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 140
		7843		*****	
		7844	*	5703-XM1 COPYRIGHT IBM CORP. 1970	*
		7845	*	REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083	*
		7846	*		*
		7847		*****	
		7848	*	*STATUS	*
		7849	*	VERSION 1 MODIFICATION 0	*
		7850	*		*
		7851	*	*FUNCTION	*
		7852	*	* BLISTA GENERATES ADDRESS STACKING PSEUDO INSTRUCTIONS FOR THE	*
		7853	*	PROCESSING OF ASSIGNMENT LIST REFERENCES ASSOCIATED WITH BASIC	*
		7854	*	'LET', 'READ', 'INPUT', AND 'GET' STATEMENT TYPES.	*
		7855	*	* AN ASSIGNMENT LIST REFERENCE IS DEFINED AS AN ARITHMETIC OR	*
		7856	*	CHARACTER VARIABLE REFERENCE, AN ARITHMETIC ARRAY ELEMENT	*
		7857	*	REFERENCE, OR A CHARACTER ARRAY ELEMENT REFERENCE.	*
		7858	*	* ADDRESS STACKING INSTRUCTIONS ARE GENERATED IN VIRTUAL MEMORY	*
		7859	*	AS FOLLOWS	*
		7860	*	* ARITHMETIC VARIABLE - STACK-VIRTUAL-ADDRESS (STA).	*
		7861	*	* CHARACTER VARIABLE - STACK-VIRTUAL ADDRESS (STA).	*
		7862	*	* ARITHMETIC VECTOR ARRAY ELEMENT - STACK-VECTOR-ELEMENT-	*
		7863	*	ADDRESS (SA1), PRECEDED WITH EXPRESSION VALUE STACKING	*
		7864	*	INSTRUCTIONS FOR THE SUBSCRIPT.	*
		7865	*	* ARITHMETIC MATRIX ARRAY ELEMENT - STACK-MATRIX-ELEMENT-	*
		7866	*	ADDRESS (SA2), PRECEDED WITH EXPRESSION STACKING INSTRUCTIONS FOR EACH SUBSCRIPT.	*
		7867	*		*
		7868	*	* CHARACTER ARRAY ELEMENT - STACK-CHARACTER-ARRAY-ELEMENT-	*
		7869	*	ADDRESS (SE1), PRECEDED WITH EXPRESSION VALUE STACKING	*
		7870	*	INSTRUCTIONS FOR THE SUBSCRIPT.	*
		7871	*	* ARRAY REFERENCES NEED NOT HAVE BEEN PREVIOUSLY DEFINED, SUCH	*
		7872	*	REFERENCES BEING DEFINED DURING BLISTA EXECUTION. WHEN A PRE-	*
		7873	*	VIOUSLY DEFINED ARRAY IS REFERENCED, ANY INCONSISTENCY BETWEEN	*
		7874	*	PRIOR AND CURRENT DIMENSIONAL CHARACTERISTICS CAUSES AN ERROR	*
		7875	*	CONDITION.	*
		7876	*	* BLISTA IS INVOKED WITH REGISTER @XR CONTAINING THE CORE ADDRESS	*
		7877	*	OF THE LEADING CHARACTER IN THE REFERENCE TO BE PROCESSED.	*
		7878	*	CONTROL IS RETURNED TO THE CALLING PROGRAM WITH REGISTER @XR	*
		7879	*	CONTAINING THE CORE ADDRESS OF THE FIRST NON-BLANK CHARACTER	*
		7880	*	FOLLOWING THE PROCESSED REFERENCE.	*
		7881	*		*
		7882	*	*ENTRY POINTS	*
		7883	*	* THIS ROUTINE HAS A SINGLE ENTRY POINT - BLISTA - WHOSE FUNCTION	*
		7884	*	IS DEFINED ABOVE. CALLING SEQUENCE IS	*
		7885	*	B BLISTA	*
		7886	*	SUBJECT TO INPUT CONDITIONS DESCRIBED BELOW.	*
		7887	*	* ENTRY POINT BLISTA MAY ALSO BE SPECIFIED AS B\$LIST WHEN CALLED	*
		7888	*	FROM ONE OF THE DISK-RESIDENT STATEMENT PROCESSORS.	*
		7889	*		*
		7890	*	*INPUT	*
		7891	*	* REGISTER @XR - FOR THE TEXT CHARACTER POINTER REGISTER. THIS	*
		7892	*	IS NORMALLY EQUIVALENT TO THE CURRENT CONTENTS OF TEXT POINTER	*
		7893	*	BZGPTR, AND CONTAINS THE CORE ADDRESS OF THE LEADING CHARACTER	*
		7894	*	IN THE ASSIGNMENT LIST REFERENCE TO BE PROCESSED.	*
		7895	*	* COMPILER INEUT BUFFER - THIS CONTAINS SOURCE PROGRAM TEST	*
		7896	*	INCLUDING THE LIST REFERENCE TO BE PROCESSED.	*
		7897	*		*
		7898	*	*OUTPUT	*

S/3 BASIC COMPILER LIST ADDRESS RTN

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 141
		7899	*	* TEXT CHARACTER POINTER (REGISTER @XR AND BZGPTR) - THIS CON-	*
		7900	*	TAINS THE CORE ADDRESS OF THE FIRST NON-BLANK CHARACTER WHICH	*
		7901	*	FOLLOWS THE FINAL CHARACTER OF THE PROCESSED REFERENCE.	*
		7902	*	* BLITYP (EXTERNAL BILTYP, B\$LTYP) - 1 BYTE, FOR THE LIST REFER-	*
		7903	*	ENCE TYPE INDICATOR. THIS INDICATOR IS SET TO DEFINE 'OE TYPE	*
		7904	*	(ARITHMETIC OR CHARACTER) OF THE PROCESSED REFERENCE	*
		7905	*	* ARITHMETIC REFERENCE - BLITYP IS SET TO X'00'.	*
		7906	*	* CHARACTER REFERENCE - BLITYP IS SET TO X'01'.	*
		7907	*	* VIRTUAL MEMORY - PSEUDO INSTRUCTIONS ARE GENERATED TO EVALUATE	*
		7908	*	THE LIST REFERENCE VIRTUAL ADDRESS AND TO PLACE THIS ADDRESS	*
		7909	*	IN THE RUN-TIME STACK.	*
		7910	*	* CHARACTER ARRAY ATTRIBUTE FIELDS - WHENEVER A CHARACTER ARRAY	*
		7911	*	REFERENCE IS PROCESSED. THE ATTRIBUTE FIELD (COMPILE-TIME DOPE	*
		7912	*	VECTOR SEGMENT) FOR THAT ARRAY IS FLAGGED TO DEFINE ARRAY USAGE.	*
		7913	*	FOR THE FLAGGING PROCEDURE, BIT 0 IN THE FIRST BYTE OF THE	*
		7914	*	ATTRIBUTE FIELD IS SET ON.	*
		7915	*	* ARITHMETIC ARRAY ATTRIBUTE FIELDS - WHENEVER AN ARITHMETIC	*
		7916	*	ARRAY REFERENCE IS PROCESSED, THE ATTRIBUTE FIELD (COMPILE-TIME	*
		7917	*	DOPE VECTOR SEGMENT) FOR THAT ARRAY IS PROCESSED.	*
		7918	*	* FOR PREVIOUSLY UNDEFINED ARRAYS, THE ATTRIBUTE FIELD IS	*
		7919	*	FLAGGED TO DEFINE CURRENT ARRAY USAGE. FOR THE FLAGGING	*
		7920	*	PROCEDURE	*
		7921	*	* BIT 0 IN THE FIRST BYTE OF THE ATTRIBUTE FIELD IS SET	*
		7922	*	ON WHEN THE ARRAY IS SPECIFIED WITH 1 DIMENSION.	*
		7923	*	* BITS 0,1 IN THE FIRST BYTE OF THE ATTRIBUTE FIELD ARE	*
		7924	*	SET ON WHEN THE ARRAY IS SPECIFIED WITH 2 DIMENSIONS.	*
		7925	*	* FOR PREVIOUSLY DEFINED ARRAYS, THE ATTRIBUTE FIELD IS	*
		7926	*	CHECKED FOR CONSISTENT USAGE (SEE ERROR PROCEDURES).	*
		7927	*		*
		7928	*	*EXTERNAL REFERENCES	*
		7929	*	* BAGETC - ENTRY POINT FOR COMPILER SOURCE TEXT INPUT ROUTINE.	*
		7930	*	* BBPUTC - ENTRY POINT FOR COMPILER VIRTUAL MEMORY OUTPUT ROUTINE.	*
		7931	*	* BDSYMB - ENTRY POINT FOR COMPILER SYMBOL TRANSLATOR ROUTINE.	*
		7932	*	* BFSCAN - ENTRY POINT FOR COMPILER ARITHMETIC EXPRESSION ROUTINE.	*
		7933	*	* BZBCKT - 2 BYTES, FOR COMPILER SYMBOL VIRTUAL ADDRESS PARAMETER.	*
		7934	*	* BZFACA - 2 BYTES, FOR COMPILER FUNCTION OR ARRAY ATTRIBUTE	*
		7935	*	FIELD CORE ADDRESS.	*
		7936	*	* BZPARP - 3 BYTES. FOR THE BBPUTC 'ADD RECORD' PARAMETERS.	*
		7937	*	* BZPERC - 1 BYTE, FOR THE BBPUTC 'ADD ERROR' ERROR MESSAGE CODE	*
		7938	*	PARAMETER.	*
		7939	*	* BZPFNC - 1 BYTE, FOR THE BBPUTC FUNCTION CODE PARAMETER.	*
		7940	*	* BZCRSW - 1 BYTE, FOR THE BDSYMB CHARACTER REFERENCE SWITCH.	*
		7941	*		*
		7942	*	*EXITS, NORMAL	*
		7943	*	CONTROL IS ALWAYS PASSED TO THE FIRST INSTRUCTION FOLLOWING THE	*
		7944	*	BLISTA CALLING SEQUENCE.	*
		7945	*		*
		7946	*	*EXITS, ERROR	*
		7947	*	ERROR CONDITIONS ENCOUNTERED DURING BLISTA PROCESSING (SEE ERROR	*
		7948	*	PROCEDURES) ARE LOGGED IN VIRTUAL MEMORY, AND THE COMPILER IS	*
		7949	*	PLACED IN ERROR MODE (BZERSW IS SET ON). PROCESSING IS ALLOWED	*
		7950	*	TO PROCEED TO A NORMAL EXIT, EXCEPT GENERATED PMC IS NO LONGER	*
		7951	*	OUTPUT TO VIRTUAL MEMORY.	*
		7952	*		*
		7953	*	* TABLES/WORK AREAS	*
		7954	*	* BLITYP (EXTERNAL BZETYP, DSLTYP) - 1 BYTE, FOR THE ASSIGNMENT	*

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		7955	*	LIST REFERENCE DATA TYPE INDICATOR (SEE OUTPUT).			*
		7956	*	* BLWMK - 1 BYTE, FOR THE ARRAY USAGE INDICATOR. THIS IS SET TO			*
		7957	*	INDICATE SINGLE OR DOUBLE SUBSCRIPT EXPRESSIONS FOR AN ARRAY			*
		7958	*	REFERENCE, AND IS USED TO TEST CONSISTENCY WITH PRIOR REFER-			*
		7959	*	ENCES TO THE SAME ARRAY.			*
		7960	*	* ADDRESS STACKING PMC IMAGE AND PARAMETERS - USED TO GENERATE			*
		7961	*	'STA', 'SA1'. 'SA2', OR 'SB1' PSEUDO INSTRUCTIONS USING THE			*
		7962	*	BBPUTC 'ADD RECORD' FUNCTION.			*
		7963	*				*
		7964	*	*ATTRIBUTES			*
		7965	*	* REUSABLE			*
		7966	*	* RELOCATABLE			*
		7967	*				*
		7968	*	*CHARACTER CODE DEPENDENCY			*
		7969	*	THE OPERATION OF THIS MODULE DEPENDS UPON AN INTERNAL REPRES-			*
		7970	*	TATION OF THE EXTERNAL CHARACTER SET WHICH IS EQUIVALENT TO THE			*
		7971	*	ONE USED AT ASSEMBLY TIME. THE CODING HAS BEEN ARRANGED SO THAT			*
		7972	*	REDEFINITION OF CHARACTER CONSTANTS, BY REASSEMBLY, WILL RESULT			*
		7973	*	IN A CURRENT MODULE FOR THE NEW DEFINITIONS.			*
		7974	*				*
		7975	*	*NOTES			*
		7976	*	ERROR PROCEDURES			*
		7977	*	TWO ERROR CONDITIONS ARE DETECTED, BOTH REFERENCING INCONSIS-			*
		7978	*	TENT ARRAY SUBSCRIPT SPECIFICATIONS.			*
		7979	*	* ERROR 1 - AN ENCOUNTERED ARRAY REFERENCE IS SPECIFIED			*
		7980	*	WITH 2 SUBSCRIPTS BUT WAS ORIGINALLY DEFINED WITH			*
		7981	*	SINGLE DIMENSION. AN ERROR CODE FOR THE MESSAGE 'VECTOR			*
		7982	*	REFERENCED AS MATRIX' IS LOGGED IN VIRTUAL MEMORY.			*
		7983	*	* ERROR 2 - AN ENCOUNTERED ARRAY REFERENCE IS SPECIFIED			*
		7984	*	WITH 1 SUBSCRIPT BUT WAS ORIGINALLY DEFINED WITH DOUBLE			*
		7985	*	DIMENSIONS. AN ERROR CODE FOR THE MESSAGE 'MATRIX REFER-			*
		7986	*	ENCED AS VECTOR' IS LOGGED IN VIRTUAL MEMORY.			*
		7987	*	IN EITHER OF THESE EVENTS, THE COMPILER IS PLACED IN ERROR			*
		7988	*	MODE (OUTPUT ROUTINE BBPUTC IS CALLED USING FUNCTION 'ADD			*
		7989	*	ERROR'), AND STATEMENT PROCESSING IS PERMITTED TO CONTINUE.			*
		7990	*				*
		7991	*	REGISTER USAGE			*
		7992	*	* REGISTER @BR IS SAVED, USED AS A BASE REGISTER, THEN			*
		7993	*	RESTORED AT BLISTA EXIT.			*
		7994	*	* REGISTER @XR IS USED AS AN INPUT PARAMETER TO THIS ROUTINE,			*
		7995	*	AND ALSO TO CONTAIN AN OUTPUT PARAMETER AT BLISTA EXIT.			*
		7996	*				*
		7997	*	SAVED/RESTORE AREAS			*
		7998	*	N/A			*
		7999	*				*
		8000	*	MODIFICATION CONSIDERATIONS			*
		8001	*	N/A			*
		8002	*				*
		8003	*	REQUIRED MODULES			*
		8004	*	* @SYSEQ - COMMON SYSTEM EQUATES.			*
		8005	*	* @ERMEQ - SYSTEM ERROR MESSAGE CODE EQUATES.			*
		8006	*	* \$B@EQU - COMPILER PARAMETER AND CONSTANT EQUATES.			*
		8007	*	* BAGETC - COMPILER SOURCE TEXT INPUT ROUTINE.			*
		8008	*	* BBPUTC - COMPILER VIRTUAL MEMORY OUTPUT ROUTINE.			*
		8009	*	* BDSYMB - COMPILER SYMBOL TRANSLATOR ROUTINE.			*
		8010	*	* BFSCAN - COMPILER ARITHMETIC EXPRESSION SCAN ROUTINE.			*

[illegible]

S/3 BASIC COMPILER LIST ADDRESS RTN

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```
8017 *****
8018 * ASSIGNMENT LIST ELEMENT ADDRESS ROUTINE ENTRY POINT
8019 *****
8020 *
8021 * ENTER BLISTA - PERFORM REGISTER OPERATIONS
8022 *
1853 8023 BLISTA EQU * BLISTA ENTRY POINT
185E 8024 USING BLI010,@BR DEFINE BLISTA BASE ADDRESS
1853 34 01 18E7 8025 ST BLI420+@OP1,@BR SAVE CALLING PROGRAM BASE
1857 C2 01 185E 8026 LA BLI010,@BR LOAD BLISTA BASE ADDRESS
185B 74 08 8D 8027 ST BLI430+@OP1(,@BR),@ARR SET RETURN BRANCH ADDRESS
8028 *
8029 * GET AND SAVE THE SYMBOL VIRTUAL ADDRESS - THE TEXT POINTER WILL
8030 * ALWAYS REFERENCE THE 1ST CHARACTER IN THE SYMBOL
8031 *
185E C0 87 0DBC 8032 BLI010 B BDSYMB LINK TO GET THE SYMBOL VADDR
1862 4C 00 94 0E42 8033 BLISTR MVC BLITYP(,@BR),BZCRSW(1) SET DATA ELEMENT TYPE CODE
1867 4C 01 90 1590 8034 MVC BLISAO(,@BR),BZBCKT(@VADDR) SAVE VADDR AS PSEUDO OPERAND
8035 *
8036 * TEST FOR AN ARRAY ELEMENT REFERENCE
8037 *
186C BD 4D 00 8038 BLI020 CLI B@CHAR(,@XR),B@LPAR IF SYMBOL IS FOLLOIED WITH A
186F F2 81 06 8039 JE BLI100 * LEFT PARENTHESIS, GO PROCESS
8040 * * THE ARRAY ELEMENT REFERENCE
8041 *
8042 * ESTABLISH A 'STACK SCALAR ADDRESS' PSEUDO INSTRUCTION
8043 *
1872 7C 34 8E 8044 BLI030 MVI BLISAC(,@BR),B@CSTA SET PSEUDO OPCODE FOR 'STA'
1875 D0 87 7D 8045 B BLI410(,@BR) GO PUT THE ADDR STACKING INSTR
```

S/3 BASIC COMPILER LIST ADDRESS RTN

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8047 *****
8048 * ARRAY ELEMENT REFERENCE SUBSCRIPT PROCESSING
8049 *****
8050 *
8051 * STORE THE ARRAY SYMBOL TABLE ATTRIBUTE CORE ADDRESS
8052 *
1878 4C 01 4B 0E53 8053 BLI100 MVC BLI200+@OP1(,@BR),BZFACA(@CADDR) SAVE ARRAY ATTRIB CADDR
8054 *
8055 * GENERATE PMC TO STACK VALUE OF 1ST SUBSCRIPT EXPRESSION
8056 *
187D C0 87 1514 8057 BLI105 B BFSCAN LINK TO SCAN 1ST SUBSC EXPR
8058 *
8059 * TEST FOR A POSSIBLE 2ND SUBSCRIPT EXPRESSION
8060 *
1881 BD 6B 00 8061 BLI110 CLI B@CHAR(,@XR),B@CMMMA IF SUBSC DELIMITER IS A COMMA
1884 F2 81 15 8062 JE BLI160 * GO PROCESS 2ND SUBSCRIPT
8063 *
8064 * SINGLE SUBSCRIPT - ESTABLISH THE REFERENCE AS A VECTOR
8065 *
1887 7C 80 53 8066 BLI120 MVI BLIUMK(,@BR),B@D1MK SET ARRAY USAGE MASK FOR VECTOR
8067 *
8068 * TEST FOR A CHARACTER ARRAY REFERENCE
8069 *
188A 78 01 94 8070 BLI130 TBN BLITYP(,@BR),BZCRMK IF CHARACTER REFERENCE SW IS ON
188D F2 10 06 8071 JT BLI150 * GO SO CHAR ARRAY OPCODE
8072 *
8073 * ESTABLISH A 'STACK VECTOR ELEMENT ADDRESS' PSEUDO INSTRUCTION
8074 *
1890 7C 36 8E 8075 BLI140 MVI BLISAC(,@BR),B@CSA1 SET PSEUDO OPCODE FOR 'SA1'
1893 D0 87 48 8076 B BLI200(,@BR) GO PROCESS THE DOPE VECTOR
8077 *
8078 * ESTABLISH A 'STACK CHAR ARRAY ELEMENT ADDRESS' PSEUDO INSTRUCTION
8079 *
1896 7C 3A 8E 8080 BLI150 MVI BLISAC(,@BR),B@CSB1 SET PSEUDO OPCODE FOR 'SB1'
1899 D0 87 48 8081 B BLI200(,@BR) GO PROCESS THE DOPE VECTOR
8082 *
8083 * DOUBLE SUBSCRIPT - GENERATE PMC TO STACK VALUE OF 2ND EXPRESSION
8084 *
189C C0 87 1514 8085 BLI160 B BFSCAN LINK TO SCAN 2ND SUBSC EXPR
8086 *
8087 * ESTABLISH REFERENCE AS A MATRIX AND SET PSEUDO INSTRUCTION
8088 * FOR 'STACK MATRIX ELEMENT ADDRESS'
8089 *
18A0 7C C0 53 8090 BLI170 MVI BLIUMK(,@BR),B@D2MK SET ARRAY USAGE MASK FOR MATRIX
18A3 7C 38 8E 8091 MVI BLISAC(,@BR),B@CSA2 SET PSEUDO OPCODE FOR 'SA2'

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 146
		8093		*****	
		8094		* ARRAY DOPE VECTOR DEFINITION ANALYSIS	
		8095		*****	
		8096		*	
		8097		* ACCESS THE ARRAY SYMBOL TABLE ENTRY ATTRIBUTE FIELD	
		8098		*	
18A6	C2 02 0000	8099	BLI200 LA	*-*,@XR	LOAD THE ATTRIBUTE FIELD CADDR
		8100		*	
		8101		* TEST FOR PREVIOUS DEFINITION OF THE ARRAY	
		8102		*	
18AA	B8 80 00	8103	BLI210 TBN	B@AFLG(,@XR),B@DAMK	IF ARRAY IS ALREADY DEFINED
18AD	D0 10 58	8104		BT BLI300(,@BR)	* GO CHECK FOR USAGE ERROR
		8105		*	
		8106		* UNDEFINED ARRAY - ESTABLISH DEFINITION ACCORDING TO CURRENT USAGE	
		8107		*	
18B0	BA 00 00	8108	BLI220 SBN	B@AFLG(,@XR),*-*	DEFINE ARRAY AS CURRENTLY USED
18B3	D0 87 79	8109		B BLI400(,@BR)	GO PUT THE ADDR STACKING INSTR

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		8111		*****		
		8112		* DEFINED ARRAY ERROR ANALYSIS ROUTINE		
		8113		*****		
		8114		*		
		8115		* TEST ARRAY DEFINITION TO CHECK CONSISTENT USAGE		
		8116		*		
18B6 B8 C0 00		8117	BLI300 TBN	B@AFLG(,@XR),B@D2MK	IF ARRAY DEFINED AS MATRIX	
18B9 F2 10 0D		8118	JT	BLI330	* GO CHECK FOR MATRIX USAGE	
		8119		*		
		8120		* ARRAY DEFINED AS VECTOR - TEST FOR VECTOR USAGE		
		8121		*		
18BC 7D 80 53		8122	BLI310 CLI	BLIUMK(,@BR),B@D1MK	IF CURRENT USAGE IS VECTOR	
18BF D0 81 79		8123	BE	BLI400(,@BR)	* GO PUT ADDR STACKING INSTR	
		8124		*		
		8125		* ESTABLISH 'VECTOR REFERENCED AS MATRIX' ERROR CODE		
		8126		*		
18C2 3C A9 0A39		8127	BLI320 MVI	BZPERC,@@E603	SET THE ERROR MESSAGE CODE	
18C6 F2 87 0A		8128	J	BLI350	BRANCH TO GENERATE ERROR CODE	
		8129		*		
		8130		* ARRAY DEFINED AS MATRIX - TEST FOR MATRIX USAGE		
		8131		*		
18C9 7D C0 53		8132	BLI330 CLI	BLIUMK(,@BR),B@D2MK	IF CURRENT USAGE IS MATRIX	
18CC D0 81 79		8133	BE	BLI400(,@BR)	* GO PUT ADDR STACKING INSTR	
		8134		*		
		8135		* ESTABLISH 'MATRIX REFERENCED AS VECTOR' ERROR CODE		
		8136		*		
18CF 3C A8 0A39		8137	BLI340 MVI	BZPERC,@@E602	SET THE ERROR MESSAGE CODE	
		8138		*		
		8139		* SET OUTPUT ROUTINE FOR 'ADD ERROR' FUNCTION		
		8140		*		
18D3 3C 33 094E		8141	BLI350 MVI	BZPFNC,BZPFAE	SET PUT ROUTINE FOR ERRORS	

ERR LOC		OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/07/20	PAGE 148
			8143		*****			
			8144		* CODE GENERATION AND SUBROUTINE EXIT			
			8145		*****			
			8146		*			
			8147		* ADVANCE TEXT POINTER TO DELIMITER FOLLOWING ARRAY REFERENCE			
			8148		*			
18D7	C0	87 0867	8149	BLI400 B	BAGETC			LINK TO GET NEXT CHARACTER
			8150		*			
			8151		* OUTPUT THE ADDRESS STACKING INSTRUCTION OR ARRAY USAGE ERROR CODE			
			8152		* TO VIRTUAL MEMORY AS APPROPRIATE			
			8153		*			
18DB	1C	02 0A41 93	8154	BLI410 MVC	BZPARP,BLISAP(@CADDR+1,@BR)			SET FOR POSSIBLE PSEUDO INSTR
18E0	C0	87 093A	8155	B	BBPUTC			LINK TO PUT APPROPRIATE CODE
			8156		*			
			8157		* BLISTA EXIT - RESTORE BASE REGISTER AND RETURN			
			8158		*			
18E4	C2	01 0000	8159	BLI420 LA	*-*,@BR			RESTORE CALLING PROGRAM BASE
18E8	C0	87 0000	8160	BLI430 B	*-*			RETURN TO CALLING PROGRAM

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/07/20	PAGE 149
				8162	*****				
				8163	* PSEUDO MACHINE CODE SEQUENCES AND STORAGE PARAMETERS				
				8164	*****				
				8165	*				
18EC			18EC	8166	BLISAC DS	CL(B@LCOP)		'STACK ADDRESS' OPCODE AREA	
18ED			18EE	8167	BLISAO DS	CL(B@LCVA)		'STACK ADDRESS' OPERAND AREA	
18EF	18EC		18F0	8168		DC AL(@CADDR)(BLISAC)		'STACK ADDR' INSTR CORE ADDR	
18F1	02		18F1	8169	BLISAP DC	AL1(B@LSTA-1)		'STACK ADDR' INSTR LENGTH CODE	
				8171	*****				
				8172	* LIST PROCESSING ROUTINE WORK AREAS				
				8173	*****				
				8174	*				
18F2			18F2	8175	BLITYP DS	CL1		DATA ELEMENT TYPE CODE BYTE	
				8177	*****				
				8178	* BLISTA EQUATES REFERENCING PROGRAM INSTRUCTIONS				
				8179	*****				
				8180	*				
			18B1	8181	BLIUMK EQU	BLI220+@Q		ARRAY CURRENT USAGE MASK	
				8182	*				
				8183	*****				
				8184	*				
				8185	* END OF COMPILER LIST ADDRESS ROUTINE CODING				
				8186	*				

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/07/20	PAGE 150
		8188		*****			
		8189	*	5703-XM1 COPYRIGHT IBM CORP. 1970			*
		8190	*	REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083			*
		8191	*				*
		8192		*****			*
		8193	*	*STATUS			*
		8194	*	VERSION 1 MODIFICATION			*
		8195	*				*
		8196	*	*FUNCTION			*
		8197	*	* BMATXR GENERATES ARRAY DESCRIPTOR (DOPE VECTOR) STACKING PSEUDO			*
		8198	*	INSTRUCTIONS FOR THE RUN-TIME PROCESSING OF ARITHMETIC ARRAY A			*
		8199	*	REFERENCES SUCH AS THOSE WHICH APPEAR IN BASIC 'MAT' STATEMENTS.			*
		8200	*	* THE ARRAY REFERENCE CAN BE A SIMPLE ARRAY NAME, OR AN ARRAY			*
		8201	*	NAME REDEFINED WITH A SINGLE OR DOUBLE DIMENSION EXPRESSION			*
		8202	*	ENCLOSED IN PARENTHESES.			*
		8203	*	* DOPE VECTOR STACKING INSTRUCTIONS ARE GENERATED AS FOLLOWS -			*
		8204	*	* SIMPLE ARRAY NAME - STACK-ARRAY-DESCRIPTOR (SDO).			*
		8205	*	* ARRAY NAME REDEFINED WITH 1 DIMENSION - STACK-REDIMENSION-			*
		8206	*	1-ARRAY-DESCRIPTOR (SD1), PRECEDED WITH EXPRESSION VALUE			*
		8207	*	STACKING INSTRUCTIONS FOR THE DIMENSION.			*
		8208	*	* ARRAY NAME REDEFINED WITH 2 DIMENSIONS - STACK-REDIMENSION-			*
		8209	*	2-ARRAY-DESCRIPTOR (SD2). PRECEDED WITH EXPRESSION VALUE			*
		8210	*	STACKING INSTRUCTIONS FOR BOTH DIMENSIONS.			*
		8211	*	* ARRAY REFERENCES MUST ALWAYS HAVE BEEN PREVIOUSLY DEFINED.			*
		8212	*	WHEN A REDIMENSIONING ARGUMENT IS ASSOCIATED WITH THE REFER-			*
		8213	*	ENCE, ANY INCONSISTENCY BETWEEN PREVIOUS AND ARGUMENT-SPECIFIED			*
		8214	*	DIMENSIONAL CHARACTERISTICS CAUSES A COMPILER ERROR.			*
		8215	*	* BMATXR IS NORMALLY INVOKED WITH THE TEXT CHARACTER POINTER CON-			*
		8216	*	TAINING THE CORE ADDRESS OF THE CHARACTER PRECEDING THE FIRST			*
		8217	*	CHARACTER OF THE ARRAY REFERENCE. PROVISION IS MADE FOR THOSE			*
		8218	*	CASES WHERE THE TEXT POINTER REFERENCES THE FIRST CHARACTER OF			*
		8219	*	THE ARRAY NAME INSTEAD.			*
		8220	*	* CONTROL IS RETURNED TO THE CALLING PROGRAM WITH THE TEXT POINT-			*
		8221	*	ER CONTAINING THE CORE ADDRESS OF THE CHARACTER WHICH DELIMITS			*
		8222	*	THE ENTIRE ARRAY REFERENCE (E.G. THE COMMA IN A 'MAT READ'			*
		8223	*	STATEMENT ARRAY LIST).			*
		8224	*	* SPECIAL PROVISION IS ALSO MADE FOR PROCESSING REDIMENSIONING			*
		8225	*	ARGLMENTS WHICH ARE ASSOCIATED WITH, BUT ARE NOT CONTIGUOUS TO.			*
		8226	*	A SIMPLE ARRAY NAME. SUCH A CONDITION IS TYPICALLY ENCOUNTERED			*
		8227	*	IN STATEMENTS CONTAINING THE 'ZER', 'CON', OR 'IDN' MATRIX			*
		8228	*	FUNCTIONS.			*
		8229	*				*
		8230	*	*ENTRY POINTS			*
		8231	*	* THIS ROUTINE HAS A SINGLE ENTRY POINT - BMATXR - WHOSE FUNCTION			*
		8232	*	IS DEFINED ABOVE. CALLING SEQUENCE IS			*
		8233	*	B BMATXR			*
		8234	*	SUBJECT TO INPUT CONDITIONS DESCRIBED BELOW.			*
		8235	*	* ENTRY POINT BMATXR MAY ALSO BE SPECIFIED AS B\$MATR WHEN CALLED			*
		8236	*	FROM ONE OF THE DISK-RESIDENT STATEMENT PROCESSORS.			*
		8237	*				*
		8238	*	*INPUT			*
		8239	*	* TEXT CHARACTER POINTER (BZGPTR) - WHEN SWITCH BMAGSW IS SET ON,			*
		8240	*	THIS CONTAINS THE CORE ADDRESS OF A BASIC STATEMENT CHARACTER			*
		8241	*	LOCATED RELATIVE TO THE ARRAY REFERENCE TO BE PROCESSED.			*
		8242	*	* NORMAL PROCESSING - THE TEXT POINTER REFERENCES THE CHAR-			*
		8243	*	ACTER PRECEDING THE ARRAY SYMBOL. THE CALLING PROGRAM IS			*

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 151
		8244	*	EXPECTED TO ENSURE THAT INPUT ROUTINE BAGETC PARAMETER	*
		8245	*	BZNUMC = 1.	*
		8246	*	* EXCEPTION PROCESSING - THE TEXT POINTER REFERENCES THE	*
		8247	*	ARRAY SYMBOL CHARACTER. THE CALLING PROGRAM IS EXPECTED	*
		8248	*	TO ENSURE THAT BAGETC PARAMETER BZNUMC = 0.	*
		8249	*	* COMPILER INPUT BUFFER - THIS CONTAINS THE SOURCE PROGRAM TEXT	*
		8250	*	WHICH NORMALLY INCLUDES THE ARRAY REFERENCE TO BE PROCESSED.	*
		8251	*	* BMAGSW (EXTERNAL BZMGSW, B\$MGSW) - 1 BYTE, FOR THE MATRIX SYMBOL	*
		8252	*	GET SWITCH. THIS SWITCH, NORMALLY ON. IS SET USING MASK BMAGMK	*
		8253	*	(EXTERNAL BZMGMK, B\$MGMK).	*
		8254	*	* SWITCH ON - COMPILER INPUT ROUTINE BAGETC IS CALLED TO	*
		8255	*	ACCESS THE ARRAY SYMBOL CHARACTER AT BMATXR ENTRY.	*
		8256	*	* SWITCH OFF - BAGETC EXECUTION IS NOT PERFORMED AT BMATXR	*
		8257	*	ENTRY.	*
		8258	*	* BHABSW (EXTERNAL BZMBSW, B\$MBSW) - 1 BYTE, FOR THE MATRIX SYMBOL	*
		8259	*	BYPASS SWITCH. THIS SWITCH, NORMALLY OFF, IS SET USING MASK	*
		8260	*	BMABMK (EXTERNAL BZMBMK, B\$MBMK).	*
		8261	*	* SWITCH ON - SYMBOL TRANSLATOR BDSYMB IS NORMALLY CALLED	*
		8262	*	IMMEDIATELY AFTER THE BAGETC CALL NOTED ABOVE. THIS	*
		8263	*	SWITCH CONDITION CAUSES MATRIX SYMBOL TRANSLATION TO BE	*
		8264	*	BYPASSED AND CONTROL TRANSFERRED DIRECTLY TO THAT SECTION	*
		8265	*	OF BMATXR WHERE DIMENSION STACKING PMC IS GENERATED. THE	*
		8266	*	TEXT POINTER MUST REFERENCE THE CHARACTER PRECEDING THE	*
		8267	*	FIRST EXPRESSION CHARACTER WHEN THIS SWITCH ACTION IS	*
		8268	*	TAKEN.	*
		8269	*	* SWITCH OFF - SYMBOL TRANSLATOR BDSYMB IS CALLED TO PROCESS	*
		8270	*	THE MATRIX NAME.	*
		8271	*	* BMAPSW (EXTERNAL BZMPSW, B\$MPSW) - 1 BYTE, FOR THE MATRIX PMC	*
		8272	*	PUT SWITCH. THIS SWITCH, NORMALLY ON, IS SET USING MASK BMAPMK	*
		8273	*	(EXTERNAL BZMPMK, B\$MPMK).	*
		8274	*	* SWITCH ON - COMPILER OUTPUT ROUTINE BBPUTC IS CALLED TO	*
		8275	*	OUTPUT THE GENERATED ARRAY DOPE VECTOR STACKING INSTRUCC-	*
		8276	*	TION ('SD0', 'SD1', OR 'SD2') TO VIRTUAL MEMORY.	*
		8277	*	* SWITCH OFF - THE ARRAY DOPE VECTOR STACKING INSTRUCTION IS	*
		8278	*	ESTABLISHED IN A BMATXR WORK AREA, BUT BBPUTC IS NOT	*
		8279	*	CALLED TO PERFORM THE VIRTUAL MEMORY OUTPUT OPERATION.	*
		8280	*		*
		8281	*	*OUTPUT	*
		8282	*	* TEXT CHARACTER POINTER (REGISTER @XR AND BZGPTR) - THIS CON-	*
		8283	*	TAINS THE CORE ADDRESS OF THE FIRST NON-BLANK CHARACTER FOLLOW-	*
		8284	*	ING THE FINAL CHARACTER OF THE ARRAY REFERENCE OR REDIMENSION-	*
		8285	*	ING ARGUMENT PARENTHESIS.	*
		8286	*	* VIRTUAL REPORT - PSEUDO INSTRUCTIONS ARE GENERATED TO EVALUATE	*
		8287	*	REDIMENSIONING EXPRESSIONS AND/OR PLACE THE ARRAY DOPE VECTOR	*
		8288	*	IN THE RUN-TIME STACK DURING EXECUTION. WHEN SWITCH BPAPSW IS	*
		8289	*	OFF, ONLY REDINENSIONING EXPRESSION PMC CAN BE OUTPUT.	*
		8290	*	* ARRAY DOPE VECTOR PSEUDO INSTRUCTION - WHEN SWITCH BMAPSW IS	*
		8291	*	OFF, THIS PSEUDO INSTRUCTION IS ESTABLISHED WITH A DOPE VECTOR	*
		8292	*	STACKING OPCODE ('SD0', 'SD1' OR 'SD2') AND THE VIRTUAL	*
		8293	*	ADDRESS OF THE PROCESSED ARRAY REFERENCE DOPE VECTOR. OUTPUT	*
		8294	*	ROUTINE BBPUTC 'ADD RECORD' FUNCTION PARAMETERS HAVE ALSO BEEN	*
		8295	*	ESTABLISHED FOP THIS INSTRUCTION, BUT NO OUTPUT HAS BEEN PER-	*
		8296	*	FORMED.	*
		8297	*		*
		8298	*	*EXTERNAL REFERENCES	*
		8299	*		*

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/07/20	PAGE 152
		8300	*	* BAGETC - ENTRY POINT FOR COMPILER SOURCE TEXT INPUT ROUTINE.	*		
		8301	*	* BBPUTC - ENTRY POINT FOR COMPILER VIRTUAL MEMORY OUTPUT ROUTINE.	*		
		8302	*	* BDSYMB - ENTRY POINT FOR COMPILER SYMBOL TRANSLATOR ROUTINE.	*		
		8303	*	* BFSCAN - ENTRY POINT FOR COMPILER ARITHMETIC EXPRESSION ROUTINE.	*		
		8304	*	* BZGPTR - 2 BYTES, FOR COMPILER TEXT CHARACTER POINTER.	*		
		8305	*	* BZBCKT - 2 BYTES, FOR COMPILER SYMBOL VIRTUAL ADDRESS PARAMETER.	*		
		8306	*	* BZFACA - 2 BYTES, FOR COMPILER FUNCTION OR ARRAY ATTRIBUTE	*		
		8307	*	FIELD CORE ADDRESS.	*		
		8308	*	* BZPFNC - 1 BYIE, FOR THE BBPUTC FUNCTION CODE PARAMETER.	*		
		8309	*	* BZPARP - 3 BYTES, FOR THE BBPUTC 'ADD RECORD' PARAMETERS.	*		
		8310	*	* BZPERC - 1 BYTE, FOR THE BBPUTC 'ADD ERROR' ERROR MESSAGE CODE	*		
		8311	*	PARAMETER.	*		
		8312	*	* BZMRSW - 1 BYTE, FOR THE BOSYMB MATRIX REFERENCE SWITCH.	*		
		8313	*		*		
		8314	*	*EXITS, NORMAL	*		
		8315	*	CONTROL IS ALWAYS PASSED TO THE FIRST INSTRUCTION FOLLOWING THE	*		
		8316	*	BMATYR CALLING SEQUENCE.	*		
		8317	*		*		
		8318	*	*EXITS, ERROR	*		
		8319	*	ERROR CONDITIONS ENCOUNTERED DURING BMATXR PROCESSING (SEE ERROR	*		
		8320	*	PROCEDURES) ARE LOGGED IN VIRTUAL MEMORY, AND THE COMPILER IS	*		
		8321	*	PLACED IN ERROR MODE (BZERSW IS SET ON), PROCESSING IS ALLOWED	*		
		8322	*	TO PROCEED TO A NORMAL EXIT, EXCEPT GENERATED PMC IS NO LONGER	*		
		8323	*	OUTPUT TO VIRTUAL MEMORY.	*		
		8324	*		*		
		8325	*	*TAILES/WORK AREAS	*		
		8326	*	* BMAGSW (EXTERNAL BIRGSW, BINGSW) - 1 BYTE, FOR THE MATRIX SYMBOL*	*		
		8327	*	GET SWITCH. THIS IS INITIALIZED AT COMPILER ENTRY TO THE ON	*		
		8328	*	CONDITION, AND SET USING MASK BNAGMK (EXTERNAL BZMGRX.BMIGMK).	*		
		8329	*	* BMABSW (EXTERNAL BZMBSW, B\$MBSW) - 1 BYTE, FOR THE MATRIX SYMBOL*	*		
		8330	*	BYPASS SWITCH. THIS IS INITIALIZED AT COMPILER ENTRY TO THE	*		
		8331	*	OFF CONDITION, AND IS SET USING MASK BRABMK (EXTERNAL BZMBMK,	*		
		8332	*	B\$MBMK).	*		
		8333	*	* BMAPSW (EXTERNAL BZMPSW, B\$MPSW) - 1 BYTE, FOR THE MATRIX PMC	*		
		8334	*	PUT SWITCH. THIS IS INITIALIZED AT COMPILER ENTRY TO THE ON	*		
		8335	*	CONDITION, AND SET USING MASK BMAPMK (EXTERNAL BZMPMK, B\$MPMK).	*		
		8336	*	* DOPE VECTOR STACKING PMC IMAGE AND PARAMETERS - USED TO GENER-	*		
		8337	*	ATE 'SDO', 'SD1' OR 'SD2' PSEUDO INSTRUCTIONS USING THE BBPUTC	*		
		8338	*	'ADD RECORD' FUNCTION.	*		
		8339	*		*		
		8340	*	*ATTRIBUTES	*		
		8341	*	* REUSABLE	*		
		8342	*	* RELOCATABLE	*		
		8343	*		*		
		8344	*	*CHARACTER CODE DEPENDENCY	*		
		8345	*	THE OPERATION OF THIS MODULE DEPENDS UPON AN INTERNAL REPRES-	*		
		8346	*	TATION OF THE EXTERNAL CHARACTER SET WHICH IS EQUIVALENT TO THE	*		
		8347	*	ONE USED AT ASSEMBLY TIME. THE CODING HAS BEEN ARRANGED SO THAT	*		
		8348	*	REDEFINITION OF CHARACTER CONSTANTS, BY REASSEMBLY, WILL RESULT	*		
		8349	*	IN A CURRENT MODULE FOR THE NEW DEFINITIONS.	*		
		8350	*		*		
		8351	*	*NOTES	*		
		8352	*	ERROR PROCEDURES	*		
		8353	*	THREE ERROR CONDITIONS ARE DETECTED, ALL REFERENCING PREVIOUS	*		
		8354	*	DEFINITION OF THE ARRAY SYMBOL BEING PROCESSED.	*		
		8355	*	* ERROR 1 - THE CURRENT ARRAY REFERENCE HAS NOT BEEN	*		

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/07/20	PAGE 153
		8356	*	DEFINED IN A PREVIOUS PROGRAM STATEMENT. AN ERROR CODE			*
		8357	*	FOR THE MESSAGE 'UNDEFINED ARRAY REFERENCE' IS LOGGED IN			*
		8358	*	VIRTUAL MEMORY.			*
		8359	*	* ERROR 2 - THE CURRENT ARRAY REFERENCE IS REDIMENSIONED			*
		8360	*	WITH 2 DIMENSIONS BUT WAS ORIGINALLY DEFINED WITH			*
		8361	*	SINGLE DIMENSION. AN ERROR CODE FOR THE MESSAGE 'VECTOR			*
		8362	*	REFERENCED AS MATRIX' IS LOGGED IN VIRTUAL MEMORY.			*
		8363	*	* ERROR 3 - THE CURRENT ARRAY REFERENCE IS REDIMENSIONED			*
		8364	*	WITH 1 DIMENSION BUT WAS ORIGINALLY DEFINED WITH DOUBLE			*
		8365	*	DIMENSIONS. AN ERROR CODE FOR THE MESSAGE 'MATRIX REFER-			*
		8366	*	ENCED AS VECTOR. IS LOGGED IN VIRTUAL MEMORY.			*
		8367	*	IN ANY OF THESE EVENTS, THE COMPILER IS PLACED IN ERROR MODE			*
		8368	*	(OUTPUT ROUTINE BBPUTC IS CALLED USING FUNCTION 'ADD ERROR'),			*
		8369	*	AND STATEMENT PROCESSING IS ALLOWED TO CONTINUE.			*
		8370	*				*
		8371	*	REGISTER USAGE			*
		8372	*	* REGISTER @BR IS SAVED, USED AS A BASE REGISTER, THEN			*
		8373	*	RESTORED AT BMATXR EXIT.			*
		8374	*	* REGISTER @XR IS NOT SAVED. IT IS USED AS A GENERAL PURPOSE			*
		8375	*	REGISTER, AND CONTAINS AN OUTPUT PARAMETER AT BMATXR EXIT.			*
		8376	*				*
		8377	*	SAVED/RESTORED AREAS			*
		8378	*	N/A			*
		8379	*				*
		8380	*	MODIFICATION CONSIDERATIONS			*
		8381	*	N/A			*
		8382	*				*
		8383	*	REQUIRED MODULES			*
		8384	*	* @SYSEQ - COMMON SYSTEM EQUATES.			*
		8385	*	* @ERMEQ - SYSTEM ERROR MESSAGE CODE EQUATES.			*
		8386	*	* \$B@EQU - COMPILER PARAMETER AND CONSTANT EQUATES.			*
		8387	*	* BAGETC - COMPILER SOURCE TEXT INPUT ROUTINE.			*
		8388	*	* BBPUTC - COMPILER VIRTUAL MEMORY OUTPUT ROUTINE.			*
		8389	*	* BDSYMB - COMPILER SYMBOL TRANSLATOR ROUTINE.			*
		8390	*	* BFSCAN - COMPILER ARITHMETIC EXPRESSION SCAN ROUTINE.			*
		8391	*	* BZCOMN - COMPILER COMMON AREAS AND ADDRESS REFERENCE EQUATES.			*
		8392	*				*
		8393	*	OTHER			*
		8394	*	N/A			*
		8395	*	*****			*

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8397 *****
8398 * MATRIX REFERENCE SCAN ROUTINE ENTRY POINT
8399 *****
8400 *
8401 * ENTER BMATXR - PERFORM REGISTER OPERATIONS
8402 *
18F3 8403 BMATXR EQU * BMATXR ENTRY POINT
18FE 8404 USING BMA010,@BR DEFINE BMATXR BASE ADDRESS
18F3 34 01 198B 8405 ST BMA320+@OP1,@BR SAVE CALLING PROGRAM BASE
18F7 C2 01 18FE 8406 LA BMA010,@BR LOAD BMATXR BASE ADDRESS
18FB 74 08 91 8407 ST BMA330+@OP1(,@BR),@ARR SET RETURN BRANCH ADDRESS
8408 *
8409 * ADVANCE THE TEXT POINTER TO FIRST CHARACTER OF THE ARRAY SYMBOL
8410 * EXCEPT WHEN THIS IS NOT REQUIRED DURING MAT ASSIGNMENT PROCESSING
8411 *
18FE C0 00 0867 8412 BMA010 BC BAGETC,*-* LINK TO GET NEXT CHAR IF SW ON
18FF 8413 ORG BMA010+@Q INITIALIZE 'MATRIX GET' SWITCH
18FF 87 18FF 8414 DC AL1(@UCB) * TO 'ON' STATUS - MAY BE SET
1902 8415 ORG BMA010+@INST4 * 'OFF' DURING MAT ASSIGN STMT
8416 *
8417 * BYPASS MATRIX SYMBOL PROCESSING WHEN REQUIRED DURING PROCESSING OF
8418 * A 'CON', 'ZER', OR 'IDN' REDIMENSIONING PARAMETER
8419 *
1902 F2 00 22 8420 BMA015 JC BMA100,*-* BYPASS MAT SYMBOL PROCESSING
1903 8421 ORG BMA015+@Q * WHEN SYMBOL BYPASS SWITCH IS
1903 80 1903 8422 DC AL1(@NOP) * 'ON' - INITLZ SWITCH TO 'OFF'
1905 8423 ORG BMA015+@INST3 * CONDITION
8424 *
8425 * GET AND SAVE THE ARRAY DOPE VECTOR VIRTUAL ADDRESS
8426 *
1905 3A 07 0DDE 8427 BMA020 SBN BZMRSW,BZMRMK SET SYMBOL ROUTINE FOR MATRIX
1909 C0 87 0DBC 8428 B BDSYMB LINK TO GET THE ARRAY VADDR
190D 3B 07 0DDE 8429 SBF BZMRSW,BZMRMK RESET SYMBOL RTN MATRIX SWITCH
1911 4C 01 94 1590 8430 MVC BMASD0(,@BR),BZBCKT(@VADDR) SAVE VADDR AS PSEUDO OPERAND
1916 4C 01 47 0E53 8431 MVC BMA200+@OP1(,@BR),BZFACA(@CADDR) SAVE ARRAY ATTRIB CADDR
8432 *
8433 * TEST FOR A MATRIX REDIMENSIONING ARGUMENT
8434 *
191B BD 4D 00 8435 BMA030 CLI B@CHAR(,@XR),B@LPAR IF SYMBOL IS FOLLOWED WITH A
191E D0 81 29 8436 BE BMA100(,@BR) * LEFT PARENTHESIS, GO PROCESS
8437 * * THE REDIMENSIONING ARGUMENT
8438 *
8439 * ESTABLISH A 'STACK DOPE VECTOR' PSEUDO INSTRUCTION
8440 *
1921 7C 2E 92 8441 BMA040 MVI BMASDC(,@BR),B@CSD0 SET PSEUDO OPCODE FOR 'SD0'
1924 D0 87 44 8442 B BMA200(,@BR) GO TEST FOR AN ERROR CONDITION

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 155
		8444		*****	
		8445	*	MATRIX REDIMENSIONING ARGUMENT PROCESSING	
		8446		*****	
		8447	*		
		8448	*	GENERATE PMC TO STACK VALUE OF 1ST REDIMENSIONING EXPRESSION	
		8449	*		
1927	C0 87 1514	8450	BMA100 B	BFSCAN	LINK TO SCAN 1ST DIMENSION EXPR
		8451	*		
		8452	*	TEST FOR A POSSIBLE 2ND REDIMENSIONING EXPRESSION	
		8453	*		
192B	BD 6B 00	8454	BMA110 CLI	B@CHAR(,@XR),B@CMMMA	IF DIMENSION DELIMITER IS COMMA
192E	F2 81 06	8455		JE BMA130	* GO PROCESS THE 2ND DIMENSION
		8456	*		
		8457	*	SINGLE REDIMENSIONING - ESTABLISH THE REFERENCE AS A VECTOR BY	
		8458	*	SETTING UP A 'STACK DOPE VECTOR, REDIMENSION-1' PSEUDO OPCODE	
		8459	*		
1931	7C 30 92	8460	BMA120 MVI	BMASDC(,@BR),B@CSD1	SET PSEUDO OPCODE FOR 'SD1'
1934	F2 87 07	8461		J BMA150	GO TERMINATE DIMENSION PROC
		8462	*		
		8463	*	DOUBLE DIMENSION - GENERATE PMC TO STACK 2ND REDIM EXPRESSION VALUE	
		8464	*		
1937	C0 87 1514	8465	BMA130 B	BFSCAN	LINK TO SCAN 2ND DIMENSION EXPR
		8466	*		
		8467	*	ESTABLISH THE REFERENCE AS A MATRIX BY SETTING UP A 'STACK DOPE	
		8468	*	VECTOR, REDIMENSION-2' PSEUDO OPCODE	
		8469	*		
193B	7C 32 92	8470	BMA140 MVI	BMASDC(,@BR),B@CSD2	SET PSEUDO OPCODE FOR 'SD2'
		8471	*		
		8472	*	ADVANCE TEXT POINTER TO CHARACTER FOLLOWING THE ENTIRE REFERENCE	
		8473	*		
193E	C0 87 0867	8474	BMA150 B	BAGETC	LINK TO GET NEXT CHARACTER

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8476 *****
8477 * ARRAY DEFINITION ERROR ANALYSIS ROUTINE
8478 *****
8479 *
8480 * ACCESS THE ARRAY SYMBOL TABLE ENTRY ATTRIBUTE FIELD
8481 *
1942 C2 02 0000 8482 BMA200 LA      *-*,@XR          LOAD THE ATTRIBUTE FIELD CAM
8483 *
8484 * TEST FOR PREVIOUS DEFINITION OF THE ARRAY TO NECESSARY CONDITION)
8485 *
1946 B8 80 00 8486 BMA210 TBN    B@AFLG(,@XR),B@DAMK      IF ARRAY IS ALREADY DEFINED
1949 F2 10 07 8487          JT      BMA230          * GO CHECK FOR A USAGE ERROR
8488 *
8489 * ESTABLISH AN 'UNDEFINED ARRAY REFERENCE' ERROR CODE
8490 *
194C 3C A7 0A39 8491 BMA220 MVI    BZPERC,@@E601          SET THE ERROR MESSAGE CODE
1950 F2 87 1D 8492          J      BMA280          BRANCH TO GENERATE ERROR CODE
8493 *
8494 * TEST ARRAY DEFINITION FOR CHECK OF CONSISTENT USAGE
8495 *
1953 B8 C0 00 8496 BMA230 TBN    B@AFLG(,@XR),B@D2MK      IF ARRAY DEFINED AS MATRIX
1956 F2 10 0D 8497          JT      BMA260          * GO CHECK FOR MATRIX USAGE
8498 *
8499 * ARRAY DEFINED AS VECTOR - TEST FOR MATRIX USAGE (AN ERROR CONDITION)
8500 *
1959 7D 32 92 8501 BMA240 CLI    BMASDC(,@BR),B@CSD2      IF ARRAY NOT REDIM'D AS MATRIX
195C D0 01 7D 8502          BNE    BMA300(,@BR)          * GO PUT DOPE VECTOR STK INST
8503 *
8504 * ESTABLISH 'VECTOR REFERENCED AS MATRIX' ERROR CODE
8505 *
195F 3C A9 0A39 8506 BMA250 MVI    BZPERC,@@E603          SET THE ERROR MESSAGE CODE
1963 F2 87 0A 8507          J      BMA280          BRANCH TO GENERATE ERROR CODE
8508 *
8509 * ARRAY DEFINED AS MATRIX - TEST FOR VECTOR USAGE AN ERROR CONDITION)
8510 *
1966 7D 30 92 8511 BMA260 CLI    BMASDC(,@BR),B@CSD1      IF ARRAY NOT REDIM'D AS VECTOR
1969 D0 01 7D 8512          BNE    BMA300(,@BR)          * GO PUT DOPE VECTOR STK INST
8513 *
8514 * ESTABLISH 'MATRIX REFERENCED AS VECTOR' ERROR CODE
8515 *
196C 3C A8 0A39 8516 BMA270 MVI    BZPERC,@@E602          SET THE ERROR MESSAGE CODE
8517 *
8518 * SET OUTPUT ROUTINE FOR 'ADD ERROR' FUNCTION
8519 *
1970 3C 33 094E 8520 BMA280 MVI    BZPFNC,BZPFAE          SET PUT ROUTINE FOR ERRORS
1974 C0 87 093A 8521          B      BBPUTC          LINK TO PUT THE ERROR CODE
1978 F2 87 09 8522          J      BMA310          GO EXIT THE MATRIX REF ROUTINE

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 157
		8524		*****	
		8525		* CODE GENERATION AND SUBROUTINE EXIT	
		8526		*****	
		8527		*	
		8528		* OUTPUT THE ARRAY DOPE VECTOR STACKING INSTRUCTION EXCEPT WHEN THIS	
		8529		* IS NOT REQUIRED DURING MAT ASSIGNMENT STATEMENT PROCESSING	
		8530		*	
197B	1C 02 0A41 97	8531	BMA300 MVC	BZPARP,BMASDP(@CADDR+1,@BR) SET FOR POSSIBLE PSEUDO INST	
		8532		*	
1980	C0 00 093A	8533	BMA305 BC	BBPUTC,*-* LINK TO PUT D/V PMC IF SM ON	
1981		8534	ORG	BMA305+@Q INITIALIZE 'MATRIX PUT' SWITCH	
1981	87	1981 8535	DC	AL1(@UCB) * TO ON STATUS - MAY BE SET	
1984		8536	ORG	BMA305+@INST4 * 'OFF' DURING MAT ASSIGN STMNT	
		8537		*	
		8538		* EXIT - RESTORE REGISTERS AND RETURN TO CALLER	
		8539		*	
1984	35 02 0878	8540	BMA310 L	BZGPTR,@XR RESTORE TEXT CHARACTER POINTER	
1988	C2 01 0000	8541	BMA320 LA	*-*,@BR RESTORE CALLING PROGRAM BASE	
198C	C0 87 0000	8542	BMA330 B	*-* RETURN TO CALLING PROGRAM	

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/07/20 PAGE 158
		8544		*****		
		8545		* PSEUDO MACHINE INSTRUCTION SEQUENCES AND STORAGE PARAMETERS		
		8546		*****		
		8547		*		
1990		1990	8548	BMASDC DS	CL(B@LCOP)	'STK DOPE VECTOR' OPCODE AREA
1991		1992	8549	BMASD0 DS	CL(B@LCVA)	'STK DOPE VECTOR' OPERAND AREA
		8550		*		
1993 1990		1994	8551	DC	AL(@CADDR)(BMASDC)	'STK DOPE VECTOR' CORE ADDRESS
1995 02		1995	8552	BMASDP DC	AL1(B@LSD0-1)	'STK DOPE VECTOR' LENGTH CODE
		8554		*****		
		8555		* BMATXR PROGRAM SWITCH EQUATES		
		8556		*****		
		8557		*		
		18FF	8558	BMAGSW EQU	BMA010+@Q	MAT ASSIGNMENT 'GET' SWITCH
		0007	8559	BMAGMK EQU	@UCB-@NOP	MAT ASSIGNMENT 'GET' SW MASK
		8560		*		
		1903	8561	BMABSW EQU	BMA015+@Q	MAT SYMBOL PROC BYPASS SWITCH
		0007	8562	BMABMK EQU	@UCB-@NOP	MAT SYMBOL PROC BYPASS SW MASK
		8563		*		
		1981	8564	BMAPSW EQU	BMA305+@Q	MAT ASSIGNMENT 'PUT' SWITCH
		0007	8565	BMAPMK EQU	@UCB-@NOP	MAT ASSIGNMENT 'PUT' SW MASK
		8566		*		
		8567		*****		
		8568		*		
		8569		* END OF MATRIX REFERENCE SCAN ROUTINE CODING		
		8570		*		

S/3 BASIC COMPILER BRANCH ADDRESS TABLE RTN

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ERR LOC  OBJECT CODE      ADDR STMT SOURCE STATEMENT      VER 15, MOD 00  04/07/20  PAGE 159

      8572 *****
      8573 *   5703-XM1 COPYRIGHT IBM CORP. 1970          *
      8574 *           REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083      *
      8575 *                                                                 *
      8576 *****
      8577 *STATUS                                          *
      8578 *   VERSION 1 MODIFICATION 0                    *
      8579 *                                                                 *
      8580 *FUNCTION                                        *
      8581 *   * BRATAB IS USED TO ADD ENTRIES AND CONTROL BUFFEF OUTPUT TO THE  *
      8582 *   COMPILER BRANCH ADDRESS TABLE FILE.  THIS FILE IS USED AT      *
      8583 *   LOADER-TIME TO RESOLVE VIRTUAL ADDRESS OPERAND FIELDS IN PSEUDO  *
      8584 *   INSTRUCTIONS WHICH ARE GENERATED IN VIRTUAL MEMORY WITH UNDE-  *
      8585 *   FINED OPERANDS.                                          *
      8586 *   * THIS ROUTINE OPERATES ON TWO INPUT PARAMETERS WHICH ARE USED IN *
      8587 *   RESOLVING THESE UNDEFINED VIRTUAL ADDRESS OPERAND FIELDS -      *
      8588 *       * A VIRTUAL ADDRESS PARAMETER WHICH REFERENCES THE LOCATION    *
      8589 *       REQUIRING RESOLUTION IN VIRTUAL MEMORY.              *
      8590 *       * A PARAMETER WHICH DEFINES THE VIRTUAL ADDRESS TO BE PLACED *
      8591 *       IN THE FIELD REQUIRING RESOLUTION.  THIS PARAMETER MAY BE    *
      8592 *       EITHER THE LINE NUMBER OF THE STATEMENT WHOSE (HEADER      *
      8593 *       INSTRUCTION) VIRTUAL ADDRESS IS THE UNKNOWN, OR THE RE-     *
      8594 *       QUIRED VIRTUAL ADDRESS ITSELF.  THE MAGNITUDE OF THE REFER   *
      8595 *       ENCE IS ULTIMATELY USED TO DIFFERENTIATE BETWEEN THESE      *
      8596 *       TABLE ENTRY TYPES.                                          *
      8597 *   * BOTH INPUT PARAMETERS ARE ADDED TO THE NEXT CONSECUTIVE ENTRY  *
      8598 *   LOCATION IN THE COMPILER BRANCH ADDRESS TABLE BUFFER.  FILLED  *
      8599 *   BUFFERS ARE STORED IN THE FILE ON DISK FOR LATER ACCESS AT      *
      8600 *   LOADER-TIME.  THE LOADER (#LOADR) ACTUALLY PERFORMS THE ADDRESS  *
      8601 *   RESOLUTION OPERATION.                                          *
      8602 *                                                                 *
      8603 *ENTRY POINTS                                          *
      8604 *   * THIS ROUTINE HAS A SINGLE ENTRY POINT - BRATAB - WHOSE FUNCTION *
      8605 *   IS DEFINED ABOVE.  CALLING SEQUENCE IS              *
      8606 *       B       BRATAB                                          *
      8607 *   SUBJECT TO INPUT CONDITIONS DESCRIBED BELOW.              *
      8608 *   * ENTRY POINT BRATAB MAY ALSO BE SPECIFIED AS BSBTAB WHEN CALLED *
      8609 *   FROM ONE OF THE DISK-RESIDENT STATEMENT PROCESSORS.          *
      8610 *                                                                 *
      8611 *INPUT                                              *
      8612 *   * BRAVAD (EXTERNAL BZBRVA,B$BRVA) - 2 BYTES, FOR THE BRANCH      *
      8613 *   ADDRESS TABLE VIRTUAL ADDRESS PARAMETER.  THIS CONTAINS THE     *
      8614 *   VIRTUAL ADDRESS OF THE RIGHT BYTE OF THE PSEUDO INSTRUCTION      *
      8615 *   FIELD REQUIRING RESOLUTION.                                          *
      8616 *   * BRALNO (EXTERNAL BZBRLN, B$BRLN) - 2 BYTES, FOR THE BRANCH    *
      8617 *   ADDRESS TABLE VIRTUAL ADDRESS REFERENCE PARAMETER.            *
      8618 *       * WHEN THIS PARAMETER IS NOT LESS THAN THE BEGINNING PSEUDO  *
      8619 *       INSTRUCTION VIRTUAL ADDRESS (X'4F00'), IT SPECIFIES THE      *
      8620 *       ACTUAL VIRTUAL ADDRESS REQUIRED FOR RESOLUTION.              *
      8621 *       * WHEN THIS REFERENCE IS LESS THAN X'4F00', IT SPECIFIES     *
      8622 *       A LINE NUMBER WHICH DEFINES THE VIRTUAL ADDRESS OF THE      *
      8623 *       HEADER INSTRUCTION FOR A BASIC PROGRAM STATEMENT.          *
      8624 *                                                                 *
      8625 *OUTPUT                                              *
      8626 *   * BRANCH ADDRESS TABLE BUFFER - 256 BYTES, BEGINNING AT CORE   *
      8627 *   ADDRESS B$BABF.  EACH BRATAB EXECUTION CAUSES A TABLE ENTRY    *

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 160
		8628	*	(BRAVAD, BRALNO) TO BE ADDED TO THIS BUFFER.	*
		8629	*	* BRANCH ADDRESS TABLE FILE - THIS 16-SECTOR DISK FILE IS UPDATED	*
		8630	*	WHENEVER THE BRANCH ADDRESS TABLE BUFFER IS FILLED WITH ADDRESS	*
		8631	*	RESOLUTION ENTRY DATA.	*
		8632	*		*
		8633	*	*EXTERNAL REFERENCES	*
		8634	*	* \$DISKN - ENTRY POINT FOR THE SYSTEM PHYSICAL DISK IOCS.	*
		8635	*	* \$WAITF - CORE ADDRESS OF 'WAIT' FUNCTION DISK PARAMETER LIST.	*
		8636	*	* \$CAERK - ENTRY POINT FOR THE SYSTEM ERROR MESSAGE PROGRAM.	*
		8637	*	* \$CAERR - 1 BYTE, FOR THE SYSTEM ERROR PROGRAM MESSAGE CODE.	*
		8638	*	* \$ERRPG - 1 BYTE, FOR THE SYSTEM ERROR PROGRAM CONTROL CODE.	*
		8639	*	* BVDL4T - ENTRY POINT FOR COMPILER 4-TRACK LOGICAL DISK IOCR.	*
		8640	*	* BZBABF - CORE ADDRESS OF THE LEFTMOST BYTE IN THE 256-BYTE	*
		8641	*	BRANCH ADDRESS TABLE BUFFER.	*
		8642	*	* BZBBFR - CORE ADDRESS OF THE RIGHTMOST BYTE IN THE 256-BYTE	*
		8643	*	BRANCH ADDRESS TABLE BUFFER.	*
		8644	*		*
		8645	*	*EXITS, NORMAL	*
		8646	*	CONTROL IS NORMALLY RETURNED TO THE FIRST INSTRUCTION FOLLOWING	*
		8647	*	THE BRATAB CALLING SEQUENCE.	*
		8648	*		*
		8649	*	*EXITS. ERROR	*
		8650	*	A SINGLE ERROR CONDITION IS DETECTED, REFERENCING EXCESSIVE	*
		8651	*	BRANCH ADDRESS TABLE FILE INFORMATION.	*
		8652	*	* ERROR - THE BRANCH ADDRESS TABLE BUFFER IS FILLED AND RE-	*
		8653	*	QUIRES OUTPUT TO DISK, BUT THE BRANCH ADDRESS TABLE FILE IS	*
		8654	*	FILLED TO CAPACITY (16 SECTORS OR 1024 TABLE ENTRIES).	*
		8655	*	WHEN THIS CONDITION IS ENCOUNTERED, COMPILATION IS TERMINATED AND	*
		8656	*	CONTROL IS PASSED TO THE ERROR MESSAGE PROGRAM AT ENTRY POINT	*
		8657	*	\$CAERK WITH THE FOLLOWING CONDITIONS SET.	*
		8658	*	* ERROR CODE \$CAERR IS SET FOR DISPLAY OF THE MESSAGE 'TOO	*
		8659	*	MANY LINE NUMBER REFERENCES'.	*
		8660	*	* CONTROL CODE \$EPRPG IS SET EQUAL CODE \$\$\$NLN FOR LINE NUMBER	*
		8661	*	SUPPRESSION DURING ERROR MESSAGE DISPLAY.	*
		8662	*		*
		8663	*	*TABLES/WORK AREAS	*
		8664	*	* BRAVAD (EXTERNAL BZBRVA, B\$BRVA) 2 BYTES. FOR THE BRATAB	*
		8665	*	VIRTUAL ADDRESS INPUT PARAMETER.	*
		8666	*	BRALNO (EXTERNAL BZBRLN, B\$BRLN) - 2 BYTES, FOR THE BRATAB	*
		8667	*	VIRTUAL ADDRESS REFERENCE INPUT PARAMETER.	*
		8668	*	* BRATPT - 1 BYTE, FOR THE BRANCH ADDRESS TABLE BUFFER POINTER.	*
		8669	*	THIS CONTAINS THE DISPLACEMENT VALUE INDICATING THE NEXT AVAIL-	*
		8670	*	ABLE ENTRY LOCATION IN THE TABLE BUFFER (B\$BABF), AND IS INI-	*
		8671	*	TIALIZED AT COMPILER ENTRY TO REFERENCE THE FIRST ENTRY LOCA-	*
		8672	*	TION IN THIS BUFFER.	*
		8673	*	* BRADPL (EXTERNAL BZBDPL, B\$BDPL) - 6 BYTES, FOR THE BRANCH	*
		8674	*	ADDRESS TABLE FILE DISK PARAMETER LIST. THIS CONTAINS PARA-	*
		8675	*	METERS USED TO OUTPUT THE BRANCH ADDRESS TABLE BUFFER TO DISK.	*
		8676	*	* BRADSA (EXTERNAL BZBDSA, B\$BDSA) - 1 BYTE, FOR THE BRANCH	*
		8677	*	ADDRESS TABLE FILE DISK PARAMETER LIST LOGICAL SECTOR ADDRESS.	*
		8678	*	THIS VALUE, PART OF BRADPL, IS INITIALIZED AT COMPILER ENTRY TO	*
		8679	*	REFERENCE THE FIRST SECTOR IN THE BRANCH ADDRESS TABLE FILE,	*
		8680	*	AND IS UPDATED AS REQUIRED TO REFERENCE THE NEXT AVAILABLE	*
		8681	*	FILE SECTOR.	*
		8682	*		*
		8683	*	*ATTRIBUTES	*

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		8684	*	* REUSABLE			*
		8685	*	* RELOCATABLE			*
		8686	*				*
		8687	*	*CHARACTER CODE DEPENDENCY			*
		8688	*	THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR			*
		8689	*	INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.			*
		8690	*				*
		8691	*	*NOTES			*
		8692	*	ERROR PROCEDURES			*
		8693	*	COMPILATION IS TERMINATED AND CONTROL IS PASSED TO THE ERROR			*
		8694	*	MESSAGE PROGRAM (#ERRPG) USING ENTRY POINT SCAERK WHENEVER			*
		8695	*	BRANCH ADDRESS TABLE FILE CAPACITY IS EXCEEDED (SEE ERROR			*
		8696	*	EXITS).			*
		8697	*	REGISTER USAGE			*
		8698	*	* REGISTER @BR IS SAVED, USED AS A BASE REGISTER, THEN			*
		8699	*	RESTORED AT BRATAB EXIT.			*
		8700	*	* REGISTER @XR IS SAVED, USED AS A GENERAL PURPOSE REGISTER,			*
		8701	*	THEN RESTORED AT BRATAB EXIT.			*
		8702	*	SAVED/RESTORED AREAS			*
		8703	*	N/A			*
		8704	*	MODIFICATION CONSIDERATIONS			*
		8705	*	N/A			*
		8706	*	REQUIRED MODULES			*
		8707	*	* @SYSEQ - COMMON SYSTEM EQUATES.			*
		8708	*	* @FXDEQ - SYSTEM NUCLEUS ADDRESSES AND INDICATOR EQUATES.			*
		8709	*	* @CANEQ - COMMAND ANALYZER ADDRESSES AND INDICATOR EQUATES.			*
		8710	*	* @ERMEQ - SYSTEM ERROR MESSAGE CODE EQUATES.			*
		8711	*	* \$B\$EQU - COMPILER FIXED LOCATION ADDRESS EQUATES.			*
		8712	*	* \$B@EQU - COMPILER PARAMETER AND CONSTANT EQUATES.			*
		8713	*	* BVDL4T - COMPILER 4-TRACK LOGICAL DISK IOCS INTERFACE.			*
		8714	*	* BZCOMN - COMPILER COMMON AREAS AND ADDR REFERENCE EQUATES.			*
		8715	*	OTHER			*
		8716	*	N/A			*
		8717	*	*****			*

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8719 *****
8720 * BRANCH ADDRESS TABLE ROUTINE ENTRY POINT
8721 *****
8722 *
8723 * ENTER BRATAB - SAVE REGISTERS AND SET ADDRESSABILITY
8724 *
1996 8725 BRATAB EQU * BRATAB ENTRY POINT
19A4 8726 USING BRA010,@BR DEFINE BRATAB BASE ADDRESS
1996 34 01 19D2 8727 ST BRA080+@OP1,@BR SAVE CALLING PROG BASE REG
199A C2 01 19A4 8728 LA BRA010,@BR LOAD BRATAB BASE REGISTER
199E 74 02 32 8729 ST BRA090+@OP1(,@BR),@XR SAVE CALLING FROG INDEX REG
19A1 74 08 36 8730 ST BRA100+@OP1(,@BR),@ARR SET RETURN BRANCH ADDRESS
8731 *
8732 * INITIALIZE TO UPDATE THE BRANCH ADDRESS TABLE
8733 *
19A4 75 02 49 8734 BRA010 L BRADCA(,@BR),@XR LOAD BRANCH TABLE BUFFER ADDR
8735 *
8736 * MOVE CURRENT VIRTUAL ADDRESS AND LINE NUMBER PARAMETERS INTO NEXT
8737 * CONSECUTIVE ENTRY POSITION IN THE BRANCH TABLE BUFFER
8738 *
19A7 9C 03 00 4D 8739 BRA020 MVC *-*(,@XR),BRATEN(BRATL,@BR) MOVE PARAMS TO NEXT TABLE
19A9 8740 ORG BRA020+@D1 * ENTRY - INITLZ BRANCH ADDRESS
19A9 03 19A9 8741 DC AL1(BRATL-1) * TABLE BUFFER POINTER TO 1ST
19AB 8742 ORG BRA020+@INST4 * ENTRY POSITION
8743 *
8744 * ADVANCE THE TABLE BUFFER POINTER AND TEST FOR A FULL BUFFER
8745 *
19AB 5E 00 05 43 8746 BRA030 ALC BRATPT(,@BR),BRAENL(1,@BR) INCREMENT TABLE BUFFER POINTER
19AF D0 82 2B 8747 BL BRA080(,@BR) * AND GO EXIT IF BUFF NOT FULL
8748 *
8749 * THE BRANCH ADDRESS TABLE BUFFER IS FULL AND THE POINTER HAS BEEN
8750 * AUTOMATICALLY RESET TO REFERENCE THE FIRST ENTRY LOCATION - TEST
8751 * TO INSURE THAT THE TABLE REGION ON DISK IS NOT ALREADY AT CAPACITY
8752 *
19B2 7D 60 46 8753 BRA040 CLI BRADSA(,@BR),B@DTB1+B@DTBN IF BRANCH TABLE OVERFILLED
19B5 D0 02 37 8754 BNL BRA150(,@BR) * GO SET TERMINATION ERROR
8755 *
8756 * DUMP THE BUFFER TO THE BRANCH ADDRESS TABLE DISK FILE
8757 *
19B8 D2 02 44 8758 BRA050 LA BRADPL(,@BR),@XR LOAD BRANCH TABLE OPL CADDR
19BB C0 87 1A6B 8759 B BVDL4T LINK TO WRITE THE TABLE BUFFER
19BF C0 87 0025 8760 B $DISKN LINK TO WAIT OUTPUT COMPLETED
19C3 057F 19C4 8761 DC AL(@CADDR)($WAITF) CADDR OF DISK IOCR 'WAIT' DPL
8762 *
8763 * INCREMENT THE BRANCH ADDRESS TABLE SECTOR ADDRESS
8764 *
19C5 5E 00 46 47 8765 BRA060 ALC BRADSA(,@BR),BRADSC(1,@BR) INCR BRANCH TABLE SECTOR ADDR
8766 *
8767 * CLEAR THE BRANCH ADDRESS TABLE BUFFER FOR MORE ENTRIES
8768 *
19C9 0F FF 1DFF 1DFF 8769 BRA070 SLC BZBBFR,BZBBFR(B@BLSZ) ZERO THE BRANCH TABLE BUFFER
8770 *
8771 * NORMAL EXIT - RESTORE REGISTERS AND RETURN TO CALLER
8772 *
19CF C2 01 0000 8773 BRA080 LA *-*,@BR RESTORE CALLING PROG BASE REG
19D3 C2 02 0000 8774 BRA090 LA *-*,@XR RESTORE CALLING PROG INDEX REG

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S/3 BASIC COMPILER BRANCH ADDRESS TABLE RTN

ERR LOC		OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/07/20	PAGE 164
			8777		*****			
			8778	*	ERROR EXIT - SET ERROR DISPLAY AND ABORT COMPILATION			
			8779		*****			
			8780	*				
			8781	*	SET ERROR PROGRAM TO DISPLAY 'TOO MANY LINE NO. REFERENCES'			
			8782	*				
19DB	3C	A0 03CE	8783	BRA150	MVI \$ERRPG,\$\$\$NLN			SUPPRESS ERROR LINE NUMBER
19DF	3C	B1 03CD	8784		MVI \$CAERR,@E612			SET THE ERROR MESSAGE CODE
			8785	*				
			8786	*	TERMINATE COMPILER EXECUTION TO DISPLAY THE ERROR MESSAGE			
			8787	*				
19E3	C0	87 0469	8788	BRA160	B \$CAERK			EXIT THE COMPILER

S/3 BASIC COMPILER BRANCH ADDRESS TABLE RTN

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 165
		8790		*****	
		8791	*	BRANCH ADDRESS TABLE ROUTINE CONSTANTS	
		8792		*****	
		8793	*		
19E7 04		19E7 8794	BRAENL DC	AL1(BRATEL)	BRANCH TABLE ENTRY LENGTH
		8795	*		
		8796		*****	
		8797	*	BRANCH ADDRESS TABLE ROUTINE DISK PARAMETER LIST	
		8798		*****	
		8799	*		
		19E8 8800	BRADPL EQU	*	BRANCH ADDRESS TABLE DPL. ADDR
19E8 02		19E8 8801	BRADFN DC	AL1(@DPUT)	DISK IOCR 'WRITE' FUNCTION
19E9 09		19E9 8802	BRADCY DC	AL1(B@DTCY)	COMPILER TABLE BASE CYLINDER
19EA		19EA 8803	BRADSA DS	CL1	BRANCH TABLE LOGICAL SCTR ADDR
19EA		8804	ORG	BRADSA	INITIALIZE SECTOR ADDRESS
19EA 50		19EA 8805	DC	AL1(B@DTB1)	* TO 1ST BRANCH TABLE SECTOR
19EB 01		19EB 8806	BRADSC DC	IL1'1'	TABLE BLOCK SECTOR COUNT
19EC 1D00		19ED 8807	BRADCA DC	AL(@CADDR)(B\$BABF)	BRANCH TABLE BUFFER CORE ADDR
		8809		*****	
		8810	*	BRANCH ADDRESS TABLE ROUTINE WORK AREAS	
		8811		*****	
		8812	*		
19EE		19EF 8813	BRAVAD DS	CL(@VADDR)	BRANCH TABLE VIRTUAL ADDR PARAM
		19EE 8814	BRAVPG EQU	*-2	BRANCH TABLE VIRTUAL PAGE PARAM
19F0		19F1 8815	BRALNO DS	CL(B@LSNO)	BRANCH TABLE LINE NO. PARAMETER
		19F1 8816	BRATEN EQU	*-1	BRANCH TABLE PARAMETERS CADDR
		8818		*****	
		8819	*	BRANCH ADDRESS TABLE ROUTINE EQUATES	
		8820		*****	
		8821	*		
		0004 8822	BRATEL EQU	@VADDR+B@LSNO	BRANCH ADDR TABLE ENTRY LENGTH
		19A9 8823	BRATPT EQU	BRA020+@D1	BRANCH TABLE BUFFER POINTER
		8825		*****	
		8826	*		
		8827	*	END OF BRANCH ADDRESS TABLE ROUTINE CODING	
		8828	*		

S/3 BASIC COMPILER DECIMAL TO BINARY CONVERSION

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/07/20	PAGE 166
		8830		*****			
		8831	*	5703-XM1 COPYRIGHT IBM CORP. 1970			*
		8832	*	REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083			*
		8833	*				*
		8834		*****			*
		8835	*	*STATUS			*
		8836	*	VERSION 1 MODIFICATION 0			*
		8837	*				*
		8838	*	*FUNCTION			*
		8839	*	* BUZDBN CONVERTS A BASIC SOURCE TEXT NUMERIC CONSTANT, CONTAIN-			*
		8840	*	ING UP TO FOUR DECIMAL DIGITS, TO A 2-BYTE BINARY NUMBER.			*
		8841	*	* THIS ROUTINE IS ENTERED WITH REGISTER @XR CONTAINING THE CORE			*
		8842	*	ADDRESS OF THE FIRST CHARACTER IN THE CONSTANT. AFTER EXECU-			*
		8843	*	TION, REGISTER @XR CONTAINS THE CORE ADDRESS OF THE FIRST NON-			*
		8844	*	BLANK CHARACTER FOLLOWING THE CONSTANT.			*
		8845	*	* DECIMAL CONSTANTS OF FROM 1 TO 4 DIGITS CAN BE CONVERTED. THE			*
		8846	*	RESULTING 2-BYTE BINARY VALUE IS LEFT IN A BUZDBN WORK AREA			*
		8847	*	WHEN PROCESSING IS COMPLETED.			*
		8848	*				*
		8849	*	*ENTRY POINTS			*
		8850	*	* THIS ROUTINE HAS A SINGLE ENTRY POINT - BUZDBN - WHOSE FUNCTION			*
		8851	*	IS DEFINED ABOVE. CALLING SEQUENCE IS			*
		8852	*	B BUZDBN			*
		8853	*	SUBJECT TO INPUT CONDITIONS DESCRIBED BELOW.			*
		8854	*	* ENTRY POINT BUZDBN MAY ALSO BE SPECIFIED AS B\$ZDBN WHEN CALLED			*
		8855	*	FROM ONE OF THE DISK-RESIDENT STATEMENT PROCESSORS.			*
		8856	*				*
		8857	*	*INPUT			*
		8858	*	* REGISTER @XR - FOR THE TEXT CHARACTER POINTER REGISTER. THIS			*
		8859	*	IS NORMALLY EQUIVALENT TO THE CURRENT CONTENTS OF TEXT POINTER			*
		8860	*	BZGPTR, AND CONTAINS THE CORE ADDRESS OF THE LEADING CHARACTER			*
		8861	*	IN THE DECIMAL CONSTANT.			*
		8862	*	* COMPILER INPUT BUFFER - THIS CONTAINS SOURCE PROGRAM TEXT			*
		8863	*	INCLUDING THE DECIMAL CONSTANT TO BE PROCESSED.			*
		8864	*				*
		8865	*	*OUTPUT			*
		8866	*	* BUZBBK (EXTERNAL BZBINO, B\$BINO) - 2 BYTES, FOR THE BINARY			*
		8867	*	NUMBER ACCUMULATOR. THIS CONTAINS THE BINARY NUMBER EQUIVALENT			*
		8868	*	OF THE SOURCE DECIMAL CONSTANT.			*
		8869	*	* TEXT CHARACTER POINTER (REGISTER @XR AND BZGPTR) - THIS CON-			*
		8870	*	TAINS THE CORE ADDRESS OF THE FIRST NON-BLANK CHARACTER WHICH			*
		8871	*	FOLLOWS THE FINAL (CR FOURTH) DECIMAL IN THE SOURCE CONSTANT.			*
		8872	*				*
		8873	*	*EXTERNAL REFERENCES			*
		8874	*	* BAGETC - ENTRY POINT FOR COMPILER SOURCE TEXT INPUT ROUTINE.			*
		8875	*				*
		8876	*	*EXITS, NORMAL			*
		8877	*	CONTROL IS ALWAYS RETURNED TO THE FIRST INSTRUCTION FOLLOWING THE			*
		8878	*	BUZDBN CALLING SEQUENCE.			*
		8879	*				*
		8880	*	*EXITS, ERROR			*
		8881	*	N/A			*
		8882	*				*
		8883	*	*TABLES:WORK AREAS			*
		8884	*	* BUZBBK (EXTERNAL BZBINO, B\$BINO) - 2 BYTES, FOR THE ACCUMULATOR			*
		8885	*	WHICH BECOMES THE BINARY NUMBER OUTPUT VALUE.			*

S/3 BASIC COMPILER DECIMAL TO BINARY CONVERSION

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 167
		8886	*	* BUZCVA - 8 BYTES, FOR THE CONVERSION MULTIPLIER CONSTANTS	*
		8887	*	WORK AREA.	*
		8888	*	* BUZBDK - 4 BYTES, FOR THE DECIMAL NUMBER CONSOLIDATION BUCKET,	*
		8889	*	THIS IS PRECEDED WITH A 4-BYTE FIELD (BUZDGD) WHICH	*
		8890	*	CONTAINS ZONED DECIMAL ZEROS AND IS USED DURING	*
		8891	*	DECIMAL NUMBER SHIFTING OPERATIONS.	*
		8892	*		*
		8893	*	*ATTRIBUTES	*
		8894	*	* REUSABLE	*
		8895	*	* RELOCATABLE	*
		8896	*		*
		8897	*	*CHARACTER CODE DEPENDENCY	*
		8898	*	THE OPERATION OF THIS MODULE DEPENDS UPON THE FOLLOWING PROPER-	*
		8899	*	TIES OF THE INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.	*
		8900	*	* MOST CODING HAS BEEN ARRANGED SO THAT REDEFINITION OF CHAR-	*
		8901	*	ACTER CONSTANTS, BY REASSEMBLY. WILL RESULT IN A CORRECT	*
		8902	*	MODULE FOR THE NEW DEFINITION.	*
		8903	*	* NUMERIC CHARACTERS 0 THROUGH 9 ARE PRESUMED TO BE CODED IN	*
		8904	*	INCREASING COLLATING SEQUENCE, AND THE RANGE OF CHARACTER	*
		8905	*	CONSTANTS FOR THIS SERIES IS EXPECTED TO COLLATE HIGHER THAN	*
		8906	*	THAT FOR ANY OTHER CHARACTER IN THE EXTERNAL CHARACTER SET.	*
		8907	*	THE SPECIFIC INSTRUCTIONS (INSTRUCTION SEQUENCES) WHICH REQUIRE	*
		8908	*	MODIFICATION IF THESE PROPERTIES OF THE CHARACTER SET ARE CHANGED	*
		8909	*	MAY BE IDENTIFIED BY -	*
		8910	*	* THE 2 INSTRUCTIONS BEGINNING AT LABEL BUZ020.	*
		8911	*	COMMENTS ARE PROVIDED TO INDICATE THE CONSIDERATIONS INVOLVED AND	*
		8912	*	MECHANISMS FOR CHANGING THE CODE.	*
		8913	*		*
		8914	*	*NOTES	*
		8915	*	ERROR PROCEDURES	*
		8916	*	N/A	*
		8917	*	REGISTER USAGE	*
		8918	*	* REGISTER @BR IS SAVED, USED AS A BASE REGISTER, THEN	*
		8919	*	RESTORED AT BUZDBN EXIT.	*
		8920	*	* REGISTER @XR IS USED AS AN INPUT PARAMETER TO THIS ROUTINE,	*
		8921	*	AND ALSO TO CONTAIN AN OUTPUT PARAMETER AT BUZDBN EXIT.	*
		8922	*	SAVED/RESTORED AREAS	*
		8923	*	N/A	*
		8924	*	MODIFICATION CONSIDERATIONS	*
		8925	*	N/A	*
		8926	*	REQUIRED MODULES	*
		8927	*	* @SYSEQ - COMMON SYSTEM EQUATES.	*
		8928	*	* \$B@EQU - COMPILER PARAMETER AND CONSTANT EQUATES.	*
		8929	*	* BAGETC - COMPILER SOURCE TEXT INPUT ROUTINE.	*
		8930	*	OTHER	*
		8931	*	N/A	*
		8932	*	*****	*

S/3 BASIC COMPILER DECIMAL TO BINARY CONVERSION

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 168
			8934		*****	
			8935		* DECIMAL TO BINARY CONVERSION ROUTINE ENTRY POINT	
			8936		*****	
			8937		*	
			8938		* ENTER BUZDBN - PERFORM REGISTER OPERATIONS	
			8939		*	
			19F2 8940	BUZDBN EQU *	BUZDBN ENTRY POINT	
			19FD 8941	USING BUZ010,@BR	DEFINE BUZDBN BASE ADDRESS	
19F2	34	01 1A4A	8942	ST BUZ110+@OP1,@BR	SAVE CALLING PROGRAM BASE	
19F6	C2	01 19FD	8943	LA BUZ010,@BR	LOAD BUZDBN BASE ADDRESS	
19FA	74	08 51	8944	ST BUZ120+@OP1(,@BR),@ARR	SET RETURN BRANCH ADDRESS	
			8945	*		
			8946	* INITIALIZE FOR DECIMAL NUMBER ACQUISITION AND STORAGE		
			8947	*		
19FD	7C	67 0F	8948	BUZ010 MVI BUZDPT(,@BR),BUZDGD-BUZ010	INITLZ DECIMAL BUCKET POINTER	
			8949	*		
			8950	* MOVE SOURCE TEXT DECIMAL NUMBER TO ZONED DECIMAL BUCKET - IT IS		
			8951	* ASSUMED THAT NO DECIMAL INTEGER (EG. DIMENSION, STATEMENT NO.)		
			8952	* CONTAINS MORE THAN 4 DIGITS.		
			8953	*		
1A00	BD	F0 00	8954	BUZ020 CLI B@CHAR(,@XR),B@DEC0	IF CHAR IS NOT DECIMAL DIGIT	
1A03	F2	82 0F	8955	JL BUZ040	* BRANCH TO BINARY CONVERSION	
			8956	*		
1A06	5E	00 0F 52	8957	ALC BUZDPT(,@BR),BUZBN1(1,@BR)	INCR DECIMAL BUCKET POINTER	
1A0A	6C	00 00 00	8958	BUZ030 MVC *-*(,@BR),B@CHAR(1,@XR)	MOVE DECIMAL CHAR TO BUCKET	
			8959	*		
1A0E	C0	87 0867	8960	B BAGETC	LINK TO GET NEXT CHARACTER	
1A12	D0	87 03	8961	B BUZ020(,@BR)	BRANCH TO ANALYZE THE NEW CHAR	
			8962	*		
			8963	* RIGHT JUSTIFY THE ZONED DECIMAL BUCKET VALUE		
			8964	*		
1A15	5C	00 1F 0F	8965	BUZ040 MVC BUZ050+@DD2(,@BR),BUZDPT(1,@BR)	SET RIGHT JUSTIFY INST	
1A19	5C	03 6B 00	8966	BUZ050 MVC BUZDBK(,@BR),*-(B@LDIN,@BR)	RIGHT JUSTIFY BUCKET VALUE	
			8967	*		
			8968	* INITIALIZE FOR DECIMAL TO BINARY CONVERSION		
			8969	*		
1A1D	5F	01 6D 6D	8970	BUZ060 SLC BUZBBK(,@BR),BUZBBK(B@LBIN,@BR)	CLEAR THE BINARY BUCKET	
1A21	5C	07 63 5B	8971	MVC BUZCVA(,@BR),BUZCVC(BUZSCA,@BR)	SET BINARY CONY CONSTANTS	
			8972	*		
			8973	* TEST FOR A SIGNIFICANT DECIMAL ZERO		
			8974	*		
1A25	7D	F0 6B	8975	BUZ070 CLI BUZDDG(,@BR),B@DEC0	IF DECIMAL DIGIT IS ZERO	
1A28	F2	81 0B	8976	JE BUZ090	* GO PROCESS THE NEXT DIGIT	
			8977	*		
			8978	* ADD A BINARY POWER OF 10 TO THE BINARY BUCKET (ACCUMULATOR) -		
			8979	* DO THIS AS MANY TIMES AS SPECIFIED BY THE DIGIT BEING PROCESSED		
			8980	*		
1A2B	5E	01 6D 63	8981	BUZ080 ALC BUZBBK(,@BR),BUZCVA(B@LBIN,@BR)	ADD BINARY POWER OF 10	
1A2F	57	30 6B 53	8982	SZ BUZDDG(,@BR),BUZDN1(1,@BR)	DECREMENT THE DECIMAL DIGIT	
1A33	D0	01 2E	8983	BNZ BUZ080(,@BR)	REPEAT IF DIGIT NOT YET ZERO	
			8984	*		
			8985	* TEST FOR TERMINATION OF THE CONVERSION		
			8986	*		
1A36	7D	E8 63	8987	BUZ090 CLI BUZCVA(,@BR),BUZBML	IF LAST CONVERSION WAS 10**3	
1A39	F2	81 0B	8988	JE BUZ110	* GO EXIT THE SUBROUTINE	
			8989	*		

S/3 BASIC COMPILER DECIMAL TO BINARY CONVERSION

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/07/20	PAGE 169
					8990	*	SHIFT DECIMAL VALUE AND BINARY CONVERSION CONSTANTS TO PROCESS			
					8991	*	THE NEXT HIGHER ORDER DECIMAL DIGIT			
					8992	*				
	1A3C	5C	02 6B 6A		8993	BUZ100	MVC BUZDDG(,@BR),BUZDDG-1(B@LDIN-1,@BR) SHIFT DECIMAL VALUE			
	1A40	5C	05 63 61		8994		MVC BUZCVA(,@BR),BUZCVA-B@LBIN(BUZSCA-B@LBIN,@BR) SHIFT CONS			
	1A44	D0	87 28		8995		B BUZ070(,@BR) GO PROCESS NEXT DECIMAL DIGIT			
					8996	*				
					8997	*	EXIT - RESTORE REGISTER AND RETURN TO CALLER			
					8998	*				
	1A47	C2	01 0000		8999	BUZ110	LA *-*,@BR RESTORE CALLING PROGRAM BASE			
	1A4B	C0	87 0000		9000	BUZ120	B *-* RETURN TO CALLING PROGRAM			

S/3 BASIC COMPILER DECIMAL TO BINARY CONVERSION

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 170
			9002		*****	
			9003		* DECIMAL TO BINARY CONVERSION ROUTINE CONSTANTS	
			9004		*****	
			9005		*	
1A4F	01		1A4F	9006	BUZBN1 DC IL1'1'	BINARY INTEGER +1
1A50	F1		1A50	9007	BUZDN1 DC DL1'1'	DECIMAL INTEGER +1
			9008		*	
1A51	03E8		1A52	9009	DC XL(B@LBIN)'03E8'	10**3 CONVERSION CONSTANT
1A53	0064		1A54	9010	DC XL(B@LBIN)'0064'	10**2 CONVERSION CONSTANT
1A55	000A		1A56	9011	DC XL(B@LBIN)'000A'	10**1 CONVERSION CONSTANT
1A57	0001		1A58	9012	BUZCVC DC XL(B@LBIN)'0001'	10**0 CONVERSION CONSTANT
			9014		*****	
			9015		* DECIMAL TO BINARY CONVERSION ROUTINE WORK AREAS	
			9016		*****	
			9017		*	
			0008	9018	BUZSCA EQU B@LDIN*B@LBIN	CONV CONSTANT WORK AREA SIZE
1A59			1A60	9019	BUZCVA DS CL(BUZSCA)	CONVERSION CONSTANT WORK AREA
1A61	F0F0F0F0		1A64	9020	BUZDGD DC CL(B@LDIN)'0000'	DECIMAL GUARD DIGITS
1A65			1A68	9021	BUZDBK DS CL(B@LDIN)	DECIMAL NUMBER BUCKET
1A69			1A6A	9022	BUZBBK DS CL(B@LBIN)	BINARY NUMBER ACCUMULATOR
			9024		*****	
			9025		* DECIMAL TO BINARY CONVERSION ROUTINE MISCELLANEOUS EQUATES	
			9026		*****	
			9027		*	
			00E8	9028	BUZBML EQU X'E8'	LOW ORDER BYTE OF BINARY 1000
			1A68	9029	BUZDDG EQU BUZDBK	DECIMAL DIGIT BEING CONVERTED
			1A0C	9030	BUZDPT EQU BUZ030+@D1	DECIMAL BUCKET POINTER
			9031		*	
			9032		*****	
			9033		*	
			9034		* END OF DECIMAL TO BINARY CONVERSION ROUTINE CODING	
			9035		*	

S/3 BASIC COMPILER 4-TRACK LOGICAL DISK IOCR

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/07/20	PAGE 171
		9037		*****			
		9038	*	5703-XM1 COPYRIGHT IBM CORP. 1970			*
		9039	*	REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083			*
		9040	*				*
		9041		*****			*
		9042	*	STATUS			*
		9043	*	VERSION 1 MODIFICATION 0			*
		9044	*				*
		9045	*	FUNCTION			*
		9046	*	* BVDL4T INTERFACES WITH THE PHYSICAL DISK IOCS (DKDISK) TO PER-			*
		9047	*	FORM 4-TRACK DISK OPERATIONS SPECIFIED IN A LOGICAL DISK PARA-			*
		9048	*	METER LIST.			*
		9049	*	* THE LOGICAL DISK PARAMETER LIST REFERENCES BY REGISTER @XR IS			*
		9050	*	USED TO CONSTRUCT AN EQUIVALENT 4-TRACK PHYSICAL DPL, AND THE			*
		9051	*	INDICATED DISK OPERATION IS PERFORMED. THIS REQUIRES ONLY THAT			*
		9052	*	THE 2-BYTE LOGICAL DISK ADDRESS BE CONVERTED TO A PHYSICAL DISK			*
		9053	*	ADDRESS ... THE REMAINING DPL FIELDS REMAIN UNCHANGED.			*
		9054	*	* A LOGICAL DISK ADDRESS CONSISTS OF A BASE CYLINDER ADDRESS AND			*
		9055	*	A SECTOR COUNT WHICH DEFINES THE DISPLACEMENT OF THE DESIRED			*
		9056	*	SECTOR FROM THE FIRST SECTOR IN THIS BASE CYLINDER. WHEN CON-			*
		9057	*	SIDERED IN TERMS OF A 2-DISK (4-TRACK) ENVIRONMENT, EACH DISK			*
		9058	*	CYLINDER CONTAINS 96 SECTORS, AND THE 1ST SECTOR IN A CYLINDER			*
		9059	*	IS SECTOR 0 IN THE UPPER TRACK OF THE REMOVABLE DISK. THE			*
		9060	*	SECTOR DISPLACEMENT IS CONTAINED AS A SINGLE BYTE, AND IS THUS			*
		9061	*	LIMITED TO A VALUE IN THE RANGE 0-255.			*
		9062	*	* EXAMPLES OF DISK ADDRESS CONVERSIONS USING BVDL4T WITH BASE			*
		9063	*	CYLINDER * 7 ARE -			*
		9064	*	* LOGICAL SECTOR 0 - PHYSICAL DISK ADDRESS = X'0700'			*
		9065	*	* LOGICAL SECTOR 17 - PHYSICAL DISK ADDRESS = 0'0744'			*
		9066	*	* LOGICAL SECTOR 78 - PHYSICAL DISK ADDRESS = X'0799'			*
		9067	*	* LOGICAL SECTOR 255 - PHYSICAL DISK ADDRESS = 0'093D'			*
		9068	*				*
		9069	*	ENTRY POINTS			*
		9070	*	* THIS ROUTINE HAS A SINGLE ENTRY POINT - BVDL4T - WHOSE FUNCTION			*
		9071	*	IS DEFINED ABOVE. CALLING SEQUENCE IS			*
		9072	*	B BVDL4T			*
		9073	*	SUBJECT TO INPUT CONDITIONS DESCRIBED BELOW.			*
		9074	*	* ENTRY POINT BVDL4T MAY ALSO BE SPECIFIED AS BSDL4T WHEN CALLED			*
		9075	*	FROM ONE OF THE DISK-RESIDEUT STATEMENT PROCESSORS.			*
		9076	*				*
		9077	*	INPUT			*
		9078	*	* REGISTER @XR - FOR THE DISK PARAMETER LIST POINTER. THIS CON-			*
		9079	*	TAINS THE CORE ADDRESS OF THE FIRST BYTE IN THE LOGICAL DISK			*
		9080	*	PARAMETER LIST.			*
		9081	*	* LOGICAL DISK PARAMETER LIST - 6 BYTES, FOR THE LOGICAL PARA-			*
		9082	*	METERS DEFINING THE 4-TRACK DISK OPERATION TO BE PERFORMED			*
		9083	*	(SEE FUNCTION).			*
		9084	*				*
		9085	*	OUTPUT			*
		9086	*	* BVDL4T PERFORMS THE DISK OPERATION SPECIFIED IN THE LOGICAL			*
		9087	*	DISK PARAMETER LIST.			*
		9088	*				*
		9089	*	EXTERNAL REFERENCES			*
		9090	*	* \$DISKN - ENTRY POINT FOR THE SYSTEM PHYSICAL DISK IOCS.			*
		9091	*				*
		9092	*	EXITS, NORMAL			*

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/07/20	PAGE 172
		9093	*	CONTROL IS ALWAYS RETURNED TO THE FIRST INSTRUCTION FOLLOWING THE	*		
		9094	*	BVDL4T CALLING SEQUENCE.	*		
		9095	*		*		
		9096	*	EXITS, ERROR	*		
		9097	*	N/A	*		
		9098	*		*		
		9099	*	TABLES/WORK AREAS	*		
		9100	*	* BVDDPL - 6 BYTES, FOR THE DISK PARAMETER LIST WORK AREA. THIS	*		
		9101	*	AREA IS USED FOR STORAGE AND CONVERSION OF THE SOURCE (LOGICAL)	*		
		9102	*	DPL PRIOR TO EXECUTION OF THE DISK OPERATION.	*		
		9103	*		*		
		9104	*	ATTRIBUTES	*		
		9105	*	* REUSABLE	*		
		9106	*	* RELOCATABLE	*		
		9107	*		*		
		9108	*	CHARACTER CODE DEPENDENCY	*		
		9109	*	THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR	*		
		9110	*	INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.	*		
		9111	*		*		
		9112	*	NOTES	*		
		9113	*	ERROR PROCEDURES	*		
		9114	*	N/A	*		
		9115	*		*		
		9116	*	REGISTER USAGE	*		
		9117	*	* REGISTER @BR IS SAVED, USED AS A BASE REGISTER, THEN	*		
		9118	*	RESTORED AT BVDL4T EXIT.	*		
		9119	*	* REGISTER @XR IS USED AS AN INPUT PARAMETER, AND REMAINS	*		
		9120	*	UNCHANGED AT BVDL4T EXIT.	*		
		9121	*		*		
		9122	*	SAVED/RESTORED AREAS	*		
		9123	*	N/A	*		
		9124	*		*		
		9125	*	MODIFICATION CONSIDERATIONS	*		
		9126	*	N/A	*		
		9127	*		*		
		9128	*	REQUIRED MODULES	*		
		9129	*	* @SYSEQ - COMMON SYSTEM EQUATES.	*		
		9130	*	* @FXDEQ - SYSTEM NUCLEUS ADDRESSES AND INDICATOR EQUATES.	*		
		9131	*		*		
		9132	*	OTHER	*		
		9133	*	N/A	*		
		9134	*	*****	*		

S/3 BASIC COMPILER 4-TRACK LOGICAL DISK IOCR

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT VER 15, MOD 00 04/07/20 PAGE 173

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9136 *****
9137 * 4-TRACK LOGICAL DISK INTERFACE ROUTINE ENTRY POINT
9138 *****
9139 *
9140 * ENTER BVDL4T - PERFORM REGISTER OPERATIONS
9141 *
1A6B 9142 BVDL4T EQU * BVDL4T ENTRY POINT
1A76 9143 USING BVD010,@BR DEFINE BVDL4T BASE ADDRESS
1A6B 34 01 1AB4 9144 ST BVD090+@OP1,@BR SAVE CALLING PROGRAM BASE
1A6F C2 01 1A76 9145 LA BVD010,@BR LOAD BVDL4T BASE ADDRESS
1A73 74 08 42 9146 ST BVD100+@OP1(,@BR),@ARR SET RETURN BRANCH ADDRESS
9147 *
9148 * STORE SOURCE (LOGICAL) DISK PARAMETER LIST IN THE PHYSICAL DPL WORK
9149 * AREA - ADDRESS OF SOURCE DPL IS CONTAINED IN INDEX REGISTER 2
9150 *
1A76 6C 05 4B 05 9151 BVD010 MVC BVDDPL+BVDPLB(,@BR),BVDPLB(@DPLNG,@XR) STORE SOURCE DPL
9152 *
9153 * INITIALIZE THE CYLINDER/DISK/TRACK INDICATION COUNTER
9154 *
1A7A 5C 01 4D 45 9155 BVD020 MVC BVDCNT(,@BR),BVDCDT(@DADDR,@BR) SET CT FOR MINUS 1 TRACK
9156 *
9157 * DETERMINE THE TRACK SECTOR COUNT (= LOGICAL SECTOR ADDRESS, MOD 24).
9158 * INCREMENT THE CYLINDER/DISK/TRACK INDICATOR DURING EACH PASS THROUGH
9159 * THE SUBTRACTION (DIVISION) LOOP.
9160 *
1A7E 5F 01 4D 45 9161 BVD030 SLC BVDCNT(,@BR),BVDCDT(@DADDR,@BR) INCR CYL/DISK/TRACK COUNT
1A82 5F 00 48 43 9162 SLC BVDDSA(,@BR),BVDNST(1,@BR) DECR THE LOGICAL SECTOR ADDR
1A86 D0 02 08 9163 BNL BVD030(,@BR) REPEAT UNTIL SADDR IS NEGATIVE
1A89 5E 00 48 43 9164 ALC BVDDSA(,@BR),BVDNST(1,@BR) RESTORE POSITIVE SECTOR COUNT
9165 *
9166 * THE DISK PARAMETER LIST NOW CONTAINS THE PHYSICAL SECTOR COUNT -
9167 * THE CYLINDER CORRECTION COUNT CONTAINS THE INCREMENT WITH WHICH TO
9168 * ADJUST THE LOGICAL CYLINDER ADDRESS. AND BITS 0 AND 1 OF THE DISK/
9169 * TRACK INDICATOR BYTE ARE SET RESPECTIVELY TO THE CORRECT PHYSICAL
9170 * DISK AND TRACK STATUS CONDITIONS.
9171 *
9172 * CONVERT THE LOGICAL (BASE) CYLINDER ADDRESS TO A PHYSICAL ADDRESS
9173 *
1A8D 5E 00 47 4C 9174 BVD040 ALC BVDDCY(,@BR),BVDCYC(1,@BR) ADD CORRECTION TO CYL ADDR
9175 *
9176 * PERFORM A TWO BIT LEFT SHIFT ON THE SECTOR COUNT
9177 *
1A91 5E 00 48 48 9178 BVD050 ALC BVDDSA(,@BR),BVDDSA(1,@BR) SHIFT SECTOR COUNT LEFT
1A95 5E 00 48 48 9179 ALC BVDDSA(,@BR),BVDDSA(1,@BR) SHIFT SECTOR COUNT LEFT
9180 *
9181 * SET THE SECTOR ADDRESS DISK (REMOVABLE OR FIXED) INDICATOR BIT
9182 *
1A99 78 80 4D 9183 BVD060 TBN BVDDTI(,@BR),BVDIDM TEST INDICATOR DISK BIT
1A9C F2 90 03 9184 JF BVD070 * AND BRANCH IF NOT ON
1A9F 7A 01 48 9185 SBN BVDDSA(,@BR),BVDSDM SET SADDR FOR FIXED DISK
9186 *
9187 * SET THE SECTOR ADDRESS TRACK (UPPER OR LOWER) INDICATOR BIT
9188 *
1AA2 78 40 4D 9189 BVD070 TBN BVDDTI(,@BR),BVDITM TEST INDICATOR TRACK BIT
1AA5 F2 90 03 9190 JF BVD080 * AND BRANCH IF NOT ON
1AA8 7A 80 48 9191 SBN BVDDSA(,@BR),BVDSTM SET SADDR FOR LOWER TRACK

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15,	MOD 00	04/07/20	PAGE 174
					9192	*					
					9193	*	PERFORM THE DISK OPERATION USING PHYSICAL SECTOR ADDRESS				
					9194	*					
	1AAB	C0	87 0025		9195	BVD080 B	\$DISKN LINK TO EXECUTE DISK I/O				
	1AAF	1ABC		1AB0	9196	DC	AL(@CADDR)(BVDDPL) PARAMETER LIST CORE ADDRESS				
					9197	*					
					9198	*	RESTORE REGISTER AND RETURN CONTROL TO CALLER				
					9199	*					
	1AB1	C2	01 0000		9200	BVD090 LA	*-*,@BR RESTORE CALLING PROGRAM BASE				
	1AB5	C0	87 0000		9201	BVD100 B	*-* RETURN TO CALLING PROGRAM				

S/3 BASIC COMPILER 4-TRACK LOGICAL DISK IOCR

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 175
			9203		*****	
			9204		* LOGICAL DISK INTERFACE CONSTANTS	
			9205		*****	
			9206		*	
1AB9	18		1AB9	9207	BVDNST DC AL1(@DTRSZ)	NO. OF SECTORS PER DISK TRACK
1ABA	FFC0		1ABB	9208	BVDCDT DC XL(@DADDR)'FFC0'	CYLINDER/DISK/TRACK DECREMENT
			9210		*****	
			9211		* LOGICAL DISK INTERFACE DISK PARAMETER LIST	
			9212		*****	
			9213		*	
			1ABC	9214	BVDDPL EQU *	DISK PARAMETER LIST ADDRESS
1ABC			1ABC	9215	BVDDFN DS CL1	DISK IOCR FUNCTION CODE
1ABD			1ABD	9216	BVDDCY DS CL1	DISK IOCR CYLINDER ADDRESS
1ABE			1ABE	9217	BVDDSA DS CL1	DISK IOCR SECTOR ADDRESS
1ABF			1ABF	9218	BVDDSC DS CL1	I/O SECTOR COUNT
1AC0			1AC1	9219	BVDDCA DS CL(@CADDR)	DATA FIELD CORE ADDRESS
			9221		*****	
			9222		* LOGICAL DISK INTERFACE WORK AREA	
			9223		*****	
			9224		*	
1AC2			1AC3	9225	BVDCNT DS CL(@DADDR)	CYLINDER/DISK/TRACK COUNTER
			1AC2	9226	BVDCYC EQU *-2	CYLINDER CORRECTION COUNT
			1AC3	9227	BVDDTI EQU *-1	DISK/TRACK INDICATOR BYTE
			9229		*****	
			9230		* LOGICAL DISK INTERFACE EQUATES REFERENCING CONSTANTS	
			9231		*****	
			9232		*	
			0005	9233	BVDPLB EQU @DPLNG-1	DISP FOR DISK PARAM LEFT BYTE
			0080	9234	BVDIDM EQU X'80'	INDICATOR DISK BIT MASK
			0040	9235	BVDITM EQU X'40'	INDICATOR TRACK BIT MASK
			0001	9236	BVDSDM EQU X'01'	SECTOR ADDR DISK BIT MASK
			0080	9237	BVDSTM EQU X'80'	SECTOR ADDR TRACK BIT MASK
			9238		*	
			9239		*****	
			9240		*	
			9241		* END OF LOGICAL DISK INTERFACE QOUTINE CODING	
			9242		*	

S/3 BASIC COMPILER SIMPLE ARITH ASSIGNMENT RTN

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 176
		9244		*****	*
		9245	*	5703-XM1 COPYRIGHT IBM CORP. 1970	*
		9246	*	REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083	*
		9247	*		*
		9248		*****	*
		9249	*	*STATUS	*
		9250	*	VERSION 1 MODIFICATION 0	*
		9251	*		*
		9252	*	*FUNCTION	*
		9253	*	* BPALET DIRECTS THE GENERATION OF ALL PSEUDO INSTRUCTIONS	*
		9254	*	REQUIRED FOR THE EXECUTION OF SIMPLE ARITHMETIC ASSIGNMENT	*
		9255	*	AND 'LET' STATEMENTS, AND IS USED TO PROCESS THESE STATEMENTS	*
		9256	*	AS THEY OCCUR IN A BASIC PROGRAM.	*
		9257	*	* SOURCE STATEMENT SYNTAX IS ONE OF THESE FORMS -	*
		9258	*	* SIMPLE-ARITH-REFERENCE = ARITH-EXPRESSION	*
		9259	*	* LET SIMPLE-ARITH-REFERENCE = ARITH-EXPRESSION	*
		9260	*	* GENERATED OBJECT CODE SEQUENCE IS -	*
		9261	*	STACK-ARITHMETIC-ADDRESS	*
		9262	*	STACK-EXPRESSION-VALUE	*
		9263	*	UNSTACK-EXPRESSION-VALUE	*
		9264	*		*
		9265	*	*ENTRY POINTS	*
		9266	*	THIS ROUTINE HAS TWO ENTRY POINTS, BOTH OF WHICH PERFORM THE	*
		9267	*	FUNCTION DEFINED ABOVE.	*
		9268	*	* CALLING SEQUENCE FOR PROCESSING A SIMPLE ARITHMETIC ASSIGN-	*
		9269	*	MENT STATEMENT (OPTIONAL KEYWORD 'LET' MISSING) IS	*
		9270	*	B BPAASN	*
		9271	*	* CALLING SEQUENCE FOR PROCESSING A SIMPLE ARITHMETIC 'LET'	*
		9272	*	STATEMENT (OPTIONAL KEYWORD 'LET' INCLUDED) IS	*
		9273	*	B BPALET	*
		9274	*	BOTH CALLING SEQUENCES ARE SUBJECT TO THE INPUT CONDITIONS	*
		9275	*	DESCRIBED BELOW.	*
		9276	*		*
		9277	*	*INPUT	*
		9278	*	* TEXT CHARACTER 'TINTER (BZGPTR) - THIS CONTAINS THE CORE	*
		9279	*	ADDRESS OF THE CHARACTER IMMEDIATELY FOLLOWING THE LINE NUMBER	*
		9280	*	OF THE STATEMENT BEING PROCESSED.	*
		9281	*	* ENTRY POINT BPAASN - THE TEXT POINTER REFERENCES THE FIRST	*
		9282	*	CHARACTER IN THE ASSIGNMENT VARIABLE NAME.	*
		9283	*	* ENTRY POINT BPALET - THE TEXT POINTER REFERENCES THE FIRST	*
		9284	*	CHARACTER IN STATEMENT KEYWORD 'LET'.	*
		9285	*	* COMPILER INPUT BUFFER - THIS CONTAINS THE SOURCE PROGRAM TEXT	*
		9286	*	WHICH INCLUDES THE LEADING CHARACTERS OF THE STATEMENT TO BE	*
		9287	*	PROCESSED.	*
		9288	*		*
		9289	*	*OUTPUT	*
		9290	*	* TEXT CHARACTER POINTER (REGISTER @XR AND BZGPTR) - THIS CON-	*
		9291	*	TAINS THE CORE ADDRESS OF THE CHARACTER WHICH TERMINATES THE	*
		9292	*	PROCESSED STATEMENT (I.E. THE STATEMENT CARRIER RETURN).	*
		9293	*	* VIRTUAL MEMORY - THE PSEUDO INSTRUCTION SEQUENCE GENERATED	*
		9294	*	UNDER CONTROL OF BPALET IS STORED IN THE NEXT AVAILABLE VIRTUAL	*
		9295	*	MEMORY LOCATIONS FOLLOWING PREVIOUSLY STORED INSTRUCTION	*
		9296	*	SEQUENCES. GENERATED PROGRAM CONSTANTS ARE STORED IN VIRTUAL	*
		9297	*	MEMORY UNDER CONTROL OF COMPILER CONSTANT GENERATOR BCFCON.	*
		9298	*		*
		9299	*	*EXTERNAL REFERENCES	*

S/3 BASIC COMPILER SIMPLE ARITH ASSIGNMENT RTN

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/07/20	PAGE 177
		9300	*	* BAGETC - ENTRY POINT FOR COMPILER SOURCE TEXT INPUT ROUTINE.	*		
		9301	*	* BBPUTC - ENTRY POINT FOR COMPILER VIRTUAL MEMORY OUTPUT ROUTINE.	*		
		9302	*	* BFSCAN - ENTRY POINT FOR COMPILER ARITHMETIC EXPRESSION ROUTINE.	*		
		9303	*	* BLISTA - ENTRY POINT FOR COMPILER LIST ELEMENT ADDRESS ROUTINE.	*		
		9304	*	* BHDIST - ENTRY POINT FOR COMPILER ST41T PROCESSOR DISTRIBUTOR.	*		
		9305	*	* BZNUMC - 1 BYTE. FOR THE BAGETC TEXT CHARACTER SKIP PARAMETER.	*		
		9306	*	* BZPARP - 3 BYTES. FOR THE BBPUTC 'ADD RECORD' PARAMETERS.	*		
		9307	*		*		
		9308	*	*EXITS, NORMAL	*		
		9309	*	CONTROL IS ALWAYS PASSED TO THE COMPILER DISTRIBUTOR, BHDIST.	*		
		9310	*		*		
		9311	*	*EXITS, ERROR	*		
		9312	*	N/A	*		
		9313	*		*		
		9314	*	*TABLES/WORK AREAS	*		
		9315	*	* ARITHMETIC VALUE UNSTACKING PMC AND PARAMETERS - USED TO	*		
		9316	*	GENERATE 'USF' VALUE UNSTACKING PSEUDO INSTRUCTIONS USING THE	*		
		9317	*	BBPUTC 'ADD RECORD' FUNCTION.	*		
		9318	*		*		
		9319	*	*ATTRIBUTES	*		
		9320	*	* REUSABLE	*		
		9321	*	* RELOCATABLE	*		
		9322	*		*		
		9323	*	*CHARACTER CODE DEPENDENCY	*		
		9324	*	THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR	*		
		9325	*	INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.	*		
		9326	*		*		
		9327	*	*NOTES	*		
		9328	*	ERROR PPOCEDURES	*		
		9329	*	N/A	*		
		9330	*	REGISTER USAGE	*		
		9331	*	* REGISTER @BR IS SAVED, USED AS A BASE REGISTER IN CALLED	*		
		9332	*	SUBROUTINES, THEN RESTORED PRIOR TO BPALET EXIT.	*		
		9333	*	* REGISTER @XR IS NOT SAVED. IT IS USED AS A TEXT CHARACTER	*		
		9334	*	POINTER REGISTER, AND CONTAINS AN OUTPUT PARAMETER AT	*		
		9335	*	BPALET EXIT.	*		
		9336	*	SAVED/RESTORED AREAS	*		
		9337	*	N/A	*		
		9338	*	MODIFICATION CONSIDERATIONS	*		
		9339	*	N/A	*		
		9340	*	REQUIRED MODULES	*		
		9341	*	* @SYSEQ - COMMON SYSTEM EQUATES.	*		
		9342	*	* \$BBEQU - COMPILER PARAMETER AND CONSTANT EQUATES.	*		
		9343	*	* BAGETC - COMPILER SOURCE TEXT INPUT ROUTINE.	*		
		9344	*	* BBPUTC - COMPILER VIRTUAL MEMORY OUTPUT ROUTINE.	*		
		9345	*	* BFSCAN - COMPILER ARITHMETIC EXPRESSION PROCESSING ROUTINE.	*		
		9346	*	* BLISTA - COMPILER LIST ELEMENT ADDRESS ROUTINE.	*		
		9347	*	* BHDIST - COMPILER STATEMENT PROCESSOR DISTRIBUTOR.	*		
		9348	*	* BZCOMN - COMPILER COMMON AREAS AND ADDRESS REFERENCE EQUATES.	*		
		9349	*	OTHER	*		
		9350	*	N/A	*		
		9351	*	*****	*		

S/3 BASIC COMPILER SIMPLE ARITH ASSIGNMENT RTN

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 178
			9353	*****		
			9354	* SIMPLE ARITHMETIC ASSIGNMENT STATEMENT PROCESSOR ENTRY POINT		
			9355	*****		
			9356	*		
			9357	* ENTER BPALET - SIMPLE ARITHMETIC 'LET' STATEMENT PROCESSOR		
			9358	*		
			1AC4 9359	BPALET EQU *	BPALET ENTRY POINT	
			9360	*		
			9361	* SKIP PAST 'LET' TO 1ST CHARACTER OF ASSIGNMENT SYMBOL		
			9362	*		
1AC4	3C	03 0873	9363	BPA010 MVI BZNUMC,B@LLET	SET GET ROUTINE TO SKIP 'LET'	
1AC8	C0	87 0867	9364	B BAGETC	LINK TO GET 1ST SYMBOL CHAR	
			9365	*		
			9366	* ENTER BPAASW - SIMPLE ARITHMETIC ASSIGNMENT STATEMENT PROCESSOR		
			9367	*		
			1ACC 9368	BPAASN EQU *	BPAASN ENTRY POINT	
			9369	*		
			9370	* GENERATE ADDRESS STACKING INSTRUCTIONS FOR THE ASSIGNMENT ELEMENT		
			9371	*		
1ACC	C0	87 1853	9372	BPA020 B BLISTA	LINK TO PROCESS ASSGNMT SYMBOL	
			9373	*		
			9374	* GENERATE VALUE STACKING INSTRUCTIONS FOR THE SOURCE EXPRESSION		
			9375	*		
1AD0	C0	87 1514	9376	BPA030 B BFSCAN	LINK TO PROCESS EXPRESSION	
			9377	*		
			9378	* GENERATE THE VALUE UNSTACKING PSEUDO INSTRUCTION		
			9379	*		
1AD4	0C	02 0A41 1AE5	9380	BPA040 MVC BZPARP,BPAUFP(@CADDR+1)	SET PUT ROUTINE FOR 'USF' INST	
1ADA	C0	87 093A	9381	B BBPUTC	LINK TO OUTPUT THE 'USF' INST	
			9382	*		
			9383	* RETURN CONTROL TO THE COMPILER DISTRIBUTOR		
			9384	*		
1ADE	C0	87 0700	9385	BPA050 B BHDIST	BRANCH TO DISTRIBUTOR	

ERR LOC		OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 179
				9387	*****	
				9388	* SIMPLE ARITHMETIC 'LET' ROUTINE PMC AND STORAGE PARAMETERS	
				9389	*****	
				9390	*	
1AE2	26		1AE2	9391	BPAUFC DC AL(B@LCOP)(B@CUSF) UNSTACK FLOATING 'USF' OPCODE	
1AE3	1AE2		1AE4	9392	DC AL(@CADDR)(BPAUFC) UNSTACK FLT INST CORE ADDRESS	
1AE5	00		1AE5	9393	BPAUFP DC AL1(B@LUSF-1) UNSTACK FLT INST LENGTH CODE	
				9394	*	
				9395	*****	
				9396	*	
				9397	* END OF SIMPLE ARITHMETIC 'LET* ROUTINE CODING	
				9398	*	

S/3 BASIC COMPILER REM STATEMENT RTN

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 180
		9400		*****	
		9401	*	5703-XM1 COPYRIGHT IBM CORP. 1970	*
		9402	*	REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083	*
		9403	*		*
		9404		*****	
		9405	*	*STATUS	*
		9406	*	VERSION 1 MODIFICATION 0	*
		9407	*		*
		9408	*	*FUNCTION	*
		9409	*	* BNRMRK EXECUTION CAUSES 'REM' STATEMENT CHARACTERS TO BE	*
		9410	*	SCANNED UNTIL A STATEMENT TERMINATOR CHARACTER IS ENCOUNTERED.	*
		9411	*	NO PSEUDO INSTRUCTIONS ARE GENERATED DURING THIS PROCESS.	*
		9412	*	* THIS ROUTINE IS ALSO USED AS A GENERAL PURPOSE STATEMENT CHAR-	*
		9413	*	ACTER BYPASS ROUTINE, AND IS USED WHENEVER THE TEXT CHARACTER	*
		9414	*	POINTER IS TO BE ADVANCED TO REFERENCE THE TERMINATING CHAR-	*
		9415	*	ACTER OF THE STATEMENT CURRENTLY BEING PROCESSED.	*
		9416	*		*
		9417	*	*ENTRY POINTS	*
		9418	*	* THIS ROUTINE HAS A SINGLE ENTRY POINT - BNRMRK - WHOSE FUNCTION	*
		9419	*	IS DEFINED ABOVE. CALLING SEQUENCE IS	*
		9420	*	B BNRMRK	*
		9421	*	SUBJECT TO INPUT CONDITIONS DESCRIBED BELOW.	*
		9422	*	* ENTRY POINT BNRMRK MAY ALSO BE SPECIFIED AS BSRMRK WHEN CALLED	*
		9423	*	FROM ONE OF THE DISK-RESIDENT STATEMENT PROCESSORS.	*
		9424	*		*
		9425	*	*INPUT	*
		9426	*	* TEXT CHARACTER POINTER (BZGPTR) - THIS CONTAINS THE CORE	*
		9427	*	ADDRESS OF A CHARACTER ANYWHERE WITHIN THE STATEMENT WHOSE	*
		9428	*	REMAINING CHARACTERS ARE TO BE SCANNED PAST.	*
		9429	*	* COMPILER INPUT BUFFER - THIS CONTAINS THE SOURCE PROGRAM TEXT	*
		9430	*	WHICH INCLUDES THE STATEMENT CHARACTER FROM WHICH THE TEXT	*
		9431	*	POINTER IS TO BE ADVANCED.	*
		9432	*		*
		9433	*	*OUTPUT	*
		9434	*	* TEXT CHARACTER POINTER (REGISTER @XR AND BZGPTR) - THIS CON-	*
		9435	*	TAINS THE CORE ADDRESS OF THE CHARACTER WHICH TERMINATES THE	*
		9436	*	PROCESSED STATEMENT (I.E. THE STATEMENT CARRIER RETURN).	*
		9437	*		*
		9438	*	*EXTERNAL REFERENCES	*
		9439	*	* BAGETC - ENTRY POINT FOR COMPILER SOURCE TEXT INPUT ROUTINE.	*
		9440	*	* BHDIST - ENTRY POINT FOR COMPILER STMT PROCESSOR DISTRIBUTOR.	*
		9441	*	* BZNUMC - 1 BYTE, FOR THE BAGETC TEXT CHARACTER SKIP PARAMETER.	*
		9442	*		*
		9443	*	*EXITS, NORMAL	*
		9444	*	CONTROL IS ALWAYS PASSED TO THE COMPILER DISTRIBUTOR, BHDIST.	*
		9445	*		*
		9446	*	*EXITS, ERROR	*
		9447	*	N/A	*
		9448	*		*
		9449	*	*TABLES/WORK AREAS	*
		9450	*	N/A	*
		9451	*		*
		9452	*	*ATTRIBUTES	*
		9453	*	* REUSABLE	*
		9454	*	* RELOCATABLE	*
		9455	*		*

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 181
		9456		*CHARACTER CODE DEPENDENCY	*
		9457	*	THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR	*
		9458	*	INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.	*
		9459	*		*
		9460		*NOTES	*
		9461	*	ERROR PROCEDURES	*
		9462	*	N/A	*
		9463	*	REGISTER USAGE	*
		9464	*	* REGISTER @BR IS SAVED, USED AS A BASE REGISTER IN CALLED	*
		9465	*	SUBROUTINES, THEN RESORED PRIOR TO BNRMRK EXIT.	*
		9466	*	* REGISTER @XR IS NOT SAVED. IT IS USED AS A TEXT CHARACTER	*
		9467	*	POINTER REGISTER, AND CONTAINS AN OUTPUT PARAMETER AT	*
		9468	*	BNRMRK EXIT.	*
		9469	*	SAVED/RESTORED AREAS	*
		9470	*	N/A	*
		9471	*	MODIFICATION CONSIDERATIONS	*
		9472	*	N/A	*
		9473	*	REQUIRED MODULES	*
		9474	*	* \$B@EQU - COMPILER PARAMETER AND CONSTANT EQUATES.	*
		9475	*	* BAGETC - COMPILER SOURCE TEXT INPUT ROUTINE.	*
		9476	*	* BHDIST - COMPILER STATEMENT PROCESSOR DISTRIBUTOR.	*
		9477	*	* BZNUMC - COMPILER COMMON AREAS AND ADDRESS REFERENCE EQUATES.	*
		9478	*	OTHER	*
		9479	*	N/A	*
		9480		*****	*

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/07/20	PAGE 182
					9482	*****				
					9483	* 'REM' STATEMENT PROCESSOR ENTRY POINT				
					9484	*****				
					9485	*				
					9486	* ENTER BNRMRK 'REM' STATEMENT PROCESSOR				
					9487	*				
				1AE6	9488	BNRMRK EQU *	BNRMRK ENTRY POINT			
					9489	*				
					9490	* ADVANCE TEXT CHARACTER POINTER TO NEXT CARR RETURN (END OF STMT)				
					9491	*				
1AE6	3C	FF	0873		9492	BNR010 MVI BZNUMC,B@GETE	SET GET PARAM FOR MAXIMUM SKIP			
1AEA	C0	87	0867		9493	B BAGETC	LINK TO GET NEXT CARR RETURN			
					9494	*				
					9495	* RETURN CONTROL TO THE COMPILER DISTRIBUTOR				
					9496	*				
1AEE	C0	87	0700		9497	BNR020 B BHDIST	BRANCH TO DISTRIBUTOR			
					9498	*				
					9499	*****				
					9500	*				
					9501	* END OF 'REM' STATEMENT ROUTINE CODING				
					9502	*				

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	04/07/20	PAGE 183
		9504		*****			
		9505	*	5703-XM1 COPYRIGHT IBM CORP. 1970			*
		9506	*	REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083			*
		9507	*				*
		9508		*****			*
		9509	*	*STATUS			*
		9510	*	VERSION 1 MODIFICATION 0			*
		9511	*				*
		9512	*	*FUNCTION			*
		9513	*	* BZCOMN CONTAINS SEVERAL TABLES AND WORK AREAS WHICH ARE USED IN			*
		9514	*	COMMON BY TWO OR MORE COMPILER ROUTINES OR DISK-RESIDENT STATE-			*
		9515	*	PENT PROCESSOR SEGMENTS.			*
		9516	*	* THIS MODULE ALSO CONTAINS AN EQUATE SECTION WHICH HAS BEEN			*
		9517	*	DEVELOPED TO ASSIST IN DEFINING THE FIXED ADDRESSES IN COMMUNI-			*
		9518	*	CATION EQUATE MODULE \$B\$EQU, WHICH REFERENCES CORE-RESIDENT			*
		9519	*	INSTRUCTIONS AND AREAS FOR USE BY THE DISK-RESIDENT STATEMENT			*
		9520	*	PROCESSORS. BZCOMN EQUATES REFERENCE THE SAME CORE ADDRESSES			*
		9521	*	AS THOSE IN \$B\$EQU, EXCEPT BZCOMN EQUATES ARE DERIVED FROM			*
		9522	*	ASSEMBLED CODE WHILE SBSEOU ADDRESSES ARE MANUALLY ADJUSTED			*
		9523	*	CONSTANTS.			*
		9524	*				*
		9525	*	*EXTERNAL REFERENCES			*
		9526	*	REFER TO THE CORE ADDRESS EQUATE SECTION IN THIS MODULE. EXTER-			*
		9527	*	NAL REFERENCES TO CORE-RESIDENT COMPILER ROUTINE ENTRY POINTS AND			*
		9528	*	PARAMETERS/WORK AREAS ARE GROUPED WITH RESPECT TO EACH MODULE.			*
		9529	*				*
		9530	*	*TABLES/WORK AREAS			*
		9531	*	* BZFILT (EXTERNAL BZFLTA, B\$FLTA) - 64 BYTES, FOR THE 'GET'/'PUT'			*
		9532	*	FILENAMES ALLOCATED FOR USE IN THE CURRENT BASIC PROGRAM. THIS			*
		9533	*	TABLE CONTAINS EIGHT 8-BYTE ENTRY LOCATIONS, AND IS FILLED WITH			*
		9534	*	AVAILABLE WORK FILE I/O RECORD 'GET'/'PUT' FILENAMES DURING			*
		9535	*	COMPILER INITIALIZATION (BGINIT). UNFILLED LOCATIONS ARE SET			*
		9536	*	TO CONTAIN BINARY ZEROS.			*
		9537	*	* BZFORT (EXTERNAL BZFRTA, B\$FRTA) - 40 BYTES, FOR THE 'FOR' LOOP			*
		9538	*	CONTROL VERIFICATION TABLE. THIS CONTAINS TEN 4-BYTE TABLE			*
		9539	*	ENTRY LOCATIONS AND IS USED DURING COMPILATION TO VERIFY THE			*
		9540	*	PRESENCE OF 'FOR'/'NEXT' PAIRS AND TO RESOLVE THE 'FOR' LOOP			*
		9541	*	EXIT BRANCH. EACH ENTRY HAS THE FOLLOWING FORMAT.			*
		9542	*	* BYTES 0,1 - USED TO STORE THE VIRTUAL ADDRESS OF A			*
		9543	*	'FOR'/'NEXT' CONTROL VARIABLE.			*
		9544	*	* BYTES 2,3 - USED TO STORE THE VIRTUAL ADDRESS OF THE 'NXT'			*
		9545	*	PSEUDO INSTRUCTION IN THE 'FOR' STATEMENT PMC SEQUENCE.			*
		9546	*	THE FIRST ENTRY LOCATION IN THIS TABLE IS SET TO BINARY ZEROS.			*
		9547	*	THESE ZEROS MARK THE BOTTOM OF THE TABLE, WHICH IS ACTUALLY A			*
		9548	*	LAST IN - FIRST OUT 'PUSH-DOWN' QUEUE. THUS, UP TO NINE			*
		9549	*	'FOR'/'NEXT' LOOPS MAY BE NESTED IN THE SOURCE PROGRAM.			*
		9550	*	* BZFTPT (EXTERNAL BZFRTPT, B\$FRTPT) - 2 BYTES, FOR THE 'FOR' TABLE			*
		9551	*	POINTER. THIS CONTAINS THE CORE ADDRESS OF THE TOP ENTRY			*
		9552	*	PLACED IN BZFORT, AND IS INITIALIZED AT COMPILER ENTRY TO			*
		9553	*	REFERENCE THE 1ST BYTE (THE BOTTOM GUARD ENTRY POSITION) IN			*
		9554	*	THE TABLE.			*
		9555	*	* BZFTND (EXTERNAL BZFRTTE, B\$FRTTE) - 2 BYTES, FOR THE 'FOR' TABLE			*
		9556	*	ENDING ADDRESS. THIS CONTAINS THE CORE ADDRESS OF THE LAST			*
		9557	*	BYTE IN THE 'FOR' TABLE, AND IS USED TO GUARD AGAINST MORE THAN			*
		9558	*	NINE ENTRIES BEING STACKED IN THE TABLE.			*
		9559	*	* BZDVAD (EXTERNAL BZDLNK, B\$DLNK) - 2 BYTES, FOR THE 'DATA' FILE			*

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 184
		9560	*	LINKAGE OPERAND. THIS IS USED TO STORE THE VIRTUAL ADDRESS OF	*
		9561	*	THE OPERAND FIELD IN THE 'DDL' PSEUDO INSTRUCTION GENERATED FOR	*
		9562	*	THE LAST PROCESSED 'DATA' STATEMENT, AND IS REQUIRED DURING	*
		9563	*	'DDL' INSTRUCTION OPERAND RESOLUTION.	*
		9564	*	* BZIVTB (EXTERNAL BZINVT, B\$INVT) - 87 BYTES, FOR THE 'INPUT'	*
		9565	*	VERIFICATION CODE GENERATION TABLE. THIS CONTAINS 87 1-BYTE	*
		9566	*	ENTRY LOCATIONS, AND IS USED DURING 'INPUT' STATEMENT PROCES-	*
		9567	*	SING TO ACCUMULATE RUN-TIME KEYBOARD INPUT VERIFICATION CODES	*
		9568	*	FOR OUTPUT AS 'STX' PSEUDO INSTRUCTION OPERANDS. THE 87 LOCA-	*
		9569	*	TIONS ARE EXACTLY REQUIRED TO SUPPORT THE WORST-CASE 'INPUT'	*
		9570	*	STATEMENT ASSIGNMENT LIST FOR A 220-CHARACTER LINE.	*
		9571	*	* BZMABK (EXTERNAL BZMFBK, B\$MFBK) - 3 BYTES, FOR THE 'MAT' ASSIGN*	*
		9572	*	MENT FUNCTION BUCKET. THIS IS USED DURING 'MAT' STATEMENT	*
		9573	*	PROCESSING TO ACCUMULATE 3-CHARACTER FUNCTION IDENTIFIERS	*
		9574	*	(E.G. 'A+13' OR 'INV'), AND IS REQUIRED BECAUSE OF THE MULTIPLE	*
		9575	*	OVERLAY SECTORS NORMALLY EMPLOYED DURING 'MAT' STATEMENT PMC	*
		9576	*	GENERATION.	*
		9577	*	* BZSBFR (EXTERNAL B\$SABF, B\$SBFR) - 256 BYTES, FOR THE STATEMENT	*
		9578	*	ADDRESS TABLE BUFFER (SEE BHDIST). THIS IS INITIALIZED AT	*
		9579	*	COMPILER ENTRY TO BINARY ZEROS.	*
		9580	*	* BZBBFR (EXTERNAL B\$BABF, B\$BBFR) - 256 BYTES, FOR THE BRANCH	*
		9581	*	ADDRESS TABLE BUFFER (SEE BRATAB). THIS IS INITIALIZED AT	*
		9582	*	COMPILER ENTRY TO BINARY ZEROS.	*
		9583	*	* SOURCE TEXT INPUT BUFFER (EXTERNAL B\$GTBF) - 256 BYTES, FOR THE	*
		9584	*	SYSTEM WORK FILE COMPILE-TIME INPUT BUFFER (SEE BAGETC). THIS	*
		9585	*	IS PRIMED, BEFORE COMPILER ENTRY, WITH THE FIRST BLOCK OF	*
		9586	*	SOURCE PROGRAM TEXT.	*
		9587	*	* VIRTUAL MEMORY OUTPUT BUFFER (EXTERNAL B\$PTBF) - 256 BYTES, FOR	*
		9588	*	THE PSEUDO MACHINE CODE OUTPUT WORK AREA (SEE BBPUTC). THIS IS	*
		9589	*	PRIMED, BEFORE COMPILER ENTRY, WITH THE WORK FILE I/O RECORD TO	*
		9590	*	FACILITATE THE CONSTRUCTION OF TABLE BZFILT ABOVE. AFTER	*
		9591	*	COMPILER INITIALIZATION, THIS IS USED AS A WORK AREA FOR THE	*
		9592	*	GENERATION OF PMC FOR OUTPUT TO VIRTUAL MEMORY.	*
		9593	*		*
		9594	*	*CHARACTER CODE DEPENDENCY	*
		9595	*	THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR	*
		9596	*	INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.	*
		9597	*		*
		9598	*	*NOTES	*
		9599	*	MODIFICATION CONSIDERATIONS	*
		9600	*	N/A	*
		9601	*		*
		9602	*	REQUIRED MODULES	*
		9603	*	* @SYSEQ - COMMON SYSTEM EQUATES.	*
		9604	*	* @VMDEQ - VIRTUAL MEMORY DIRECTORY EQUATES.	*
		9605	*	* \$B\$EQU - COMPILER FIXED LOCATION ADDRESS EQUATES.	*
		9606	*	* \$B@EQU - COMPILER PARAMETER AND CONSTANT EQUATES.	*
		9607	*	* BAGETC - COMPILER SOURCE TEXT INPUT ROUTINE.	*
		9608	*	* BBPUTC - COMPILER VIRTUAL MEMORY OUTPUT ROUTINE.	*
		9609	*	* BCFCON - COMPILER CONSTANT GENERATOR ROUTINE.	*
		9610	*	* BDSYMB - COMPILER SYMBOL TRANSLATOR ROUTINE.	*
		9611	*	* BECSCN - COMPILER CHARACTER EXPRESSION SCAN ROUTINE.	*
		9612	*	* BFSCAN - COMPILER ARITHMETIC EXPRESSION SCAN ROUTINE.	*
		9613	*	* BLISTA - COMPILER LIST ELEMENT ADDRESS ROUTINE.	*
		9614	*	* BMATXR - COMPILER MATRIX REFERENCE ROUTINE.	*
		9615	*	* BRATAB - COMPILER BRANCH ADDRESS TABLE ROUTINE.	*

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/07/20	PAGE 185
		9616	*		* BUZDBN - COMPILER DECIMAL TO BINARY CONVERSION ROUTINE.			*
		9617	*		* BVDL4T - COMPILER 4-TRACK LOGICAL DISK IOCS INTERFACE.			*
		9618	*		* BNRMRK - COMPILER 'REM' STATEMENT PROCESSOR ROUTINE.			*
		9619	*		* BHDIST - COMPILER STATEMENT PROCESSOR DISTRIBUTOR.			*
		9620	*					*
		9621	*	OTHER				*
		9622	*	N/A				*
		9623	*****					

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/07/20 PAGE 186
				9625	*****		
				9626	* PARAMETER AREA USED BY THE PSEUDO CODE GENERATING		
				9627	* ROUTINES FOR SUBSTRING IF P LET STATEMENTS		
				9628	*****		
				9629	*		
1AF2			1AF3	9630	BZPRM1 DS	CL2	PARAM WORAREA (USED-B\$TRIF) 1-4
1AF4			1AF5	9631	BZRTRN DS	CL2	RETURN ADDR (BSTMLT CONTROL) 1-4
1AF6			1AF7	9632	BZBROP DS	CL2	RETURN BRANCH VADDR OPERAND 1-4
1AF8			1AF9	9633	BZCADR DS	CL2	CADDR OF CONTROL SECTION 1-4
				9635	*****		
				9636	* RELATIONAL OPERATOR - CONDITION CODE TABLE		
				9637	*****		
				9638	*		
			1AFA	9639	BZTTAB EQU	*	START OF CONDITION CODE TABLE 1-4
			0000	9640	BITOD1 EQU	0	DISP FOR TABLE OPERATOR 1-4
			0001	9641	BITCD2 EQU	1	DISP FOR TABLE COND CODE 1-4
			0002	9642	BZTLTH EQU	2	LENGTH OF TABLE ENTRY 1-4
			1AF8	9643	BZTOTB EQU	BZTTAB-BZTLTH	CODE TABLE BASE ADDRESS 1-4
				9644	*		1-4
1AFA 7E			1AFA	9645		DC	AL1(B@EQL) RELATIONAL OPERATOR 1-4
1AFB 84			1AFB	9646		DC	AL1(B@BREQ) BRANCH CONDITION - EQUAL 1-4
				9647	*		1-4
1AFC 6E			1AFC	9648		DC	AL1(B@GRTR) RELATIONAL OPERATOR 1-4
1AFD 88			1AFD	9649		DC	AL1(B@BRHI) BRANCH CONDITION - HI 1-4
				9650	*		1-4
1AFE 4C			1AFE	9651		DC	AL1(B@LESS) RELATIONAL OPERATOR '.' 1-4
1AFF 82			1AFF	9652		DC	AL1(B@BRLO) BRANCH CONDITION - LOW 1-4
				9653	*		1-4
1B00 BA			1B00	9654		DC	AL1(B@LESS+B@GRTR) RELATIONAL OPERATOR 1-4
1B01 94			1B01	9655		DC	AL1(B@BRNE) BRANCH CONDITION - NOT EQUAL 1-4
				9656	*		1-4
1B02 EC			1B02	9657		DC	AL1(B@GRTR+B@EQL) RELATIONAL OPERATOR 1-4
1B03 92			1B03	9658		DC	AL1(B@BRNL) BRANCH CONDITION - NOT LOW 1-4
				9659	*		1-4
1B04 CA			1B04	9660		DC	AL1(B@LESS+B@EQL) RELATIONAL OPERATOR 1-4
1B05 98			1B05	9661		DC	AL1(B@BRNH) BRANCH CONDITION - NOT HIGH 1-4
				9662	*		1-4
1B06 7F			1B06	9663		DC	AL1(B@NEQL) RELATIONAL OPERATOR '=' 1-4
1B07 94			1B07	9664		DC	AL1(B@BRNE) BRANCH CONDITION - NOT EQUAL 1-4
				9665	*		1-4
1B08			1B09	9666	BZFILT DS	CL2	PATCH AREA REMAINING 1-4
				9668	*****		
				9669	* FOR LOOP CONTROL VERIFICATION AND RESOLUTION TABLE		
				9670	*****		
				9671	*		
1B0A 1B35			1B0B	9672	BZFTND DC	AL(@CADDR)(BZFORT+B@SFRT-1)	ADDRESS OF FINAL TABLE ENTRY
				9673	*		
1B0C			1B0D	9674	BZFTPT DS	CL(@CADDR)	'FOR' TABLE ENTRY POINTER
				9675	*		
1B0C				9676		ORG	*-@CADDR INITIALIZE THE POINTER TO
1B0C 1B0E			1B0D	9677		DC	AL(@CADDR)(BZFORT) * REFERENCE 1ST (DUMMY) ENTRY
			1B0E	9678	BZFORT EQU	*	ADDRESS OF FOR TABLE
1B0E			1B35	9679		DS	CL(B@SFRT) 'FOR' TABLE AREA
1B0E				9680		ORG	BZFORT INITIALIZE THE FOR TABLE

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT VER 15, MOD 00 04/07/20 PAGE 187

1B0E 000000000000000000 1B35 9681 DC XL(B@SFRT)'00' * TO ZEROS

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 188
		9683		*****	
		9684	*	COMPILER COMMON SECTION WORK AREAS	
		9685		*****	
		9686	*		
1B36		1B37	9687	BZDVAD DS CL(@VADDR)	'DATA' FILE LINKAGE OPERAND
		9689		*****	
		9690	*	'INPUT' VERIFICATION CODE GENERATION TABLE	
		9691		*****	
		9692	*		
1B38		1B38	9693	BZIVTB EQU *	INPUT VERIFICATION TABLE ADDR
		1B8E	9694	DS CL(B@NIVT*B@LIVT)	INPUT VERIFICATION TABLE AREA
		9696		*****	
		9697	*	MAT ASSIGNMENT PROCESSING FUNCTION ANALYSIS BUCKET	
		9698		*****	
		9699	*		
1B8F		1B8F	9700	BZMABK EQU *	MAT ASSGN FUNCTION BUCKET ADDR
		1B91	9701	DS CL(B@LIFN)	MAT ASSGN FUNCTION BUCKET AREA
		9702	*		
		9703	*	FOLLOWING IS ADDITIONAL BDSYMB CODE	
		9704	*		
		0E11	9705	USING BDS100,@BR	
1B92 4D 01 39 1BAB			9706	BDS802 CLC BDSYM2(2,@BR),BDSTST	IS KEYWORD 'ST'
1B97 F2 01 08			9707	JNE BDS803	IF NOT, SET KEYWORD SWITCH ON
1B9A 3D 00 1BAC			9708	CLI BDSSTA,@ZERO	IS 'STEP' ALLOWED HERE ? *
1B9E C0 81 0F35			9709	BE BDS720	YES, THIS IS NOT A KEYWORD *
1BA2 3A 01 159E			9710	BDS803 SBN BZKWSW,BZKWMK	SET THE KEYWORD SWITCH ON
1BA6 C0 87 0F69			9711	B BDS805	RETURN TO BDSYMB MAIN CODE
1BAA E2E3		1BAB	9712	BDSTST DC CL2'ST'	
			9713	*	
1BAC		1BAC	9714	BDSSTA DS XL1	'STEP' PARAMETER ALLOWED
1BAC			9715	ORG BDSSTA	* INDICATOR: 00 -> NOT ALLOWED,
1BAC 00		1BAC	9716	DC XL1'00'	* NON-ZERO -> ALLOWED

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ERR LOC		OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 189
				9718	* PATCH	
				9719	*****	
				9720	* PATCH AREA 1	
				9721	*****	
				9722	*	
				9723	* CALCULATE AREA LEFT IN THIS SECTOR	
				9724	*	
1C00			1BAD	9725	\$\$\$\$L1 EQU *	START OF PATCH AREA 1
				9726	ORG *,256,0	SET LOC CNTR TO NEXT SECTOR
			1C00	9727	\$\$\$\$T1 EQU *	DEFINE ADDR OF SCTR ENDRY
1BAD				9728	ORG \$\$\$\$L1	SET LOC CNTR TO START OF
				9729	*	* PATCH AREA
1BAD			1BFF	9730	\$\$\$\$\$1 DS CL(\$\$\$\$T1-\$\$\$\$L1)	PATCH AREA
				9731	*** END OF EXPANSION ***	

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/07/20	PAGE 190
				9733	*****				
				9734	* STATEMENT ADDRESS TABLE BUFFER				
				9735	*****				
				9736	*				
1C00				9737	ORG	B\$SABF	START OF STMT ADDR TABLE BUFF		
				9738	*				
1C00			1CFF	9739	BZSBFR	DS	CL(B@BLSZ)	STATEMENT ADDRESS TABLE AREA	
1C00				9740		ORG	*-B@BLSZ	INITIALIZE STMT ADDR TABLE	
1C00	000000000000000000		1CFF	9741		DC	XL(B@BLSZ)'00'	* BUFFER TO ZEROS	

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/07/20	PAGE 191
				9743	*****				
				9744	* BRANCH ADDRESS TABLE BUFFER				
				9745	*****				
				9746	*				
	1D00			9747	ORG	B\$BABF	START OF BRANCH ADDR TABLE BUFF		
	1D00		1DFF	9748	BZBBFR DS	CL(B@BLSZ)	BRANCH ADDRESS TABLE AREA		
	1D00			9749	ORG	*-B@BLSZ	INITIALIZE BRANCH ADDR TABLE		
	1D00	000000000000000000	1DFF	9750	DC	XL(B@BLSZ)'00'	* BUFFER TO ZEROS		

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 192
		9752		*****	
		9753	*	SOURCE TEXT INPUT BUFFER	
		9754		*****	
		9755	*		
		9756	*	THE INPUT BUFFER CONTAINS 256 (B@BLSZ) BYTES, BEGINNING AT	
		9757	*	X'1E00' (B\$GTBF) AND ENDING AT X'1EFF'. IT IS PRIMED, BEFORE	
		9758	*	COMPILER ENTRY, WITH THE FIRST BLOCK OF SOURCE PROGRAM TEXT	
		9759	*	FROM THE SYSTEM WORK AREA.	
		9760	*		
		9761		*****	
		9762	*	PSEUDO MACHINE CODE OUTPUT BUFFER	
		9763		*****	
		9764	*		
		9765	*	THE OUTPUT BUFFER CONTAINS 256 (B@BLSZ) BYTES, BEGINNING AT	
		9766	*	X'1F00' (B\$PTBF) AND ENDING AT X'1FFF', IT IS PRIMED, BEFORE	
		9767	*	COMPILER ENTRY, WITH SYSTEM FILE DIRECTORY-1, THEN USED AS A	
		9768	*	WORK AREA FOR THE GENERATION OF PSEUDO MACHINE CODE FOR OUTPUT	
		9769	*	TO VIRTUAL MEMORY.	
		9770	*		
		9771		*****	

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/07/20 PAGE 193
		9773		*****		
		9774		* CORE RESIDENT ROUTINE ENTRY POINTS AND PARAMETER ADDRESSES		
		9775		*****		
		9776		*		
		0700	9777	BZDIST EQU	BHDIST	ENTRY - COMPILER DISTRIBUTOR
		073A	9778	BZDST2 EQU	BHDST2	ENTRY - STMT PROC SEG LOADER
		07D0	9779	BZLINE EQU	BHDLNO	CURRENT STATEMENT LINE NO.
		0739	9780	BZTYPE EQU	BHDTYP	CURRENT STATEMENT TYPE
		07DA	9781	BZSDPL EQU	BHDSPL	STMT ADDR TABLE DPL CADDR
		07E0	9782	BZSPAT EQU	BHDPAT	CADDR OF STMT PROCESSOR TABLE
		9783		*		
		1996	9784	BZBTAB EQU	BRATAB	ENTRY - BRANCH TABLE ROUTINE
		19EE	9785	BZBRVP EQU	BRAVPG	BRANCH TABLE VIRTUAL PAGE NO.
		19EF	9786	BZBRVA EQU	BRAVAD	BRANCH TABLE VIRTUAL PAGE DISP
		19F1	9787	BZBRLN EQU	BRALNO	BRANCH TABLE STMT LINE NO.
		19E8	9788	BZBDPL EQU	BRADPL	BRANCH ADDR TABLE DPL CADDR
		19EA	9789	BZBDSA EQU	BRADSA	BRANCH TBL FILE NEXT AVAIL SCTR
		9790		*		
		0867	9791	BZGETC EQU	BAGETC	ENTRY - SOURCE TEXT 'GET' RTN
		0873	9792	BZNUMC EQU	BAGCSP	CHARACTER SKIP PARAMETER
		0878	9793	BZGPTR EQU	BAGCPT	INPUT BUFFER POINTER
		9794		*		
		093A	9795	BZPUTC EQU	BBPUTC	ENTRY - COMPILER OUTPUT RTN
		094E	9796	BZPFNC EQU	BBPFNC	'PUT' ROUTINE FUNCTION PARAM
		0015	9797	BZPFWP EQU	BBPFWP	'PUT' RTN 'WRITE PAGE' CODE
		0033	9798	BZPFAE EQU	BBPFAE	'PUT' RTN 'ADD ERROR' CODE
		009D	9799	BZPFCL EQU	BBPFCL	'PUT' RTN 'CLOSE' FUNC CODE
		0A41	9800	BZPARP EQU	BBPARP	'ADD RECORD' DATA PARAMETERS
		0A40	9801	BZPCAD EQU	BBPCAD	CORE ADDR OF PMC STRING
		0A41	9802	BZPNBY EQU	BBPNBY	PMC STRING LENGTH PARAMETER
		0A43	9803	BZPVAD EQU	BBPVAD	NEXT AVAILABLE VADDR FOR PMC
		0A35	9804	BZPCPG EQU	BBPCPG	LAST PAGE FILLED WITH CONSTANTS
		09D3	9805	BZPCDL EQU	BBPCDL	BYTE COUNT FOR LAST PUT STRING
		0A01	9806	BZPBNL EQU	BBPBNL	NO. BYTES LEFT IN CURR PMC BUFF
		0A39	9807	BZPERC EQU	BBPERC	COMPILER ERROR MESSAGE CODE
		0A44	9808	BZPECT EQU	BBPECT	COMPILER ERROR MESSAGE COUNT
		9809		*		
		0A46	9810	BZFCON EQU	BCFCON	ENTRY - CONSTANT ROUTINE
		0A5F	9811	BZCTYP EQU	BCFTYP	CONSTANT RTN TYPE PARAMETER
		001F	9812	BZCCON EQU	BCFCCN	CONSTANT RTN CHAR CON CODE
		001B	9813	BZSCON EQU	BCFSCN	CONSTANT RTN STRING CON CODE
		0CBC	9814	BZCBFA EQU	BCFBFR	CONSTANT CORE BUFFER ADDR
		0CA5	9815	BZCVPG EQU	BCFVPG	CONSTANT VIRTUAL PAGE NO.
		0C5D	9816	BZCVPD EQU	BCFBP1	CONSTANT BUFFER POINTER DISP
		0CA8	9817	BZCPCT EQU	BCFPCT	CONSTANT RTN SEGMENT COUNT
		9818		*		
		0DBC	9819	BZSYMB EQU	BDSYMB	ENTRY - SYMBOL TABLE ROUTINE
		0E53	9820	BZFACA EQU	BDSFAA	FUNC & ARRAY ATTRIBUTE CADDR
		0E4C	9821	BZFSC1 EQU	BDSDV1	USER FUNC ARGUMENT 1ST CHAR
		0E4D	9822	BZESC2 EQU	BDSDV2	USER FUNC ARGUMENT 2ND CHAR
		0E4F	9823	BZFSVA EQU	BDSDVA	USER FUNC ARGUMENT VADDR
		0E46	9824	BZSVRB EQU	BDSVRB	VARIABLE ALLOCATION BASE VADDR
		0E48	9825	BZSFAB EQU	BDSFAB	FAA TABLE ALLOCATION BASE VADDR
		1062	9826	BZSLVT EQU	BDSLVT	LETTER VAR SYMBOL TABLE CADDR
		109C	9827	BZSLDT EQU	BDSLDT	LTR-DIG VAR SYMBOL TABLE CADDR
		12E0	9828	BZSCVT EQU	BDSCVT	CHAR VAR SYMBOL TABLE CADDR

S/3 BASIC COMPILER COMMON SECTION

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	04/07/20	PAGE 194
		131A	9829	BZSNAT	EQU	BDSNAT		ARITH ARRAY SYMBOL TABLE CADDR
		13C8	9830	BZSCAT	EQU	BDSCAT		CHAR ARRAY SYMBOL TABLE CADDR
		143C	9831	BZSFNT	EQU	BDSFNT		USER FUNC SYMBOL TABLE CADDR
			9832	*				
		14B0	9833	BZCSCN	EQU	BECSN		ENTRY - CHARACTER SCAN RTN
			9834	*				
		1514	9835	BZSCAN	EQU	BFSCAN		ENTRY - ARITHMETIC SCAN RTN
		1590	9836	BZBCKT	EQU	BFSBKT		SYMBOL ADDR OUTPUT PARAMETER
		15AC	9837	BZFAIS	EQU	BFSAIS		VADDR FOR 1ST INTERNAL CONSTANT
		15A0	9838	BZFAIW	EQU	BFSAIW		VADDR FOR 1ST INTERNAL VARIABLE
		15A8	9839	BZFVPE	EQU	BFSAIE		VADDR OF INTERNAL CON &E
		15AA	9840	BZFVPP	EQU	BFSAIP		VADDR OF INTERNAL CON &PI
		15AC	9841	BZFVPS	EQU	BFSAIS		VADDR OF INTERNAL CON &SQR2
		15A2	9842	BZFVME	EQU	BFSAME		VADDR OF INTERNAL CON -&E
		15A4	9843	BZFVMP	EQU	BFSAMP		VADDR OF INTERNAL CON -&PI
		15A6	9844	BZFVMS	EQU	BFSAMS		VADDR OF INTERNAL CON -&SQR2
			9845	*				
		1853	9846	BZLIST	EQU	BLISTA		ENTRY - ASSIGNMENT LIST RTN
		18F2	9847	BZLTYP	EQU	BLITYP		LIST ELEMENT TYPE CODE BYTE
			9848	*				
		18F3	9849	BZMATR	EQU	BMATXR		ENTRY - MATRIX REFERENCE RTN
			9850	*				
		19F2	9851	BZZDBN	EQU	BUZDBN		ENTRY - DECIMAL TO BINARY CONY
		1A6A	9852	BZBINO	EQU	BUZBBK		BINARY NUMBER ACCUMULATOR
			9853	*				
		1A6B	9854	BZDL4T	EQU	BVDL4T		ENTRY - DISK 4-TRACK LIOCR
			9855	*				
		1AE6	9856	BZRMRK	EQU	BNRMRK		ENTRY - 'REM' STMT PROCESSOR

S/3 BASIC COMPILER COMMON SECTION

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/07/20 PAGE 195
		9858		*****		
		9859		* MISCELLANEOUS COMPILER COMMON EQUATES		
		9860		*****		
		9861		*		
	1B38	9862	BZINVT	EQU	BZIVTB	INPUT VERIFICATION TABLE ADDR
	1B8F	9863	BZMFBK	EQU	BZMABK	MAT ASSIGN FUNCTION BUCKET ADDR
		9864		*		
	1B0E	9865	BZFRTA	EQU	BZFORT	'FOR' TABLE STARTING ADDRESS
	1B0D	9866	BZFRTPT	EQU	BZFTPT	'FOR' TABLE ENTRY POINTER
	1B0B	9867	BZFRTE	EQU	BZFTND	'FOR' TABLE ENDING ADDRESS
		9868		*		
	1B37	9869	BZDLNK	EQU	BZDVAD	'DATA' FILE LINKAGE OPERAND
	15A0	9870	BZWORK	EQU	BFSAIW	VIRTUAL ADDR CONSTANT FOR &WRK
		9871		*		
	0A35	9872	BZPPWA	EQU	BBPWSA	CADDR OF BBPUTC PRECISION AREA
	0CA6	9873	BZCPWA	EQU	BCFPWA	CADDR OF BCFCON PRECISION AREA
	0E46	9874	BZDPWA	EQU	BDSPWA	CADDR OF BDSYMB PRECISION AREA
	15AC	9875	BZFPWA	EQU	BFSPWA	CADDR OF BFSCAN PRECISION AREA

S/3 BASIC COMPILER COMMON SECTION

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 04/07/20 PAGE 196
				9877	*****		
				9878	* COMPILER COMMON SWITCHES		
				9879	*****		
				9880	*		
			0A45	9881	BZARSW EQU	BBPASW	'ADD RECORD' EXEC SWITCH
			0001	9882	BZARMK EQU	BBPAMK	'ADD RECORD' EXEC SWITCH MASK
				9883	*		
			0993	9884	BZERSW EQU	BBPESW	COMPILER ERN1R SWITCH
			0007	9885	BZERMK EQU	BBPEMK	COMPILER ERROR SWITCH MASK
				9886	*		
			08AF	9887	BZGBSW EQU	BAGBSW	GETC 'BLANK' BYPASS SWITCH
			0001	9888	BZGBMK EQU	BAGBMK	GETC 'BLANK' BYPASS SWITCH MASK
				9889	*		
			071D	9890	BZNXSW EQU	BHDNSW	'NEXT' UNRESOLVED BRANCH SWITCH
			0007	9891	BZNXMK EQU	BHDNMK	'NEXT' UNRESOLVED BRANCH MASK
				9892	*		
			0E5C	9893	BZFSSW EQU	BDSFSW	USER FUNCTION SCAN SWITCH
			0007	9894	BZFSMK EQU	BDSFMK	USER FUNCTION SCAN SWITCH MASK
				9895	*		
			159D	9896	BZADSW EQU	BFSASW	AVAILABLE ADDRESS SWITCH
			0001	9897	BZADMK EQU	BFSAMK	AVAILABLE ADDRESS SWITCH MASK
				9898	*		
			159E	9899	BZKWSW EQU	BFSKSW	EXPRESSION KEYWORD SWITCH
			0001	9900	BZKWMK EQU	BFSKMK	EXPRESSION KEYWORD SWITCH MASK
				9901	*		
			16CC	9902	BZFRSW EQU	BFSFSW	FUNCTION REFERENCE SWITCH
			0007	9903	BZFRMK EQU	BFSFMK	FUNCTION REFERENCE SWITCH MASK
				9904	*		
			16E5	9905	BZIFSW EQU	BFSISW	INTRINSIC FUNCTION SWITCH
			0007	9906	BZIFMK EQU	BFSIMK	INTRINSIC FUNCTION SWITCH MASK
				9907	*		
			0E42	9908	BZCRSW EQU	BDSCSW	CHARACTER REFERENCE SWITCH
			0001	9909	BZCRMK EQU	BDSCMK	CHARACTER REFERENCE SWITCH MASK
				9910	*		
			14BC	9911	BZCSSW EQU	BECSSW	CHARACTER EXPR SCAN SWITCH
			0007	9912	BZCSMK EQU	BECSMK	CHARACTER EXPR SCAN SWITCH MASK
				9913	*		
			0DDE	9914	BZMRSW EQU	BDSMSW	MATRIX REFERENCE SCAN SWITCH
			0007	9915	BZMRMK EQU	BDSMMK	MATRIX REFERENCE SCAN SW MASK
				9916	*		
			18FF	9917	BZMGSW EQU	BMAGSW	MAT ASSIGNMENT 'GET' SWITCH
			0007	9918	BZMGMK EQU	BMAGMK	MAT ASSIGNMENT 'GET' SW MASK
				9919	*		
			1903	9920	BZMBSW EQU	BMABSW	MAT SYMBOL PROC BYPASS SWITCH
			0007	9921	BZMBMK EQU	BMABMK	MAT SYMBOL PROC BYPASS SW MASK
				9922	*		
			1981	9923	BZMPSW EQU	BMAPSW	MAT ASSIGNMENT 'PUT' SWITCH
			0007	9924	BZMPMK EQU	BMAPMK	MAT ASSIGNMENT 'PUT' SW MASK

S/3 BASIC COMPILER COMMON SECTION

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 04/07/20 PAGE 197
		9926		*****	
		9927	*	END OF S/3 BASIC COMPILER CORE-RESIDENT SECTION (JULY 2020 HJS)	
		9928		*****	
		9929	*		
		9930	*	END OF COMPILER COMMON SECTION	
		9931	*		
		FFFF 9932		END	
TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY =					0

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$\$\$\$\$	001	0600	2796	
\$\$\$\$\$1	083	1BFF	9730	
\$\$\$\$L1	001	1BAD	9725	9728 9730
\$\$\$\$T1	001	1C00	9727	9730
\$\$NLN	001	00A0	2568	4645 8783
\$\$ZERO	001	0000	0223	0224 0226 0227 0228 0232
\$ABORT	001	0010	0336	
\$BASIC	001	0080	0394	
\$BIGCD	001	0080	0470	
\$BLDPL	001	0579	0603	0605
\$BLNOE	001	0569	0593	
\$BLOAD	001	0522	0584	0586 0589 0602 0603
\$BLRTN	001	0550	0592	0593
\$BRSAV	001	03C5	0281	0282
\$BSADR	001	0587	0608	0610
\$BUFPT	001	03E3	0489	0490
\$CABLD	001	04B4	0562	0563
\$CAERK	001	0469	0539	0542 4650 8788
\$CAERR	001	03CD	0287	0289 4646* 8784*
\$CAIPL	001	049D	0558	0560
\$CALLI	001	0008	0479	
\$CARDI	001	0001	0250	
\$CARPL	001	04A1	0560	0562
\$CIENT	001	0483	0549	0550
\$CIEXT	001	0480	0548	0549
\$CIMSK	001	0476	0545	0548
\$CISUS	001	0496	0553	0558
\$CLBFR	001	0010	0437	2810
\$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	2811 2853 2908 3425 3428 3485 4067 4482 4628 8760 9195
\$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

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$DTNMB	001	0040	0270	
\$DTRDR	001	0040	0358	
\$ENDNU	001	0600	0617	0628
\$ERDPL	001	046F	0542	0544
\$ERFIL	001	0040	0297	
\$ERHRD	001	0004	0429	
\$ERKEY	001	0080	0301	
\$ERLOG	001	0345	0231	
\$ERMAD	001	0472	0544	0545
\$ERPND	001	0004	0402	
\$ERRCT	001	03CF	0303	
\$ERRPG	001	03CE	0291	4645* 8783*
\$ERSFL	001	0035	0296	
\$ERSTK	001	0030	0294	
\$ER050	001	0363	0232	
\$ER1N2	001	0050	0299	
\$EXADR	001	0517	0577	0579
\$EXCMD	001	0001	0331	
\$EXFTR	001	043B	0513	0518 2838 2846
\$FCIND	001	0010	0409	
\$FDIND	001	0040	0416	
\$FEARR	001	0004	0224	
\$FEMAP	001	0588	0610	0611
\$FILIB	001	03DA	0460	0461
\$FITIN	001	0010	0385	
\$FUIND	001	0020	0414	
\$GUFIO	001	0583	0607	0608
\$GUFIR	001	0008	0259	
\$HISTE	001	042E	0510	0511
\$HIST1	001	0435	0511	0512
\$HRDER	001	0020	0355	
\$INDR1	001	03D4	0371	0397
\$INDR2	001	03D5	0397	0422
\$INDR3	001	03D6	0422	0449 2810*
\$INLNO	001	03CF	0289	0291 0303 0310 2822 2822*
\$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	
\$KE090	001	00DE	0227	
\$KE130	001	01D5	0228	
\$KYBSY	001	0010	0264	
\$LDRTN	001	0571	0602	
\$LEVEL	001	03DF	0472	0474
\$LIST	001	0002	0426	
\$LMRGN	001	03C1	0242	0244
\$LNPTR	001	0080	0361	
\$LOADB	001	054A	0586	
\$LOADR	001	051A	0579	0582
\$LPRIO	001	03EA	0496	
\$LPROS	001	03E5	0491	0493

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$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	
\$NOLST	001	0004	0256	
\$NUCBS	001	03C0	0239	0240
\$NWRKF	001	0080	0445	
\$NWRKR	001	0040	0442	
\$PASWD	001	042D	0509	0510
\$PAUSD	001	04BA	0563	0565
\$PAUSE	001	0002	0333	
\$PGMDT	001	0020	0388	
\$PGMST	001	0010	0352	
\$PKERT	001	0419	0507	0509
\$PLST1	001	0454	0528	0529
\$PLST2	001	045B	0529	0530
\$PLST3	001	0462	0530	0531
\$PRDEV	001	044B	0525	0527
\$PRESN	001	0002	0376	
\$PROCI	001	0001	0373	
\$PRPOS	001	03C2	0244	0247
\$PSDBR	001	04FA	0568	
\$PSDXR	001	04F2	0567	0568
\$PSTEP	001	0004	0334	
\$PSTMT	001	0008	0335	
\$PTCH1	001	03F5	0498	0502
\$READY	001	0080	0418	
\$REORD	001	0040	0476	
\$RLOAD	001	051E	0582	0584
\$RMGRN	001	03C0	0240	0242
\$RSTR	001	04D6	0565	0567 0569 0574
\$RUNIT	001	0001	0312	
\$SFAID	001	050D	0570	
\$SPRNT	001	0465	0537	0539
\$SRTRN	001	04FE	0569	0570
\$STEPT	001	0002	0313	
\$SWPCR	001	0511	0575	0577
\$TABLN	001	03CB	0284	0287
\$TFLOW	001	0008	0319	
\$TRACE	001	0004	0314	
\$TRALL	001	0010	0320	
\$TROVR	001	054E	0589	0592
\$TRUNK	001	0080	0272	
\$TRVAR	001	0020	0321	
\$UNMSK	001	048D	0550	0553 3357
\$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 2909 3429 3486 4068 4483 4629 8761
\$WFDEF	001	0040	0519	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$WFLOK	001	0008	0382	
\$WFNME	001	0443	0518	0523
\$WSIND	001	0004	0379	
\$XIND1	001	03D0	0310	0329 2826
\$XIND2	001	03D1	0329	0338
\$XIND3	001	03D8	0457	0460
\$XPREC	001	0040	0322	2826
\$XRSAV	001	03C7	0282	0284
\$ZTRAD	001	05A2	0611	
\$12K	001	0004	0466	
\$16CKY	001	0008	0468	
\$16K	001	0002	0465	
\$22IMP	001	0001	0463	
#\$BCO	001	0600	2793	2795
#\$@BCO	001	0018	2794	
#\$BCOM	001	0080	2792	
#BCOM	001	0607	2799	
#BCOMP	001	0000	0001	
@@E001	001	0000	2056	2058
@@E003	001	0001	2058	2060
@@E004	001	0002	2060	2062
@@E005	001	0003	2062	2064
@@E006	001	0004	2064	2066
@@E007	001	0005	2066	2068
@@E008	001	0006	2068	2070
@@E009	001	0007	2070	2072
@@E010	001	0008	2072	2074
@@E011	001	0009	2074	2076
@@E012	001	000A	2076	2078
@@E013	001	000B	2078	2080
@@E014	001	000C	2080	2082
@@E015	001	000D	2082	2084
@@E016	001	000E	2084	2086
@@E017	001	000F	2086	2088
@@E018	001	0010	2088	2090
@@E019	001	0011	2090	2092
@@E020	001	0012	2092	2094
@@E021	001	0013	2094	2096
@@E023	001	0014	2096	2098
@@E024	001	0015	2098	2100
@@E025	001	0016	2100	2102
@@E026	001	0017	2102	2104
@@E027	001	0018	2104	2106
@@E028	001	0019	2106	2108
@@E029	001	001A	2108	2110
@@E030	001	001B	2110	2112
@@E031	001	001C	2112	2114
@@E032	001	001D	2114	2116
@@E035	001	001E	2116	2118
@@E036	001	001F	2118	2120
@@E037	001	0020	2120	2122
@@E038	001	0021	2122	2124
@@E039	001	0022	2124	2126
@@E040	001	0023	2126	2128
@@E041	001	0024	2128	2130
@@E042	001	0025	2130	2132

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E043	001	0026	2132	2134
@@E044	001	0027	2134	2136
@@E045	001	0028	2136	2138
@@E046	001	0029	2138	2140
@@E060	001	002A	2140	2142
@@E080	001	002B	2142	
@@E100	001	0000	1528	1530
@@E101	001	0001	1530	1532
@@E102	001	0002	1532	1534
@@E103	001	0003	1534	1536
@@E110	001	0004	1536	1538
@@E112	001	0005	1538	1540
@@E113	001	0006	1540	1542
@@E114	001	0007	1542	1544
@@E115	001	0008	1544	1546
@@E116	001	0009	1546	1548
@@E117	001	000A	1548	1550
@@E120	001	000B	1550	1552
@@E122	001	000C	1552	1554
@@E123	001	000D	1554	1556
@@E124	001	000E	1556	1558
@@E129	001	000F	1558	1560
@@E130	001	0010	1560	1562
@@E131	001	0011	1562	1564
@@E133	001	0012	1564	1566
@@E134	001	0013	1566	1568
@@E135	001	0014	1568	1570
@@E136	001	0015	1570	1572
@@E137	001	0016	1572	1574
@@E138	001	0017	1574	1576
@@E139	001	0018	1576	1578
@@E142	001	0019	1578	1580
@@E143	001	001A	1580	1582
@@E150	001	001B	1582	1584
@@E151	001	001C	1584	1586
@@E160	001	001D	1586	1588
@@E162	001	001E	1588	1590
@@E163	001	001F	1590	1592
@@E164	001	0020	1592	1594
@@E200	001	0021	1594	1596
@@E205	001	0022	1596	1598
@@E210	001	0023	1598	1600
@@E211	001	0024	1600	1602
@@E212	001	0025	1602	1604
@@E213	001	0026	1604	1606
@@E215	001	0027	1606	1608
@@E216	001	0028	1608	1610
@@E217	001	0029	1610	1612
@@E220	001	002A	1612	1614
@@E221	001	002B	1614	1616
@@E222	001	002C	1616	1618
@@E223	001	002D	1618	1620
@@E225	001	002E	1620	1622
@@E226	001	002F	1622	1624
@@E227	001	0030	1624	1626
@@E228	001	0031	1626	1628

CROSS REFERENCE

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@@E229	001	0032	1628	1630	
@@E230	001	0033	1630	1632	
@@E232	001	0034	1632	1634	
@@E234	001	0035	1634	1636	
@@E237	001	0036	1636	1638	
@@E240	001	0037	1638	1640	
@@E241	001	0038	1640	1642	2531
@@E242	001	0039	1642	1644	
@@E248	001	003A	1644	1646	
@@E249	001	003B	1646	1648	
@@E250	001	003C	1648	1650	
@@E251	001	003D	1650	1652	
@@E252	001	003E	1652	1654	
@@E253	001	003F	1654	1656	
@@E254	001	0040	1656	1658	
@@E255	001	0041	1658	1660	
@@E256	001	0042	1660	1662	
@@E300	001	0043	1662	1664	
@@E301	001	0044	1664	1666	
@@E302	001	0045	1666	1668	
@@E303	001	0046	1668	1670	
@@E304	001	0047	1670	1672	
@@E305	001	0048	1672	1674	
@@E308	001	0049	1674	1676	
@@E310	001	004A	1676	1678	
@@E315	001	004B	1678	1680	
@@E316	001	004C	1680	1682	
@@E320	001	004D	1682	1684	
@@E325	001	004E	1684	1686	
@@E330	001	004F	1686	1688	
@@E335	001	0050	1688	1690	
@@E338	001	0051	1690	1692	
@@E340	001	0052	1692	1694	
@@E350	001	0053	1694	1696	
@@E351	001	0054	1696	1698	
@@E352	001	0055	1698	1700	
@@E360	001	0056	1700	1702	
@@E361	001	0057	1702	1704	
@@E362	001	0058	1704	1706	
@@E371	001	0059	1706	1708	
@@E380	001	005A	1708	1710	
@@E390	001	005B	1710	1712	
@@E400	001	005C	1712	1714	
@@E410	001	005D	1714	1716	
@@E415	001	005E	1716	1718	
@@E417	001	005F	1718	1720	
@@E420	001	0060	1720	1722	
@@E430	001	0061	1722	1724	
@@E432	001	0062	1724	1726	
@@E433	001	0063	1726	1728	
@@E450	001	0064	1728	1730	
@@E451	001	0065	1730	1732	
@@E460	001	0066	1732	1734	
@@E461	001	0067	1734	1736	
@@E464	001	0068	1736	1738	
@@E465	001	0069	1738	1740	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E466	001	006A	1740	1742
@@E467	001	006B	1742	1744
@@E469	001	006C	1744	1746
@@E470	001	006D	1746	1748
@@E471	001	006E	1748	1750
@@E473	001	006F	1750	1752
@@E474	001	0070	1752	1754
@@E475	001	0071	1754	1756
@@E476	001	0072	1756	1758
@@E477	001	0073	1758	1760
@@E478	001	0074	1760	1762
@@E479	001	0075	1762	1764
@@E480	001	0076	1764	1766
@@E481	001	0077	1766	1768
@@E482	001	0078	1768	1770
@@E483	001	0079	1770	1772
@@E484	001	007A	1772	1774
@@E485	001	007B	1774	1776
@@E486	001	007C	1776	1778
@@E487	001	007D	1778	1780
@@E488	001	007E	1780	1782
@@E489	001	007F	1782	1784
@@E490	001	0080	1784	1786
@@E491	001	0081	1786	1788
@@E492	001	0082	1788	1790
@@E493	001	0083	1790	1792
@@E494	001	0084	1792	1794
@@E495	001	0085	1794	1796
@@E496	001	0086	1796	1798
@@E497	001	0087	1798	1800
@@E498	001	0088	1800	1802
@@E500	001	0089	1802	1804
@@E501	001	008A	1804	1806
@@E530	001	008B	1806	1808
@@E531	001	008C	1808	1810
@@E535	001	008D	1810	1812
@@E540	001	008E	1812	1814
@@E541	001	008F	1814	1816
@@E542	001	0090	1816	1818
@@E543	001	0091	1818	1820
@@E544	001	0092	1820	1822
@@E545	001	0093	1822	1824
@@E546	001	0094	1824	1826
@@E547	001	0095	1826	1828
@@E548	001	FFFF	2032	
@@E549	001	0096	1828	1830
@@E550	001	0097	1830	1832
@@E551	001	0098	1832	1834
@@E552	001	0099	1834	1836
@@E553	001	009A	1836	1838
@@E554	001	009B	1838	1840
@@E555	001	009C	1840	1842
@@E556	001	009D	1842	1844
@@E558	001	009E	1844	1846
@@E570	001	009F	1846	1848
@@E571	001	00A0	1848	1850

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E572	001	00A1	1850	1852
@@E573	001	00A2	1852	1854
@@E574	001	00A3	1854	1856
@@E575	001	FFFF	2034	
@@E578	001	00A4	1856	1858
@@E579	001	FFFF	2036	
@@E580	001	FFFF	2038	
@@E585	001	00A5	1858	1860
@@E595	001	FFFF	2040	
@@E597	001	FFFF	2042	
@@E598	001	FFFF	2044	
@@E600	001	00A6	1860	1862
@@E601	001	00A7	1862	1864 8491
@@E602	001	00A8	1864	1866 7662 8137 8516
@@E603	001	00A9	1866	1868 7652 8127 8506
@@E604	001	00AA	1868	1870
@@E606	001	00AB	1870	1872
@@E607	001	00AC	1872	1874
@@E608	001	00AD	1874	1876
@@E609	001	00AE	1876	1878
@@E610	001	00AF	1878	1880 4646
@@E611	001	00B0	1880	1882
@@E612	001	00B1	1882	1884 8784
@@E613	001	00B2	1884	1886
@@E614	001	00B3	1886	1888 3519
@@E700	001	00B4	1888	1890
@@E701	001	00B5	1890	1892
@@E710	001	00B6	1892	1894
@@E712	001	00B7	1894	1896
@@E713	001	00B8	1896	1898
@@E714	001	00B9	1898	1900
@@E715	001	00BA	1900	1902
@@E716	001	00BB	1902	1904
@@E717	001	00BC	1904	1906
@@E718	001	00BD	1906	1908
@@E720	001	00BE	1908	1910
@@E721	001	00BF	1910	1912
@@E723	001	00C0	1912	1914
@@E724	001	00C1	1914	1916
@@E725	001	00C2	1916	1918
@@E726	001	00C3	1918	1920
@@E727	001	00C4	1920	1922
@@E728	001	00C5	1922	1924
@@E729	001	00C6	1924	1926
@@E730	001	00C7	1926	1928
@@E732	001	00C8	1928	1930
@@E752	001	00C9	1930	1932
@@E753	001	00CA	1932	1934
@@E754	001	00CB	1934	1936
@@E755	001	00CC	1936	1938
@@E756	001	00CD	1938	1940
@@E757	001	00CE	1940	1942
@@E758	001	00CF	1942	1944
@@E759	001	00D0	1944	1946
@@E760	001	00D1	1946	1948
@@E761	001	00D2	1948	1950

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E762	001	00D3	1950	1952
@@E763	001	00D4	1952	1954
@@E764	001	00D5	1954	1956
@@E765	001	00D6	1956	1958
@@E766	001	00D7	1958	1960
@@E767	001	00D8	1960	1962
@@E768	001	00D9	1962	1964
@@E769	001	00DA	1964	1966
@@E770	001	00DB	1966	1968
@@E771	001	00DC	1968	1970
@@E772	001	00DD	1970	1972
@@E773	001	00DE	1972	1974
@@E774	001	00DF	1974	1976
@@E775	001	00E0	1976	1978
@@E776	001	00E1	1978	1980
@@E777	001	00E2	1980	1982
@@E778	001	00E3	1982	1984
@@E779	001	00E4	1984	1986
@@E780	001	00E5	1986	1988
@@E781	001	00E6	1988	1990
@@E782	001	00E7	1990	1992
@@E783	001	00E8	1992	1994
@@E784	001	00E9	1994	1996
@@E785	001	00EA	1996	1998
@@E786	001	00EB	1998	2000
@@E790	001	00EC	2000	2002
@@E791	001	00ED	2002	2004
@@E792	001	00EE	2004	2006
@@E793	001	00EF	2006	2008
@@E794	001	00F0	2008	2010
@@E795	001	00F1	2010	2012
@@E796	001	00F2	2012	2014
@@E797	001	00F3	2014	2016
@@E798	001	00F4	2016	2018
@@E800	001	FFFF	2046	
@@E801	001	FFFF	2048	
@@E802	001	FFFF	2050	
@@E803	001	FFFF	2052	
@@E804	001	FFFF	2054	
@@E900	001	00F5	2018	2020 2527
@@E901	001	00F6	2020	2022 2529
@@E902	001	00F7	2022	2024 2528
@@E903	001	00F8	2024	2026 2530
@@E905	001	00F9	2026	2028
@@E906	001	00FA	2028	2030
@@E910	001	00FB	2030	2526
@ARR	001	0008	0016	3917 4436 4601 4993 5288 5819 5879 6685 7110 7316 8027 8407 8730 8944 9146
@ASIGN	001	007C	0071	
@ASTER	001	005C	0069	
@BCRDL	001	0050	0088	
@BE	001	0081	0043	3976 4116
@BF	001	0090	0052	
@BH	001	0084	0041	
@BL	001	0082	0042	
@BLANK	001	0040	0065	

CROSS REFERENCE																		
SYMBOL	LEN	VALUE	DEFN	REFERENCES												VER 15, MOD 00	04/07/20	PAGE 207
@BM	001	0082	0054															
@BNE	001	0001	0046															
@BNH	001	0004	0044															
@BNL	001	0002	0045															
@BNM	001	0002	0057															
@BNOL	001	0020	0050															
@BNOZ	001	0008	0049															
@BNP	001	0004	0056															
@BNZ	001	0001	0058															
@BOL	001	00A0	0048															
@BOZ	001	0088	0047															
@BP	001	0084	0053															
@BR	001	0001	0013	2809	2818*	2831	2832	2833	2834	2839	2846	2847	2849	2859	2871			
				2872	2879	2879	2880	2880	2881	2881	2882	2882	2883	2883	2888			
				2888	2896	2897	2902	2902	2903	3351	3352*	3360	3364	3371	3375			
				3382	3383	3390	3390	3391	3392	3392	3393	3393	3403*	3407	3409			
				3418	3423	3435*	3443	3453	3458	3464	3476	3476	3477	3483	3490			
				3490	3495	3505	3510	3511	3914	3915	3916*	3917	3921	3935	3936			
				3940	3941	3945*	3954	3954	3955	3965	3966	3968	3969	3969	3974			
				3982	3986	3986	3987	3988	3996	3997	3997	3998	4006	4010	4011			
				4022	4022	4032	4032	4034	4047	4047	4052	4053	4057	4063	4070			
				4432	4433	4434*	4435	4436	4444	4451	4454*	4464	4471	4471	4475			
				4475	4476	4480	4487	4495	4496	4500	4500	4505	4506	4506	4510			
				4517	4518	4519	4523	4524	4528	4532	4536	4547	4551	4558	4558			
				4559	4559	4563	4563	4568	4572	4573	4577	4577	4578	4578*	4579			
				4580*	4584	4584	4585	4585	4589	4589	4590	4601	4605	4605	4606			
				4611	4613	4613	4621	4621	4625	4633	4633	4990	4991	4992*	4993			
				5003	5011*	5033	5034*	5039	5039	5040	5043	5044	5045	5045	5053			
				5075	5075	5093	5093	5099	5100	5139	5141	5145	5147	5148	5152			
				5152	5156	5156	5157	5158	5158*	5163	5163*	5165	5166	5170	5184			
				5185*	5190	5193	5197	5199	5200	5200	5206	5209	5221	5222	5223			
				5223	5232	5244	5246	5252	5286	5287*	5288	5292	5292	5293	5293			
				5294	5294	5295	5295	5296	5296	5300	5300*	5301	5301*	5329	5338			
				5345*	5346	5346	5354	5354	5358	5362	5362	5366*	5369	5370	5374			
				5374	5816	5817	5818*	5823	5827	5832	5836	5848	5853	5858	5860			
				5862	5864	5866	5879	5884	5885	5890	5890	5891	5892	5898	5898			
				5986	5987	5987	5989	5989	5990	5991	5991	5992	5992	5993	5994			
				5999	5999	6000	6012	6017	6018	6018	6023	6028						

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				8982	8982	8983	8987	8993	8993	8994	8994	8995	8999*	9143	9144
				9145*	9146	9151	9155	9155	9161	9161	9162	9162	9163	9164	9164
				9174	9174	9178	9178	9179	9179	9183	9185	9189	9191	9200*	9705
				9706											

@BT 001 0010 0051

@BZ 001 0081 0055

@B1 001 0001 0063

@CADDR 001 0002 0142

3390	3392	3393													
1377	1378	1379	2480	2507	2812	2854	2909	2943	3426	3429	3437				
3453	3486	3541	3555	3564	3574	3577	3580	3583	3586	3589	3592				

3595	3598	3601	3604	3607	3610	3613	3616	3619	3622	3625	3628				
3631	3634	3637	3640	3643	3646	3649	3652	3655	3658	3661	3664				
3667	3670	3673	3676	3679	3682	3685	3688	3691	3694	3697	3700				

3703	3706	3930	4068	4089	4483	4506	4629	4663	4677	4685	4692				
5962	6762	6780	7166	7174	7183	7197	7206	7284	7285	7286	7348				
7411	7715	7720	7725	7730	7735	7742	7747	7752	7757	7762	7767				

7772	7777	8053	8154	8168	8431	8531	8551	8761	8807	9196	9219				
9380	9392	9672	9674	9676	9677										

@CARDL 001 0060 0087

@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

@CPLUS 001 004E 0079

@DADDR 001 0002 0140

9155	9161	9208	9225												
------	------	------	------	--	--	--	--	--	--	--	--	--	--	--	--

@DBFR1 001 0004 0129

@DBFR2 001 0005 0130

@DCALK 001 0001 0081

@DCBCY 001 0009 0115

1206

@DCBT1 001 0050 0117

1209

@DCNT 001 0003 0128

@DCST1 001 0040 0116

1207

@DCTRL 001 0000 0125

@DCYL 001 0001 0126

@DD2 001 0003 0030

4750	5463	8965*													
------	------	-------	--	--	--	--	--	--	--	--	--	--	--	--	--

@DGET 001 0001 0134

2939	3549	4083													
------	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--

@DOLAR 001 005B 0068

@DOP2 001 0004 0028

@DPLNG 001 0006 0132

9151	9233														
------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--

@DPOS 001 0000 0133

2934

@DPUT 001 0002 0135

3558	4659	4668	8801												
------	------	------	------	--	--	--	--	--	--	--	--	--	--	--	--

@DSAD 001 0002 0127

@DSBCY 001 0004 0106

1144

@DSCS1 001 0000 0107

1145

@DSIVF 001 0003 0138

@DSPIN 001 0002 0131

@DTRSZ 001 0018 0085

9207

@DVBCY 001 0007 0108

1203

@DVRFY 001 0031 0136

@DWAIT 001 00FF 0137

@DWBCY 001 0005 0103

1200

@DWSIZ 001 00C0 0105

@DWTB1 001 0003 0104

1201

@DZERO 001 00F0 0064

CROSS REFERENCE

SYMBOL	LEN	VALUE	DEFN	REFERENCES	VER 15, MOD 00	04/07/20	PAGE 209
@D1	001	0002	0026	3383 3390 3393* 3409* 3470 3732 3733 3734 4155 4157 4158 4445 4715 4749 5004 5339 5427 5460 5464 5470 5472 5473 5478 8740 8823 9030			
@EOF	001	001C	0077				
@EOFTC	001	0075	0162				
@EOS	001	001E	0076	1216			
@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				
@HDRLN	001	0007	0092				
@IAR	001	0010	0017				
@INDEX	001	0001	0156	0157			
@INST3	001	0003	0032	3378 3924 3977 4447 4467 4513 4554 5006 5092 5138 5308 5844 5982 6695 7519 7543 8423			
@INST4	001	0004	0033	3438 3472 3931 4617 5217 5341 8415 8536 8742			
@INST5	001	0005	0034				
@INST6	001	0006	0035				
@I1IAR	001	00C0	0020				
@LINSZ	001	00F4	0084				
@MAPEN	001	0005	0089				
@MINCR	001	2000	0083				
@MINUS	001	0060	0080				
@NOP	001	0080	0040	3377 3716 4116 4466 4512 4553 4728 4730 4732 5091 5137 5216 5307 5437 5439 5441 5443 5843 5981 6497 6500 6694 6788 7518 7542 7786 7789 8422 8559 8562 8565			
@NUMBR	001	007B	0070				
@OPD2	001	0004	0029				
@OP1	001	0003	0027	3407* 3436 3915* 3917* 3929 4154 4433* 4435* 4436* 4601* 4991* 4993* 5288* 5817* 5819* 5879* 6683* 6685* 7108* 7110* 7174* 7316* 8025* 8027* 8053* 8405* 8407* 8431* 8727* 8729* 8730* 8942* 8944* 9144* 9146*			
@OP2	001	0005	0031				
@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	3376 3715 3922 3975 4115 4153 4156 4465 4511 4552 4615 4727 4729 4731 4748 4751 5090 5136 5215 5306 5436 5438 5440 5442			

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				5474	5476	5842	5980	6496	6499	6693	6787	7517	7541	7785	7788
				7836	8181	8413	8421	8534	8558	8561	8564				
@REGL	001	0002	0012	4076	5961	5965	5966	5967	5989	5991	5992	7185	7276		
@RETRN	001	0080	0153	0154											
@RLDWN	001	004F	0159												
@RTRNC	001	0080	0161												
@SBLN	001	0005	0170												
@SBLNL	001	0002	0184												
@SCTSZ	001	0100	0100												
@SDFLN	001	0007	0090												
@SDF0	001	0000	0166												
@SDF1	001	0001	0167												
@SDF2	001	0002	0168												
@SDF3	001	0003	0169												
@SECCY	001	0030	0086												
@SIST	001	0001	0181												
@SLASH	001	0061	0067												
@SLAST	001	0002	0183												
@SMIDL	001	0003	0182												
@SNULL	001	0080	0173												
@SONLY	001	0000	0180												
@STEXT	001	0007	0172												
@STYPE	001	0006	0171												
@SYLVL	001	0005	2562												
@TBCNT	001	0000	0160												
@TBLEF	001	0010	0155	0157											
@TBLIX	001	0011	0157												
@UCB	001	0087	0039	3716	4728	4730	4732	5437	5439	5441	5443	6497	6500	6788	7786
				7789	8414	8535	8559	8562	8565						
@UPARW	001	005A	0078	2545											
@VADDR	001	0002	0141	0937	1373	1385	1386	1387	1387	1401	1404	1406	1430	1431	1432
				1470	1473	1476	1479	1482	1485	1488	1497	1500	1503	1506	1509
				2481	2507	2822	2952	2970	2983	2985	2998	3002	3006	3010	3014
				3018	3022	3462	3722	4673	4696	4697	5369	5370	5401	5402	5404
				5405	5909	5910	5911	5912	5913	5914	5929	5930	5931	5933	5934
				5935	5945	5946	5947	6023	6040	6041	6067	6111	6112	6137	6213
				6268	6272	6280	6344	6349	6352	6355	6358	6361	6364	6367	6370
				6373	6376	6379	6382	6385	6388	6391	6394	6397	6400	6403	6406
				6409	6412	6415	6418	6425	6437	6453	6508	6511	6723	7227	7228
				7229	7233	7234	7235	7239	7240	7241	7245	7246	7247	7251	7252
				7253	7257	7258	7259	7263	7264	7265	7407	7408	7477	7488	7494
				7595	8034	8430	8813	8822	9687						
@VENTA	001	0056	0113	1204	1459										
@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	4579	4614	5329	5338								
@WSFIT	001	0500	0101												
@WSTBL	001	0503	0102												
@XR	001	0002	0014	2858*	2864	2864*	2865	2871	2896	2897	2898	3359	3382*	3394	3394*
				3407	3409	3413	3418	3423	3442*	3458*	3462	3463	3464	3469	3469
				3483*	3928*	3940	3959	3959*	3960	3965	3968*	3973	3981	3996	4000
				4000*	4005	4010	4011	4012	4016	4021	4021*	4026	4027	4031	4031*

CROSS REFERENCE																	
SYMBOL	LEN	VALUE	DEFN	REFERENCES											VER 15, MOD 00	04/07/20	PAGE 211
				4057*	4062*	4435	4440*	4455*	4480*	4579	4610	4614	4614	4625*	4627*		
				5049	5051	5058	5070	5073	5084	5099	5105	5110	5117	5124	5126		
				5157*	5164	5164*	5165	5166	5193	5206	5209	5221	5261	5314*	5315		
				5315*	5319	5329	5336*	5338	5358	5375*	5827	5832	5883*	5889	5889*		
				5891	5988*	5990*	5993*	5994*	6029*	6030*	6035	6040	6054*	6055*	6056*		
				6057*	6062	6091	6100*	6101*	6106	6111	6124*	6126*	6127*	6132	6150*		
				6155	6155*	6156	6165	6176*	6181	6181*	6182	6213	6255*	6257*	6258*		
				6263	6272	6280	6284	6284*	6285	6293*	6703	6727	6745*	6749	7124		
				7126	7131*	7141	7162*	7164	7164*	7165	7168	7174	7175	7176*	7298		
				7298*	7299	7300	7361	7366	7371*	7376	7385*	7431*	7446	7458*	7472		
				7483	7510	7510*	7511	7525	7525	7526	7527	7527*	7566	7571	7584		
				7589	7594*	7595	7595	7596	7596*	7600	7606	7611	7618	7625*	7626*		
				7627	7627*	7631	7636	7642	7671*	7672*	7676*	7678*	7679	7688*	7694*		
				8038	8061	8099*	8103	8108	8117	8435	8454	8482*	8486	8496	8540*		
				8729	8734*	8739	8758*	8774*	8954	8958	9151						
@ZERO	001	0000	0062	2838	2872	4524	4572	4997	4998	5367	5884	9708					
B\$ADMK	001	0001	0841														
B\$ADSW	001	159D	0840														
B\$ARMK	001	0001	0826														
B\$ARSW	001	0A45	0825														
B\$BABF	001	1D00	0631	8807	9747												
B\$BCKT	001	1590	0753														
B\$BDPL	001	19E8	0705														
B\$BDSA	001	19EA	0706														
B\$BINO	001	1A6A	0769														
B\$BRLN	001	19F1	0704														
B\$BROP	001	1AF7	0810														
B\$BRVA	001	19EF	0703														
B\$BRVP	001	19EE	0702														
B\$BTAB	001	1996	0701														
B\$CADR	001	1AF9	0811														
B\$CASA	001	0000	0646														
B\$CASC	001	0671	0650	3601													
B\$CASM	001	0608	0648	3595													
B\$CBAS	001	14BB	0776														
B\$CBFA	001	0CBC	0731														
B\$CCGT	001	0600	0656	3619													
B\$CCLS	001	0695	0662	3637													
B\$CCON	001	001F	0729														

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B\$CMAT	001	0600	0669	3658
B\$CMGT	001	0665	0670	3661
B\$CMIN	001	06D3	0671	3664
B\$CMPR	001	069B	0674	3673
B\$CMPT	001	069B	0673	3670
B\$CMPU	001	0600	0675	3676
B\$CMRD	001	06D0	0672	3667
B\$CNXT	001	0600	0652	3607
B\$CPCT	001	0CA8	0734	
B\$CPRT	001	0600	0666	3649
B\$CPRU	001	0600	0667	3652
B\$CPSE	001	06E7	0676	3679
B\$CPUT	001	0600	0660	3631
B\$CPWA	001	0CA6	0805	
B\$CRAD	001	150D	0775	
B\$CRBS	001	1509	0777	
B\$CREA	001	06CF	0664	3643
B\$CREM	001	0000	0641	
B\$CRMK	001	0001	0853	
B\$CRSR	001	06E3	0665	3646
B\$CRST	001	06A6	0661	3634
B\$CRSW	001	0E42	0852	
B\$CRTN	001	06CF	0658	3625
B\$CSBF	001	0600	0628	0642 0643 0644 0647 0648 0649 0650 0651 0652 0653 0654 0655 0656 0657 0658 0659 0660 0661 0662 0663 0664 0665 0666 0667 0668 0669 0670 0671 0672 0673 0674 0675 0676 0677 0678 0681 0682 0683 0684 0685 3047 3555
B\$CSCN	001	14B0	0750	
B\$CSMK	001	0007	0856	
B\$CSSW	001	14BC	0855	
B\$CSTP	001	06D6	0677	3682
B\$CSTR	001	14CC	0774	
B\$CSXA	001	2000	0634	2943
B\$CTYP	001	0A5F	0728	
B\$CVPD	001	0C5D	0733	
B\$CVPG	001	0CA5	0732	
B\$CWRK	001	F500	0802	
B\$DIST	001	0700	0694	
B\$DLNK	001	1B37	0800	
B\$DL4T	001	1A6B	0771	
B\$DPWA	001	0E46	0806	
B\$DST2	001	073A	0695	
B\$ERMK	001	0007	0829	
B\$ERSW	001	0993	0828	
B\$FACA	001	0E53	0737	
B\$FAIS	001	15AC	0754	
B\$FAIW	001	15A0	0755	
B\$FCON	001	0A46	0727	
B\$FORT	001	1B0E	0796	
B\$FPWA	001	15AC	0807	
B\$FRMK	001	0007	0847	
B\$FRSW	001	16CC	0846	
B\$FSC1	001	0E4C	0738	
B\$FSC2	001	0E4D	0739	
B\$FSMK	001	0007	0838	
B\$FSSW	001	0E5C	0837	

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SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 04/07/20 PAGE 213

B\$FSVA	001	0E4F	0740	
B\$FTND	001	1B0B	0798	
B\$FTPT	001	1B0D	0797	
B\$FVME	001	15A2	0759	
B\$FVMP	001	15A4	0760	
B\$FVMS	001	15A6	0761	
B\$FVPE	001	15A8	0756	
B\$FVPP	001	15AA	0757	
B\$FVPS	001	15AC	0758	
B\$GBSW	001	08AF	0831	
B\$GBWK	001	0001	0832	
B\$GETC	001	0867	0708	
B\$GPTR	001	0878	0710	
B\$GTBF	001	1E00	0632	3930 4089 4128 4129
B\$IFMK	001	0007	0850	
B\$IFSW	001	16E5	0849	
B\$INVT	001	1B38	0790	
B\$KWMK	001	0001	0844	
B\$KWSW	001	159E	0843	
B\$LBAS	001	185E	0781	
B\$LBSV	001	18E7	0779	
B\$LDRP	001	1A00	0629	
B\$LINE	001	07D0	0696	
B\$LIST	001	1853	0763	
B\$LRTN	001	18EB	0780	
B\$LSTR	001	1862	0778	
B\$LTYP	001	18F2	0764	
B\$MATR	001	18F3	0766	
B\$MBMK	001	0007	0865	
B\$MBSW	001	1903	0864	
B\$MFBK	001	1B8F	0792	
B\$MGMK	001	0007	0862	
B\$MGSW	001	18FF	0861	
B\$MPMK	001	0007	0868	
B\$MPSW	001	1981	0867	
B\$MRMK	001	0007	0859	
B\$MRSW	001	0DDE	0858	
B\$NUMC	001	0873	0709	
B\$NXMK	001	0007	0835	
B\$NXSW	001	071D	0834	
B\$PARP	001	0A41	0717	
B\$PBNL	001	0A01	0723	
B\$PCAD	001	0A40	0718	
B\$PCDL	001	09D3	0722	
B\$PCPG	001	0A35	0721	
B\$PECT	001	0A44	0725	
B\$PERC	001	0A39	0724	
B\$PFAE	001	0033	0715	
B\$PFCL	001	009D	0716	
B\$PFNC	001	094E	0713	
B\$PFWP	001	0015	0714	
B\$PNBY	001	0A41	0719	
B\$PPWA	001	0A35	0804	
B\$PRM1	001	1AF3	0808	
B\$PTBF	001	1F00	0633	4440 4627 4663
B\$PUTC	001	093A	0712	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B\$PVAD	001	0A43	0720	
B\$RMRK	001	1AE6	0773	
B\$RTRN	001	1AF5	0809	
B\$\$SABF	001	1C00	0630	3564 9737
B\$\$SCAN	001	1514	0752	
B\$\$SCAT	001	13C8	0747	
B\$\$SCON	001	001B	0730	
B\$\$SCVT	001	12E0	0745	
B\$\$SDPL	001	07DA	0698	
B\$\$SFAB	001	0E48	0742	
B\$\$SFNT	001	143C	0748	
B\$\$SLDT	001	109C	0744	
B\$\$SLVT	001	1062	0743	
B\$\$SNAT	001	131A	0746	
B\$\$SPAT	001	07E0	0699	
B\$\$SSTA	001	1BAC	0794	
B\$STAS	001	061B	0683	3700
B\$STIF	001	0606	0685	3706
B\$STMA	001	061B	0684	3703
B\$STML	001	0600	0682	3697
B\$STRL	001	0600	0681	3694
B\$SVRB	001	0E46	0741	
B\$SYMB	001	0DBC	0736	
B\$TCD2	001	0001	0814	
B\$TLTH	001	0002	0815	0816
B\$TOD1	001	0000	0813	
B\$TOTB	001	1AF8	0816	
B\$TTAB	001	1AFA	0812	0816
B\$TYPE	001	0739	0697	
B\$WORK	001	15A0	0801	
B\$ZDBN	001	19F2	0768	
B@ABAS	001	0007	1401	
B@ACD1	001	0001	1398	1399
B@ACD2	001	0003	1399	1400
B@AFLG	001	0000	1393	6749* 7631 7636* 7642 8103 8108* 8117 8486 8496
B@ALLA	001	005C	1218	
B@AMAX	001	0005	1400	1401
B@BLNK	001	0040	1227	3973 5199 5261 6017
B@BLSZ	001	0100	1352	1491 1494 1497 1512 1515 3048 3494 3723 3724 3725 4738 4739
				5420 6439 6440 6441 6444 6445 6446 8769 9739 9740 9741 9748
				9749 9750
B@BREQ	001	0084	1007	9646
B@BRHI	001	0088	1008	9649
B@BRLO	001	0082	1006	9652
B@BRNE	001	0094	1010	9655 9664
B@BRNH	001	0098	1011	9661
B@BRNL	001	0092	1009	9658
B@CADD	001	0006	0876	7716
B@CADF	001	0058	0917	
B@CBAS	001	0003	1404	
B@CBNX	001	004A	0910	
B@CBRA	001	0046	0908	
B@CBRC	001	0044	0907	
B@CBRD	001	0048	0909	
B@CBRS	001	004C	0911	
B@CCLS	001	005E	0920	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@CCMC	001	0042	0906	
B@CCMF	001	0040	0905	
B@CCNT	001	001F	1330	5246
B@CCSA	001	003E	0904	
B@CDCA	001	006A	0926	
B@CDDL	001	006C	0927	
B@CDIV	001	000C	0879	7731
B@CDMN	001	0001	1403	1404
B@CDWA	001	006E	0928	
B@CEOF	001	0070	0929	
B@CEOP	001	0068	0925	4610
B@CFCI	001	0016	0884	7547 7611
B@CFN0	001	0012	0882	7331
B@CFN1	001	0014	0883	7553 7606
B@CFOR	001	004E	0912	
B@CGET	001	0052	0914	
B@CHAR	001	0000	1343	3359 3960 3973 3981 3996 5049 5051 5058 5070 5073 5084 5099 5105 5110 5117 5124 5126 5193 5206 5209 5221 5261 5827 5832 6091 6165 6703 6727 7124 7126 7141 7446 7472 7483 8038 8061 8435 8454 8954 8958
B@CHLT	001	0004	0875	
B@CIEX	001	00C5	1303	7472
B@CIMH	001	0066	0924	
B@CINI	001	0056	0916	
B@CIPI	001	00D7	1306	7483
B@CIS2	001	00E2	1309	
B@CMF1	001	0018	0885	7200
B@CMF2	001	001A	0886	
B@CMF3	001	001C	0887	
B@CMA	001	006B	1238	7751 8061 8454
B@CMPY	001	000A	0878	7726
B@CMSM	001	001E	0888	
B@CNEG	001	0010	0881	7187
B@CNXT	001	0050	0913	
B@COLN	001	007A	1240	
B@CPMK	001	00FF	1148	1152 1156 1157 1191 2865 2898 3413 3553
B@CPRS	001	0060	0921	
B@CPRU	001	0062	0922	
B@CPUT	001	0054	0915	
B@CPWR	001	000E	0880	7736
B@CRSR	001	005A	0918	
B@CRST	001	005C	0919	
B@CSA1	001	0036	0900	8075
B@CSA2	001	0038	0901	8091
B@CSB1	001	003A	0902	8080
B@CSC1	001	002A	0894	6741
B@CSD0	001	002E	0896	8441
B@CSD1	001	0030	0897	8460 8511
B@CSD2	001	0032	0898	8470 8501
B@CSF1	001	0022	0890	7531 7618
B@CSF2	001	0024	0891	7571
B@CSTA	001	0034	0899	8044
B@CSTC	001	0028	0893	6732
B@CSTF	001	0020	0889	7203 7342
B@CSTH	001	0064	0923	3538
B@CSTX	001	003C	0903	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@CSUB	001	0008	0877	7721
B@CSVC	001	0002	0874	
B@CTYP	001	0020	1328	5197 5252
B@CUSC	001	002C	0895	
B@CUSF	001	0026	0892	9391
B@CVAR	001	005B	1217	5853
B@DAMK	001	0080	1396	6749 7631 8103 8486
B@DASA	001	00FF	1157	3590
B@DASC	001	0040	1161	3602
B@DASM	001	0038	1159	3596
B@DCGT	001	0050	1167	3620
B@DCLS	001	0054	1173	3638
B@DDAT	001	0024	1153	3578
B@DDEF	001	0034	1154	3581
B@DDIM	001	0004	1155	3584
B@DDUM	001	00FF	1191	3692
B@DEC0	001	00F0	1286	3359 5044 5058 5073 5084 5105 5145 5836 7156 8954 8975
B@DEC1	001	00F1	1287	
B@DEC2	001	00F2	1288	
B@DEC3	001	00F3	1289	
B@DEC4	001	00F4	1290	
B@DEC5	001	00F5	1291	
B@DEC6	001	00F6	1292	
B@DEC7	001	00F7	1293	
B@DEC8	001	00F8	1294	
B@DEC9	001	00F9	1295	
B@DEND	001	0058	1189	1190 3686
B@DEOF	001	0058	1190	3689
B@DFOR	001	0028	1162	3605
B@DGET	001	0040	1170	3629
B@DGSB	001	0020	1168	3623
B@DGTO	001	0044	1166	3617
B@DIFA	001	0048	1164	3611
B@DIFC	001	004C	1165	3614
B@DIGS	001	007B	1220	
B@DIMG	001	003C	1179	3656
B@DINP	001	0000	1174	3641
B@DIVD	001	0061	1237	7729
B@DLTA	001	00FF	1156	3587
B@DLTC	001	0040	1160	3599
B@DLTM	001	0038	1158	3593
B@DL01	001	0001	1471	1474
B@DL02	001	0003	1474	1477
B@DL03	001	0005	1477	1480
B@DL04	001	0007	1480	1483
B@DL05	001	0009	1483	1486
B@DL06	001	000B	1486	1489
B@DL07	001	0045	1489	1492
B@DL08	001	0145	1492	1495
B@DL09	001	0245	1495	1498
B@DL10	001	0289	1498	1501
B@DL11	001	02C3	1501	1504
B@DL12	001	02FD	1504	1507
B@DL13	001	0337	1507	1510
B@DL14	001	0371	1510	1513
B@DL15	001	0471	1513	1516

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@DL16	001	0507	1516	
B@DMAT	001	0008	1180	3659
B@DMGT	001	0044	1181	3662
B@DMIN	001	0038	1182	3665
B@DMPR	001	0048	1185	3674
B@DMPT	001	004C	1184	3671
B@DMPU	001	0054	1186	3677
B@DMRD	001	003C	1183	3668
B@DNXT	001	0044	1163	3608
B@DPNT	001	004B	1228	5070 5110 7756
B@DPRT	001	002C	1177	3650
B@DPRU	001	0030	1178	3653
B@DPSE	001	0050	1187	3680
B@DPUT	001	0040	1171	3632
B@DREA	001	000C	1175	3644
B@DREM	001	00FF	1152	3575
B@DRSR	001	005C	1176	3647
B@DRST	001	0050	1172	3635
B@DRTN	001	005C	1169	3626
B@DSCY	001	0004	1144	2940 3550
B@DSIF	001	001C	1193	3707
B@DSLT	001	0010	1192	3695 3701
B@DSML	001	0010	1194	3698 3704
B@DSNS	001	0018	1146	2847 2849
B@DSS1	001	0000	1145	2941
B@DSTP	001	0054	1188	3683
B@DTBN	001	0010	1210	8753
B@DTB1	001	0050	1209	8753 8805
B@DTCY	001	0009	1206	3559 8802
B@DTSN	001	0010	1208	
B@DTS1	001	0040	1207	3562
B@DTYP	001	0040	1322	5040 5197 5319
B@DURE	001	0020	1040	
B@DVCY	001	0007	1203	2935 4660 4669
B@DVC1	001	0056	1204	4523 4700
B@DWCY	001	0005	1200	4084
B@DWT1	001	0003	1201	4052 4087
B@D1MK	001	0080	1394	7617 7647 8066 8122
B@D2MK	001	00C0	1395	7620 7642 7657 8090 8117 8132 8496
B@EOST	001	001E	1216	3981
B@EQUL	001	007E	1242	9645 9657 9660
B@EXPC	001	00C5	1219	5117
B@FOFL	001	005C	1221	
B@FVAD	001	0001	1406	
B@GETC	001	0001	1345	3923 3941
B@GETE	001	00FF	1346	9492
B@GETS	001	0000	1344	3935 7448
B@GRTR	001	006E	1239	9648 9654 9657
B@ICON	001	0050	1301	7761
B@LADD	001	0001	0945	
B@LADF	001	0002	0986	
B@LADV	001	0008	1430	1451 5911
B@LBIN	001	0002	1355	1356 1362 8970 8981 8994 8994 9009 9010 9011 9012 9018 9022
B@LBNX	001	0003	0979	
B@LBRA	001	0003	0977	
B@LBRC	001	0004	0976	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@LBRD	001	0003	0978	
B@LBRS	001	0001	0980	
B@LCCA	001	0004	1386	6475
B@LCCC	001	0001	0938	0976
B@LCDV	001	0004	1431	1452 5912
B@LCER	001	0001	0936	1000
B@LCFN	001	0004	1387	6486
B@LCLN	001	0002	0941	0992 0993 1000 3539
B@LCLS	001	0001	0989	
B@LCMC	001	0001	0975	
B@LCMF	001	0001	0974	
B@LCNA	001	0006	1385	6464
B@LCNN	001	0001	0939	0964 0973 0985 0997
B@LCOP	001	0001	0935	0943 0944 0945 0946 0947 0948 0949 0950 0951 0952 0953 0954 0955 0956 0957 0958 0959 0960 0961 0962 0963 0964 0965 0966 0967 0968 0969 0970 0971 0972 0973 0974 0975 0976 0977 0978 0979 0980 0981 0982 0983 0984 0985 0986 0987 0988 0989 0990 0991 0992 0993 0994 0995 0996 0997 0998 3538 6778 7195 7198
B@LCRV	001	0013	1429	7200 7203 7829 7830 8166 8548 9391 1449 2987 3000 3004 3008 3012 3016 3020 3024 5190 5200 5358 5383 5417 5462 5913 5937 7231 7237 7243 7249 7255 7261 7267
B@LCSA	001	0002	0973	
B@LCVA	001	0002	0937	0951 0952 0953 0954 0955 0956 0957 0958 0959 0960 0962 0963 0965 0966 0967 0968 0969 0970 0971 0976 0977 0978 0979 0981 0982 0983 0995 0996 6779 7196 7198 7201 7204 7830 8167 8549 0972 0984 0986 0990 0991
B@LCXX	001	0001	0940	
B@LDAT	001	0004	1099	
B@LDCA	001	0003	0995	
B@LDDL	001	0003	0996	
B@LDDM	001	0004	1359	
B@LDEF	001	0003	1100	
B@LDIM	001	0003	1101	
B@LDIN	001	0004	1358	1359 1360 8966 8993 9018 9020 9021
B@LDIV	001	0001	0948	
B@LDMN	001	0002	1356	1385 1386 1398 1399 1400 1403 1430 1431
B@LDSN	001	0004	1360	
B@LDWA	001	0002	0997	
B@LELP	001	0010	1428	2966 5045 5469
B@LEND	001	0003	1128	
B@LEOF	001	0001	0998	
B@LEOP	001	0001	0994	
B@LERC	001	0003	1000	4686
B@LESP	001	0008	1427	5395
B@LESS	001	004C	1229	9651 9654 9660
B@LET\$	001	005B	1249	5866 6305 7766
B@LET#	001	007B	1250	5862 7771
B@LET@	001	007C	1251	5864 6306 7776
B@LETA	001	00C1	1253	5858 7151
B@LETB	001	00C2	1255	6307
B@LETC	001	00C3	1256	
B@LETD	001	00C4	1257	6308
B@LETE	001	00C5	1258	
B@LETF	001	00C6	1259	6309
B@LETG	001	00C7	1260	
B@LETH	001	00C8	1261	6310
B@LETI	001	00C9	1262	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@LETJ	001	00D1	1263	6311
B@LETK	001	00D2	1264	
B@LETL	001	00D3	1265	6312
B@LETM	001	00D4	1266	
B@LETN	001	00D5	1267	6313
B@LETO	001	00D6	1268	
B@LETP	001	00D7	1269	6314
B@LETQ	001	00D8	1270	
B@LETR	001	00D9	1271	6315
B@LETS	001	00E2	1272	
B@LETT	001	00E3	1273	6316
B@LETU	001	00E4	1274	
B@LETV	001	00E5	1275	6317
B@LETW	001	00E6	1276	
B@LETX	001	00E7	1277	6318
B@LETY	001	00E8	1278	
B@LETZ	001	00E9	1279	5860 6319 7149
B@LEXP	001	0008	1318	
B@LFCI	001	0003	0953	
B@LFNA	001	0002	1432	1453 5914
B@LFN0	001	0003	0951	
B@LFN1	001	0003	0952	
B@LFOR	001	0003	0981	
B@LFRT	001	0004	1373	1374
B@LGET	001	0003	0983	
B@LGSB	001	0005	1107	
B@LGTO	001	0004	1106	
B@LHLT	001	0001	0944	
B@LIEX	001	0002	1304	7832
B@LIFN	001	0003	1367	6182 6222 6344 6345 6348 6351 6354 6357 6360 6363 6366 6369 6372 6375 6378 6381 6384 6387 6390 6393 6396 6399 6402 6405 6408 6411 6414 6417 9701
B@LILP	001	0009	1426	1444 1445 1446 2968 2983 2987 3000 3000 3004 3004 3008 3008 3012 3012 3016 3016 3020 3020 3024 3024
B@LIMG	001	0001	1118	
B@LIMH	001	0003	0993	
B@LINI	001	0002	0985	
B@LINP	001	0005	1113	
B@LIPI	001	0003	1307	7833
B@LISP	001	0005	1425	1433 1439 1440 1441 5399 5931 5937 7231 7237 7243 7249 7255 7261 7267
B@LIS2	001	0005	1310	7834
B@LIVT	001	0001	1383	9694
B@LKCL	001	0005	1112	
B@LKFR	001	0003	1103	
B@LKGT	001	0003	1109	
B@LKIF	001	0002	1105	
B@LKON	001	0002	1138	
B@LKPT	001	0003	1110	
B@LKPU	001	000A	1117	
B@LKRR	001	0007	1115	
B@LKRT	001	0005	1111	
B@LKTO	001	0002	1132	
B@LLET	001	0003	1102	9363
B@LL01	001	0002	1470	1471
B@LL02	001	0002	1473	1474

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@LL03	001	0002	1476	1477
B@LL04	001	0002	1479	1480
B@LL05	001	0002	1482	1483
B@LL06	001	0002	1485	1486
B@LL07	001	003A	1488	1489
B@LL08	001	0100	1491	1492
B@LL09	001	0100	1494	1495
B@LL10	001	0044	1497	1498
B@LL11	001	003A	1500	1501
B@LL12	001	003A	1503	1504
B@LL13	001	003A	1506	1507
B@LL14	001	003A	1509	1510
B@LL15	001	0100	1512	1513
B@LL16	001	0096	1515	1516
B@LMAT	001	0003	1119	
B@LMF1	001	0003	0954	7207
B@LMF2	001	0003	0955	
B@LMF3	001	0003	0956	
B@LMGT	001	0006	1120	
B@LMIN	001	0008	1121	
B@LMPR	001	0008	1124	
B@LMPT	001	0006	1123	
B@LMPU	001	000D	1125	
B@LMPY	001	0001	0947	
B@LMRD	001	0007	1122	
B@LMSM	001	0003	0957	
B@LNEG	001	0001	0950	
B@LNEX	001	0004	1104	
B@LNXT	001	0003	0982	
B@LPAR	001	004D	1230	5848 6091 6727 7741 8038 8435
B@LPRS	001	0002	0990	
B@LPRT	001	0005	1116	
B@LPRU	001	0002	0991	
B@LPSE	001	0005	1126	
B@LPUT	001	0002	0984	
B@LPWR	001	0001	0949	
B@LREA	001	0004	1114	
B@LREM	001	0003	1098	
B@LRSR	001	0001	0987	
B@LRST	001	0001	0988	
B@LRTN	001	0006	1108	
B@LSA1	001	0003	0969	
B@LSA2	001	0003	0970	
B@LSB1	001	0003	0971	
B@LSC1	001	0003	0963	
B@LSDF	001	0004	1353	4031
B@LSD0	001	0003	0965	8552
B@LSD1	001	0003	0966	
B@LSD2	001	0003	0967	
B@LSF1	001	0003	0959	
B@LSF2	001	0003	0960	
B@LSKW	001	0002	1369	6156 6326 6327 6328 6329 6330 6331
B@LSNO	001	0002	1362	3464 3505 3722 3723 4021 4026 4505 4684 8815 8822
B@LSPT	001	0003	1377	1380 2858 2864 3382 3571
B@LSTA	001	0003	0968	8169
B@LSTC	001	0003	0962	6781

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@LSTE	001	0004	1133	
B@LSTF	001	0003	0958	7207
B@LSTH	001	0003	0992	3542
B@LSTP	001	0004	1127	
B@LSTX	001	0002	0972	
B@LSUB	001	0001	0946	
B@LSVC	001	0001	0943	
B@LTHN	001	0004	1134	
B@LTYP	001	0001	1363	4021 4027
B@LUFN	001	0002	1370	6170 6337
B@LUSC	001	0002	0964	
B@LUSF	001	0001	0961	9393
B@LVPG	001	0100	1457	1460 2970 2972 5405 5407
B@MINS	001	0060	1236	5051 5126 7126 7719
B@MULT	001	005C	1233	7446 7724
B@NAAR	001	001D	1421	1451 1503 6466 6468
B@NCAR	001	001D	1422	1452 1506 6477 6479
B@NCRV	001	001D	1420	1449 1500 6455 6457
B@NDGT	001	000A	1413	1419
B@NEQL	001	007F	1243	9663
B@NFRT	001	000A	1372	1374
B@NICN	001	0006	1415	1417
B@NIEL	001	0007	1417	1433 1439 1444 2987 3000 3004 3008 3012 3016 3020 3024 5937
B@NIFN	001	0018	1366	6177
B@NIVR	001	0001	1416	1417
B@NIVT	001	0057	1382	9694
B@NLDV	001	0122	1419	1441 1446 1497 6441 6446
B@NLRV	001	001D	1418	1440 1445 1488 6427 6429
B@NLTR	001	001D	1412	1418 1419 1420 1421 1422 1423
B@NSKW	001	0004	1368	6151
B@NSPT	001	0028	1376	2859 3571
B@NUFN	001	001D	1423	1453 1509 6488 6490
B@NVPG	001	0100	1456	1460 4528
B@NXHI	001	00E3	1337	
B@NXLO	001	001E	1336	5148
B@NXZR	001	0080	1335	1336 1337 5043
B@PLUS	001	004E	1231	5049 5124 7124 7714
B@POWR	001	005A	1232	7734
B@PREC	001	0020	1324	2964 5040
B@PROD	001	0023	1433	7231 7237 7243 7249 7255 7261 7267
B@PRPL	001	0002	1020	
B@PRPN	001	0001	1019	
B@PRPR	001	0004	1022	
B@PRPS	001	0003	1021	
B@PRRC	001	0007	1025	
B@PRRL	001	0008	1026	
B@PRSL	001	0005	1023	
B@PRSS	001	0006	1024	
B@PTAB	001	0000	1378	2896* 2897* 3407
B@PTAD	001	0001	1379	3409
B@PTSA	001	0002	1380	2865 2871 2898* 3413 3418 3423
B@PUD1	001	0006	1036	
B@PUD2	001	0007	1037	
B@PUI0	001	0001	1030	
B@PUI1	001	0004	1031	
B@PUI2	001	0005	1032	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@PUNL	001	0002	1034	
B@PUNS	001	0003	1035	
B@PUTM	001	0010	1039	
B@RPAR	001	005D	1234	7746
B@SADV	001	00E8	1451	1454
B@SAVL	001	0B76	1447	1464
B@SAVS	001	065E	1442	1463
B@SCDV	001	0074	1452	1454
B@SCLN	001	005E	1235	
B@SCRV	001	0227	1449	1463 1464
B@SDMK	001	0080	1364	3364
B@SEXP	001	0004	1317	
B@SFAT	001	0196	1454	1463 1464 1515
B@SFNA	001	003A	1453	1454
B@SFRT	001	0028	1374	9672 9679 9681
B@SIEL	001	003F	1444	1447
B@SIES	001	0023	1439	1442
B@SIGN	001	0010	1326	5040 5053 5147
B@SLDL	001	0A32	1446	1447
B@SLDS	001	05AA	1441	1442
B@SLVL	001	0105	1445	1447
B@SLVS	001	0091	1440	1442
B@SQUO	001	007D	1241	6703
B@STAT	001	0000	1316	5466
B@TASA	001	0012	1051	
B@TASC	001	001E	1057	
B@TASM	001	0018	1053	
B@TASS	001	007B	1058	
B@TCGT	001	0030	1066	
B@TCLS	001	0042	1072	
B@TDAT	001	0006	1047	
B@TDEF	001	0009	1048	
B@TDIM	001	000C	1049	
B@TDUM	001	0078	1090	3383 3391
B@TEND	001	0072	1088	
B@TEOF	001	0075	1089	
B@TFOR	001	0021	1060	
B@TGET	001	0039	1069	
B@TGSB	001	0033	1067	
B@TGTO	001	002D	1065	
B@TIFA	001	0027	1062	
B@TIFC	001	002A	1063	
B@TIFS	001	007D	1064	
B@TIMG	001	0054	1078	
B@TINP	001	0045	1073	
B@TLTA	001	000F	1050	
B@TLTC	001	001B	1054	
B@TLTM	001	0015	1052	
B@TLTS	001	0079	1055	
B@TMAS	001	007C	1059	
B@TMAT	001	0057	1079	
B@TMGT	001	005A	1080	
B@TMIN	001	005D	1081	
B@TMLS	001	007A	1056	
B@TMPR	001	0066	1084	
B@TMPT	001	0063	1083	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@TMPU	001	0069	1085	
B@TMRD	001	0060	1082	
B@TNXT	001	0024	1061	
B@TPRT	001	004E	1076	
B@TPRU	001	0051	1077	
B@TPSE	001	006C	1086	
B@TPUT	001	003C	1070	
B@TRAC	001	0080	1320	5040
B@TREA	001	0048	1074	
B@TREM	001	0003	1046	
B@TRSR	001	004B	1075	
B@TRST	001	003F	1071	
B@TRTN	001	0036	1068	
B@TSTP	001	006F	1087	
B@VMC1	001	0056	1459	
B@VMLB	001	F0CD	1464	2952 2970 2985 2998 3002 3006 3010 3014 3018 3022
B@VMSB	001	F5E5	1463	4673 5405 5935 7229 7235 7241 7247 7253 7259 7265
B@VMSZ	001	0000	1460	1462 1463 1464
B@VMTB	001	0000	1462	5947
B@ZNEG	001	00D0	1333	
B@ZPOS	001	00F0	1332	
BAGBMK	001	0001	4116	9888
BAGBSW	003	08AF	4115	9887
BAGB01	001	0001	4124	3959 4000 4063
BAGCID	001	001B	4136	3960
BAGCLI	003	08E8	4157	4022
BAGCPT	004	0878	4154	3940* 9793
BAGCSC	001	0936	4095	3921* 3986* 4096
BAGCSP	003	0873	4153	3935 3941* 9792
BAGCSV	003	08DE	4156	3996*
BAGDCA	002	0935	4089	
BAGDCY	001	0931	4084	
BAGDFN	001	0930	4083	
BAGDLI	003	08F9	4158	4032
BAGDPL	001	0930	4082	4057
BAGDSA	001	0932	4085	4047* 4052* 4053* 4086
BAGDSC	001	0933	4088	4047
BAGETC	001	0867	3913	3358 5057 5072 5104 5112 5122 5129 5205 5208 5263 5831 5975 6087 6164 6217 6246 6699 6754 7120 7137 7442 7468 8149 8412 8474 8960 9364 9493 9791
BAGLCC	001	0000	4130	4042
BAGLIN	001	0002	4134	4026
BAGLNK	001	1E00	4129	4042 4053
BAGM01	002	092F	4076	3968
BAGNUL	001	0080	4145	4005
BAGN01	003	0896	4155	3954 3965 3969 3986
BAGRCT	001	0000	4137	3965*
BAGSBC	001	0937	4099	3954* 3969* 4011* 4022* 4032* 4100
BAGSCC	001	0003	4149	4012*
BAGSDF	001	0000	4141	4005
BAGSDL	001	0001	4142	4010 4011
BAGSDS	001	0002	4143	4016
BAGSEC	001	0002	4144	4016
BAGSGL	001	0938	4103	3997 4010* 4104
BAGSGP	001	0939	4107	3997* 4063* 4108
BAGSG1	001	1E01	4128	4062

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BAGTYP	001	0003	4135	4027
BAG010	003	0872	3921	3914 3916 3922 3924 4153
BAG020	004	0875	3928	3929 3931 4154
BAG030	003	0879	3935	
BAG040	003	087F	3940	3982 3987
BAG050	004	0885	3945	3915*
BAG060	004	0889	3946	3917*
BAG100	004	088D	3954	3936 3966 3974 3988 4034
BAG110	003	0894	3959	4155
BAG120	004	089D	3965	
BAG130	003	08AB	3973	3961
BAG140	003	08AE	3974	3975 3977 4115
BAG150	003	08B1	3981	
BAG160	004	08B7	3986	
BAG200	004	08C1	3996	3955
BAG210	003	08CF	4005	4070
BAG220	004	08D5	4010	
BAG230	003	08DD	4012	4156
BAG240	003	08E0	4016	
BAG250	003	08E6	4021	4157
BAG260	005	08ED	4026	
BAG270	003	08F7	4031	4017 4158
BAG300	004	0901	4042	3998 4006
BAG310	004	0908	4047	
BAG320	003	090F	4052	4043
BAG330	003	0917	4057	4048
BAG340	004	091E	4062	
BAG350	004	0925	4067	
BBPAMK	001	0001	4726	4547 9882
BBPARP	003	0A41	4692	4506* 9800
BBPASW	001	0A45	4725	4547* 9881
BBPBDR	004	09D4	4749	4559* 4577*
BBPBIX	001	0A43	4701	4524* 4572* 4577 4589* 4611 4702
BBPBNL	004	0A01	4751	4532* 4563 4573* 4585* 4613* 9806
BBPBN1	001	0A30	4746	4471 4500 4584 4613 4633
BBPCAD	001	0A40	4693	4578 9801
BBPCDL	004	09D3	4748	4584* 4585 4589 9805
BBPCDR	004	09D5	4750	4558* 4559
BBPCGI	001	0A45	4707	4708 4725
BBPCPG	001	0A35	4747	4471* 4475 4528* 4605 9804
BBPDCA	002	0A32	4663	
BBPDCY	001	0A2E	4660	
BBPDFN	001	0A2D	4659	
BBPDPL	001	0A2D	4658	4625
BBPDSA	001	0A2F	4661	4621*
BBPDSC	001	0A30	4662	4746
BBPECT	001	0A44	4704	4495 4500* 4705 9808
BBPELN	002	0A3B	4684	4505*
BBPEMK	001	0007	4728	4517 9885
BBPEMX	001	00FF	4740	4495
BBPEOB	001	00FF	4738	4610* 4611 4614 4614*
BBPERC	001	0A39	4683	4685 9807
BBPERP	001	0A3E	4686	4506
BBPESW	003	0993	4727	4517* 9884
BBPFAE	003	0033	4718	9798
BBPFAR	003	0061	4716	4446 4451

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BBPFCL	003	009D	4719	9799
BBPFNC	003	094E	4715	4451* 9796
BBPFWP	003	0015	4717	9797
BBPMAX	001	00FF	4739	4532 4573 4616
BBPNBY	001	0A41	4694	4558 4563 9802
BBPRMK	001	0007	4730	4518
BBPRSW	003	09B1	4729	4518*
BBPUTC	001	093A	4431	3454 3521 5353 6763 7349 7367 7412 7602 7667 8155 8521 8533 9381 9795
BBPVAD	002	0A43	4696	9803
BBPVPG	001	0A42	4698	4475 4523* 4605 4621 4633* 4699
BBPWCA	002	0A38	4677	
BBPWCY	001	0A34	4669	
BBPWFN	001	0A33	4668	
BBPWMK	001	0007	4732	4519
BBPWPL	001	0A33	4667	4480
BBPWSA	001	0A35	4671	4672 4747 9872
BBPWSC	001	0A36	4676	
BBPWSW	003	0962	4731	4519*
BBP010	004	0948	4440	
BBP020	003	094C	4444	4432 4434 4445 4447 4580 4715 4716 4717 4718 4719
BBP030	003	094F	4451	4464 4487 4496 4551 4590
BBP040	004	0955	4454	4433* 4452
BBP050	004	0959	4455	4435*
BBP060	004	095D	4456	4436*
BBP100	003	0961	4464	4465 4467 4717 4731
BBP110	004	0964	4471	
BBP120	004	0968	4475	
BBP130	003	096F	4480	
BBP140	003	097C	4487	
BBP200	003	097F	4495	4718
BBP202	004	0985	4500	
BBP205	005	0989	4505	
BBP210	003	0992	4510	4511 4513 4727
BBP220	003	0995	4517	
BBP230	003	099E	4523	
BBP240	003	09A4	4528	
BBP250	003	09A7	4532	
BBP260	003	09AA	4536	
BBP300	003	09AD	4547	4716
BBP305	003	09B0	4551	4552 4554 4729
BBP310	004	09B3	4558	4510 4536
BBP320	004	09BB	4563	
BBP330	003	09C2	4568	
BBP340	003	09C5	4572	
BBP350	004	09CB	4577	4564
BBP360	004	09D2	4579	4748 4749 4750
BBP370	004	09DA	4584	
BBP380	004	09E2	4589	
BBP400	003	09E9	4601	4568 4719
BBP410	004	09EC	4605	
BBP420	003	09F3	4610	
BBP430	004	0A00	4614	4615 4617 4751
BBP440	004	0A04	4621	4612
BBP450	003	0A08	4625	
BBP460	004	0A19	4633	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BBP470	004	0A1D	4637	4601*
BBP500	004	0A21	4645	4476 4606
BBP510	004	0A29	4650	
BCFACN	001	0023	5428	5005 5010
BCFBCP	004	0BB2	5460	5201* 5222* 5227
BCFBC1	001	0CAA	5461	5201 5462
BCFBC2	001	0CBB	5462	5199* 5200 5200* 5227
BCFBFN	001	0DBB	5421	5471
BCFBFR	001	0CBC	5419	5314 5336 5471 9814
BCFBFS	001	0001	5449	5319
BCFBFV	004	0C4F	5463	5465
BCFBKD	003	0C23	5464	5292* 5293* 5294 5295
BCFBKL	004	0C4F	5465	5039* 5190* 5292 5346
BCFBKN	001	0CBB	5418	5358 5467
BCFBKS	001	0CA9	5466	5040* 5053* 5147* 5152* 5197* 5223* 5246 5252* 5468
BCFBKT	001	0CA9	5416	5300 5461 5466
BCFBKV	001	0000	5450	5329 5338
BCFBKX	001	0CBB	5467	5043* 5075* 5093* 5139* 5141* 5148* 5170
BCFBMK	001	0007	5437	5192 5239
BCFBMP	004	0ADD	5470	5065* 5097 5100*
BCFBM1	001	0CAA	5468	5065 5145 5157 5158 5469
BCFBM2	001	0CB8	5469	5044* 5045 5045* 5097
BCFBND	001	00FF	5471	5340 5358*
BCFBN1	002	0CA0	5382	5075 5093 5100 5222 5223 5293 5354 5370 5374
BCFBPM	001	0000	5451	5165* 5166*
BCFBP1	004	0C5D	5472	5296 5346* 5362 9816
BCFBP2	003	0C33	5473	5296* 5313 5321* 5323*
BCFBSW	004	0BAD	5436	5192* 5239*
BCFBUM	001	0000	5452	5165 5166
BCFCCN	004	001F	5429	9812
BCFCEL	004	0C4D	5474	5294*
BCFCNT	001	0CA7	5414	5156* 5167* 5475
BCFCON	001	0A46	4989	6718 7432 9810
BCFCRL	001	0CA1	5383	5323
BCFDLM	001	0CA7	5475	5193* 5206 5209
BCFFMK	001	0007	5439	5064 5080
BCFFSW	003	0ACE	5438	5064* 5080*
BCFMEL	004	0C5C	5476	5295*
BCFMNL	001	0CA3	5393	5156 5394
BCFPCT	001	0CA8	5415	4998* 5374* 9817
BCFPDL	001	0001	5453	5163
BCFPDX	001	0001	5477	5170*
BCFPFL	001	0CA4	5397	5039 5321 5398
BCFPRC	001	0CA2	5389	5152 5390
BCFPWA	001	0CA6	5408	9873
BCFSCN	004	001B	5430	9813
BCFSMK	001	0007	5441	4999 5020 5232 5244
BCFSSW	003	0C25	5440	4999* 5020* 5232 5244
BCFTYP	003	0A5F	5427	5010* 9811
BCFUDL	001	0002	5454	5164
BCFUPL	003	0B55	5478	5167
BCFVAD	002	0CA6	5401	5369
BCFVPD	001	0CA6	5403	5313* 5362*
BCFVPG	001	0CA5	5402	5354* 9815
BCFXMK	001	0007	5443	5123 5128
BCFXSW	003	0B24	5442	5123* 5128*

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BCF010	004	0A51	4997	4990 4992 5428 5429 5430
BCF020	003	0A5D	5003	5004 5006 5427
BCF030	004	0A60	5010	5175 5264
BCF040	004	0A64	5011	4991*
BCF050	004	0A68	5012	4993*
BCF100	004	0A6C	5020	5430
BCF110	004	0A70	5024	5429
BCF200	001	0A74	5032	5428
BCF210	004	0A78	5039	
BCF220	003	0A89	5049	
BCF230	004	0A98	5057	5050 5059
BCF235	003	0A9C	5058	5052
BCF240	004	0AA3	5064	
BCF250	003	0AAB	5070	
BCF255	004	0AB1	5072	5076
BCF260	004	0AC3	5080	5074 5113
BCF270	003	0AC7	5084	5071
BCF280	003	0ACD	5089	5090 5092 5106 5438
BCF290	004	0AD4	5097	5089
BCF295	004	0ADB	5099	5470
BCF300	004	0AE4	5104	5098
BCF310	003	0AEF	5110	
BCF320	003	0AFD	5117	5085 5111
BCF330	004	0B03	5122	
BCF335	004	0B1B	5129	5125
BCF340	004	0B1F	5133	5127
BCF345	003	0B23	5135	5136 5138 5442
BCF350	005	0B2E	5141	5135
BCF360	003	0B33	5145	5118 5140
BCF370	004	0B3F	5152	5146
BCF380	004	0B43	5156	
BCF390	003	0B50	5163	5168
BCF395	003	0B53	5164	5478
BCF397	004	0B5A	5166	5159
BCF400	004	0B6D	5174	
BCF500	001	0B75	5183	5024
BCF510	003	0B79	5190	
BCF520	003	0B88	5197	5235
BCF530	004	0B96	5205	5214 5228 5240
BCF540	004	0BAC	5214	5207 5215 5217 5436
BCF550	004	0BB0	5221	5460
BCF560	004	0BBD	5227	
BCF570	003	0BC5	5232	
BCF580	004	0BD3	5239	5233
BCF590	003	0BDB	5244	5210
BCF600	003	0BEA	5252	5245
BCF610	004	0BED	5256	5248
BCF620	004	0BF1	5260	5247
BCF630	004	0BFF	5264	5262
BCF800	001	0C03	5285	5033 5034 5065 5097 5174 5184 5185 5201 5227 5234 5256 5286 5287 5345 5366
BCF810	004	0C0A	5292	
BCF820	003	0C1E	5300	
BCF825	003	0C21	5301	5464
BCF830	003	0C24	5305	5306 5308 5440
BCF840	006	0C27	5313	5331

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BCF845	003	0C31	5315	5473
BCF850	003	0C34	5319	
BCF855	006	0C43	5323	5320
BCF860	003	0C49	5324	5322
BCF870	004	0C4C	5329	5463 5474
BCF880	004	0C57	5336	5305 5324
BCF885	004	0C5B	5338	5339 5341 5472 5476
BCF890	004	0C5F	5345	
BCF900	004	0C6A	5352	
BCF910	004	0C76	5358	
BCF920	004	0C7A	5362	5347
BCF930	004	0C7E	5366	5330
BCF940	004	0C93	5374	5368
BCF950	004	0C9B	5376	5288*
BDSADL	002	0E3B	5911	6067
BDSART	001	0FD1	6301	5883
BDSATC	001	0000	6303	5891
BDSATL	001	0001	6302	5883 5889
BDSATR	001	0002	6508	6284
BDSBKT	003	0E4B	5950	5951 5952 5953 5954 5955 5956
BDSBN1	001	0E37	5908	6158 6184
BDSCAL	001	0004	6475	6477 6479
BDSCAT	001	13C8	6474	6124 6478 9830
BDSCDL	002	0E3D	5912	6137
BDSCMK	001	0001	5923	5823 6079 9909
BDSCR1	003	0E49	5951	5827*
BDSCR2	003	0E4A	5952	5832* 5836 5848 5853 5858 5860 5862 5864 5866 5987 6017*
BDSCR3	003	0E4B	5953	6165* 6250
BDSCSW	001	0E42	5920	5823* 5921 6079* 9908
BDSCTL	001	0002	6453	6455 6457
BDSCVL	002	0E3F	5913	6112
BDSCVT	001	12E0	6452	6100 6456 9828
BDSDET	003	105F	6417	6222
BDSDVA	002	0E4F	5960	6023 9823
BDSDVR	002	0E4D	5957	5958 5959 5999 6018
BDSDV1	002	0E4C	5958	9821
BDSDV2	002	0E4D	5959	9822
BDSFAA	002	0E53	5962	6285* 9820
BDSFAB	002	0E48	5945	6067* 6137* 6268* 6272 9825
BDSFAL	002	0E41	5914	6268
BDSFMK	001	0007	6497	6012 9894
BDSFNL	001	0004	6486	6488 6490
BDSFNT	001	143C	6485	6255 6489 9831
BDSFSW	003	0E5C	6496	6012 9893
BDSFTL	001	0005	6344	6176 6181 6346
BDSIFA	001	0004	6346	6213
BDSIFI	001	0002	6345	6182
BDSIFT	001	0FEA	6343	6176
BDSKTL	001	0002	6326	6150 6155
BDSKWI	001	0001	6327	6156
BDSKWT	001	0FE0	6325	6150
BDSL DL	001	0002	6437	6441 6446
BDSL DN	002	0E56	5965	5987* 5992
BDSL DT	001	109C	6435	5988 6443 9827
BDSL TL	001	0002	6425	6427 6429
BDSL TR	003	0E49	5954	5891 6250*

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BDSLVT	001	1062	6424	6029 6428 9826
BDSMMK	001	0007	6500	6227 9915
BDSMSW	003	0DDE	6499	6227* 9914
BDSNAL	001	0006	6464	6466 6468
BDSNAT	001	131A	6463	6054 6467 9829
BDSNUL	001	0000	6509	6035 6062 6106 6132 6263
BDSPFL	002	0E44	5929	6041
BDSPWA	001	0E46	5939	9874
BDSP1I	001	0E38	5909	5898
BDSP2I	001	0E39	5910	5890
BDSSPB	001	00FC	6511	5885
BDSSTA	001	1BAC	9714	9708 9715
BDSSTP	002	0E51	5961	5884* 5885* 5890* 5898* 5989 5989* 5990 5991 5991* 5992* 5993 5994 6030 6055 6056 6057 6101 6126 6127 6257 6258
BDSTCT	001	0E54	5963	6151* 6158* 6177* 6184*
BDSTST	002	1BAB	9712	9706
BDSUFI	002	0FE9	6337	6170
BDSVAD	001	0001	6507	6040* 6111* 6272* 6280
BDSVPG	001	0000	6506	6035 6062 6106 6132 6263
BDSVRB	002	0E46	5933	6040 6041* 6111 6112* 9824
BDSYMB	001	0DBC	5815	6708 7387 8032 8428 9819
BDSYM2	003	0E4A	5955	5999 6018 6156 6170 9706
BDSYM3	003	0E4B	5956	6182 6222
BDS005	003	0DC8	5823	
BDS010	004	0DCB	5827	
BDS020	004	0DCF	5831	
BDS030	003	0DD7	5836	
BDS040	003	0DDD	5841	5842 5844 6499
BDS050	003	0DE0	5848	
BDS060	003	0DE6	5853	
BDS070	003	0DEC	5858	
BDS080	003	0DF9	5862	5859
BDS090	003	0E0E	5871	
BDS100	003	0E11	5879	5816 5818 5986 6028 6053 6083 6251 9705
BDS110	004	0E14	5883	
BDS120	003	0E1E	5889	5892
BDS130	003	0E2C	5897	
BDS140	004	0E33	5902	5879* 5897
BDS200	004	0E57	5975	5837
BDS210	003	0E5B	5979	5980 5982 6496
BDS220	003	0E5E	5986	6000
BDS230	004	0E81	5999	5979
BDS240	003	0E88	6004	
BDS300	003	0E8B	6012	5871
BDS310	003	0E91	6017	
BDS320	005	0E9B	6023	6004
BDS330	003	0EA4	6028	6013 6019 6191
BDS340	003	0EAE	6035	5995
BDS350	004	0EB5	6040	
BDS360	003	0EBD	6045	
BDS400	003	0EC0	6053	5841 5849
BDS410	003	0ED0	6062	
BDS420	004	0ED6	6067	
BDS430	003	0EDA	6071	
BDS500	003	0EDD	6079	5854
BDS510	003	0EE0	6083	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BDS520	004	0EE3	6087	
BDS530	003	0EE7	6091	
BDS550	004	0EED	6100	
BDS560	003	0EF4	6106	
BDS570	004	0EFA	6111	
BDS580	003	0F02	6116	
BDS600	004	0F05	6124	6092
BDS610	003	0F0F	6132	
BDS620	004	0F15	6137	
BDS630	003	0F19	6141	
BDS700	004	0F1C	6150	5861 5863 5865 5867
BDS710	003	0F23	6155	6159
BDS720	004	0F35	6164	9709
BDS730	005	0F3D	6170	
BDS740	004	0F45	6176	
BDS750	003	0F4C	6181	6185
BDS760	004	0F5E	6190	
BDS800	004	0F65	6204	6157
BDS802	005	1B92	9706	6204
BDS803	004	1BA2	9710	9707
BDS805	003	0F69	6205	9711
BDS810	005	0F6C	6213	6183
BDS815	004	0F71	6217	
BDS820	005	0F75	6222	
BDS825	004	0F7D	6227	
BDS830	004	0F84	6232	6223
BDS840	004	0F8F	6242	6171
BDS845	004	0F93	6246	
BDS850	004	0F97	6250	
BDS860	004	0F9E	6255	
BDS870	003	0FA8	6263	
BDS880	004	0FAE	6268	
BDS890	004	0FB2	6272	6071 6141
BDS900	005	0FB6	6280	6036 6045 6063 6107 6116 6133 6264
BDS905	003	0FBB	6284	
BDS910	004	0FC1	6289	6024 6234
BDS920	004	0FC5	6293	6205 6228
BDS930	004	0FC9	6294	5817*
BDS940	004	0FCD	6295	5819*
BD5725	004	0F39	6165	
BECCSCC	001	150E	6778	6732* 6741* 6780
BECCSCN	001	14B0	6681	9833
BECCSCO	002	1510	6779	6723*
BECCSCP	001	1513	6781	6762
BECSMK	001	0007	6788	6767 9912
BECSW	003	14BC	6787	6767* 9911
BECSTR	003	14CC	6713	
BEC010	003	14BB	6692	6682 6684 6693 6695 6787
BEC020	004	14BE	6699	
BEC030	003	14C2	6703	
BEC040	004	14C8	6708	
BEC050	004	14CF	6717	6704
BEC060	005	14D7	6723	6692 6713
BEC070	003	14DC	6727	
BEC080	003	14E2	6732	
BEC090	003	14E8	6741	6728

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BEC100	004	14EB	6745	
BEC110	003	14EF	6749	
BEC120	004	14F2	6753	
BEC130	005	14FA	6762	6733
BEC140	003	1503	6767	
BEC150	004	1506	6771	6683*
BEC160	004	150A	6772	6685*
BFSAIE	002	15A8	7251	7477 9839
BFSAIP	002	15AA	7257	7488 9840
BFSAIS	002	15AC	7263	7494 9837 9841
BFSAIW	002	15A0	7227	7408 9838 9870
BFSAME	002	15A2	7233	9842
BFSAMK	001	0001	7216	7114 7320 7353 7410 7433 7467 7505 7512 9897
BFSAMP	002	15A4	7239	9843
BFSAMS	002	15A6	7245	9844
BFSARL	001	0000	7829	7357
BFSASW	001	159D	7213	7114* 7214 7320 7353* 7410* 7433* 7467* 7505 7512* 9896
BFSBKT	002	1590	7275	7407 7477* 7488* 7494* 7511 9836
BFSCAN	001	1514	7106	6753 8057 8085 8450 8465 9376 9835
BFSCEL	001	0002	7282	7132 7175 7453
BFSCEN	001	15B1	7281	7132* 7175* 7299 7453*
BFSCHR	001	15AF	7277	7141* 7149 7151 7156 7168
BFSCLP	001	00FE	7826	7589 7743
BFSCOP	001	15B0	7279	7531* 7547* 7553*
BFSCPY	001	15B1	7280	7305 7361 7689*
BFSFAL	001	0002	7830	7601
BFSFIL	001	0000	7827	7748 7753 7758 7759 7763 7764 7768 7769 7773 7774 7778 7779
BFSFMK	001	0007	7786	7115 7336 7536 9903
BFSFSW	003	16CC	7785	7115* 7336* 7536* 9902
BFSIMK	001	0007	7789	7325 7335 7552 9906
BFSISW	003	16E5	7788	7325 7335* 7552* 9905
BFSKMK	001	0001	7221	7417 7422 9900
BFSKSW	001	159E	7218	7219 7417 7422* 9899
BFSLIE	001	0001	7832	7478
BFSLIP	001	0002	7833	7489
BFSLIS	001	0004	7834	7495
BFSMFC	001	1594	7200	7206
BFSMFO	002	1596	7201	7407*
BFSMSP	001	159C	7207	7411
BFSNEG	001	158C	7187	
BFSPAD	001	0004	7816	7717
BFSPCM	001	0003	7819	7754
BFSPDV	001	0005	7815	7732
BFSPLB	001	0000	7822	7705
BFSPLP	001	0002	7820	7305 7566 7584 7744
BFSPMC	001	158E	7195	7197 7331* 7342*
BFSPMO	002	1590	7196	7275
BFSMPMP	001	1593	7198	7348
BFSMPMY	001	0005	7814	7727
BFSPPW	001	0007	7812	7737
BFSPRB	001	0001	7821	7689
BFSPRP	001	0003	7818	7749
BFSPSB	001	0004	7817	7722
BFSPTR	002	15B3	7284	7131 7176 7300* 7376* 7458 7671 7679* 7688
BFSPUM	001	0006	7813	7188
BFSPWA	001	15AC	7269	9875

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BFSPWR	001	182A	7739	7453
BFSSAD	001	0002	7808	7595*
BFSSDC	002	158B	7185	7371 7594 7625 7626 7672 7676 7678
BFSSEL	001	0002	7703	7185 7298 7299 7510 7511 7525 7525* 7526 7527 7595* 7596 7705
				7706 7706
BFSSSEN	001	0001	7807	7299* 7511* 7525 7525* 7526* 7595 7627
BFSSFC	001	1597	7203	
BFSSFO	002	1599	7204	7408*
BFSSNE	001	0035	7704	7706
BFSSOP	001	0000	7805	7571* 7589 7606 7611 7618
BFSSPY	001	0001	7806	7361 7566 7584
BFSSTK	001	17A8	7702	7286
BFSTAD	001	0002	7800	7174
BFSTBL	001	1812	7712	7162 7183
BFSTCR	001	0000	7799	7168
BFSTEL	001	0005	7797	7162 7164 7183
BFSTMP	002	15AE	7276	7165* 7166
BFSTND	002	1589	7183	7166
BFSTNE	001	000D	7798	7183
BFSTPO	001	0004	7801	7175
BFSUME	001	158D	7189	7132
BFSUMK	003	1755	7836	7617* 7620* 7647 7657
BFSUMP	001	158D	7188	
BFS010	003	1520	7114	
BFS020	004	152B	7120	7107 7109 7307 7572
BFS030	003	152F	7124	
BFS040	003	153B	7131	
BFS050	004	1545	7137	7125 7306 7413 7479 7490 7496 7680
BFS060	004	1549	7141	7127 7418 7434
BFS070	003	154D	7149	
BFS080	003	1559	7156	7150
BFS090	004	1560	7162	
BFS100	003	1564	7164	7169
BFS110	004	1579	7174	
BFS120	004	1584	7177	7174*
BFS130	003	15B4	7294	7459 7715 7720 7730 7735
BFS140	003	15B7	7298	7133 7506 7532 7548 7554
BFS150	003	15C1	7305	
BFS160	001	15CA	7315	7294 7562 7580 7690
BFS170	003	15CD	7320	
BFS180	004	15D3	7325	
BFS182	003	15DA	7331	
BFS184	004	15DD	7335	
BFS186	003	15E8	7342	7326
BFS188	005	15EB	7348	7337
BFS190	003	15F4	7353	
BFS200	004	15F7	7357	7321
BFS210	004	15FB	7361	7372
BFS220	004	1602	7366	
BFS230	003	160A	7371	
BFS240	003	1610	7376	7362
BFS250	004	1613	7377	7316*
BFS310	004	1617	7385	7767 7772 7777
BFS320	004	161B	7387	7152
BFS330	004	161F	7391	
BFS332	004	1626	7396	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BFS334	004	162E	7401	7392
BFS336	004	1635	7407	
BFS340	003	1650	7417	7402
BFS350	003	1656	7422	
BFS360	004	165D	7431	7757
BFS370	004	1661	7432	7157
BFS380	004	166B	7442	7725
BFS390	003	166F	7446	
BFS400	005	167C	7453	7447
BFS405	003	1681	7458	7449
BFS410	003	1687	7467	7762
BFS420	003	168E	7472	
BFS430	004	1694	7477	
BFS440	003	169F	7483	7473
BFS450	004	16A5	7488	
BFS460	004	16B0	7494	7484
BFS470	003	16BB	7505	7742
BFS480	003	16C1	7510	
BFS490	003	16CB	7516	7517 7519 7785
BFS500	004	16CE	7525	
BFS505	003	16DA	7531	
BFS510	004	16E0	7536	7516
BFS520	003	16E4	7540	7541 7543 7788
BFS530	003	16E7	7547	
BFS540	004	16ED	7552	7540
BFS550	003	16F7	7562	7752
BFS560	003	16FA	7566	
BFS570	003	1700	7571	
BFS580	003	1706	7580	7747
BFS590	003	1709	7584	
BFS600	003	170F	7589	
BFS610	003	1715	7594	
BFS620	004	171F	7600	
BFS630	003	172B	7606	
BFS640	003	1731	7611	
BFS650	004	1737	7617	
BFS651	003	1745	7625	7619
BFS652	003	174E	7631	
BFS654	003	1754	7636	7836
BFS660	003	175A	7642	7632
BFS662	004	1760	7647	
BFS664	004	1767	7652	
BFS670	004	176E	7657	7643
BFS672	004	1775	7662	
BFS674	004	1779	7666	7653
BFS680	003	1781	7671	7637 7648 7658
BFS690	003	1787	7676	7607 7612
BFS700	003	178A	7678	7590
BFS710	003	1793	7688	7167 7423 7567 7585
BFS720	004	179C	7694	
BFS730	004	17A0	7695	7108* 7397
BFS740	004	17A4	7696	7110*
BGIAIE	002	06BC	3014	
BGIAIP	002	06BE	3018	
BGIAIS	002	06C0	3022	
BGIAIW	002	06B4	2998	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BGIAME	002	06B6	3002	
BGIAMP	002	06B8	3006	
BGIAMS	002	06BA	3010	
BGIAPA	001	06C0	3026	2834 3027
BGIAPL	001	000E	3027	2834
BGIAPS	001	06B3	2996	3027
BGIBN1	001	069F	2927	2902
BGICFL	001	06AC	2968	
BGICNT	001	06C1	3033	2859* 2902*
BGICPA	001	06AE	2974	2832 2975
BGICPL	001	0005	2975	2832
BGICPS	001	06AA	2962	2975
BGICVA	002	06AE	2970	
BGIDCA	002	06A8	2943	2896
BGIDCT	001	06A6	2942	2846* 2847 2849* 2888
BGIDCY	001	06A4	2940	
BGIDFN	001	06A3	2939	
BGIDPL	001	06A3	2938	2854
BGIDSA	001	06A5	2941	2879
BGIMNL	001	06AB	2966	
BGINIT	001	0607	2808	
BGIPPA	001	06A9	2955	2831 2956
BGIPPL	001	0001	2956	2831
BGIPPS	001	06A9	2949	2956
BGIPRC	001	06AA	2964	
BGIPSA	002	06C3	3036	2871* 2872* 2879* 2880 2880* 2881 2881* 2882 2882* 2883 2883* 2888
BGISBL	001	0002	3035	2880 2881 3036
BGISCY	001	06A1	2935	
BGISDP	001	06A0	2933	2812
BGISFL	002	06B0	2983	
BGISFN	001	06A0	2934	
BGISPA	001	06B2	2989	2833 2990
BGISPL	001	0004	2990	2833
BGISPS	001	06AF	2981	2990
BGISSA	001	06A2	2936	
BGIVRB	002	06B2	2985	
BGIWSA	001	06A9	2951	
BGI010	001	0611	2814	2809 2818
BGI040	004	0611	2818	
BGI045	006	0615	2822	
BGI050	004	061B	2826	
BGI060	005	0622	2831	
BGI070	004	0636	2838	2827
BGI100	005	063D	2846	
BGI110	004	064B	2853	2848
BGI120	004	0651	2858	
BGI130	003	0658	2864	2903
BGI140	004	0661	2871	
BGI150	004	0668	2879	
BGI160	004	067C	2888	
BGI170	004	0683	2896	
BGI180	004	068E	2902	2866 2890
BGI190	004	0695	2908	
BGI200	004	069B	2919	2839
BHDBRD	003	076D	3733	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BHDDCA	002	07D9	3555	
BHDDCY	001	07D5	3550	
BHDDFN	001	07D4	3549	
BHDDPL	001	07D4	3548	3426
BHDDSA	001	07D6	3551	3418 3423* 3552
BHDDSC	001	07D7	3554	
BHDIST	001	0700	3350	2919 9385 9497 9777
BHDLNO	002	07D0	3731	3464 3505 9779
BHDNMK	001	0007	3716	3510 9891
BHDNSW	003	071D	3715	3510* 9890
BHDPAT	001	07E0	3570	3382 3572 9782
BHDSCA	002	07DF	3564	3458
BHDSCY	001	07DB	3559	
BHDSEL	001	0004	3722	3469 3471 3531
BHDSEN	001	00FF	3725	3469
BHDSFN	001	07DA	3558	
BHDSHC	001	07CE	3538	3541
BHDSHO	002	07D0	3539	3731
BHDSHP	001	07D3	3542	3453
BHDSLN	001	00FF	3724	3464*
BHDSPL	001	07DA	3557	3483 9781
BHDSPT	004	078A	3734	3476*
BHDSSA	001	07DC	3560	3490* 3561
BHDSSC	001	07DD	3563	3490
BHDST2	001	073A	3402	9778
BHDSVA	001	00FD	3723	3462* 3463*
BHDTel	001	07CC	3531	3476
BHDTYP	003	0739	3732	3364 9780
BHDWRK	001	07CD	3532	3390* 3391* 3392 3392* 3393
BHD010	004	0708	3358	3351 3352 3360 3403
BHD020	003	0712	3364	
BHD030	003	0719	3371	
BHD040	003	071C	3375	3376 3378 3477 3495 3715
BHD050	003	071F	3382	3511
BHD060	003	0737	3394	3383 3384 3390 3393* 3732
BHD070	004	073E	3407	
BHD090	004	074C	3418	
BHD100	004	0753	3423	
BHD110	004	0763	3435	3407* 3414 3419 3436 3438
BHD120	004	0767	3442	
BHD130	003	076B	3443	3409* 3733
BHD200	005	076E	3453	3371
BHD210	003	0777	3458	
BHD220	005	077A	3462	
BHD230	004	0788	3469	3470 3472 3734
BHD240	004	078C	3476	
BHD250	003	0793	3483	
BHD260	004	07A0	3490	
BHD270	006	07A4	3494	
BHD300	005	07AD	3505	3375
BHD310	003	07B6	3510	
BHD400	004	07BC	3519	3691
BHD410	004	07C8	3525	
BITCD2	001	0001	9641	
BITOD1	001	0000	9640	
BLISAC	001	18EC	8166	8044* 8075* 8080* 8091* 8168

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BLISAO	002	18EE	8167	8034*
BLISAP	001	18F1	8169	8154
BLISTA	001	1853	8023	9372 9846
BLISTR	005	1862	8033	
BLITYP	001	18F2	8175	8033* 8070 9847
BLIUMK	003	18B1	8181	8066* 8090* 8122 8132
BLI010	004	185E	8032	8024 8026
BLI020	003	186C	8038	
BLI030	003	1872	8044	
BLI100	005	1878	8053	8039
BLI105	004	187D	8057	
BLI110	003	1881	8061	
BLI120	003	1887	8066	
BLI130	003	188A	8070	
BLI140	003	1890	8075	
BLI150	003	1896	8080	8071
BLI160	004	189C	8085	8062
BLI170	003	18A0	8090	
BLI200	004	18A6	8099	8053* 8076 8081
BLI210	003	18AA	8103	
BLI220	003	18B0	8108	8181
BLI300	003	18B6	8117	8104
BLI310	003	18BC	8122	
BLI320	004	18C2	8127	
BLI330	003	18C9	8132	8118
BLI340	004	18CF	8137	
BLI350	004	18D3	8141	8128
BLI400	004	18D7	8149	8109 8123 8133
BLI410	005	18DB	8154	8045
BLI420	004	18E4	8159	8025*
BLI430	004	18E8	8160	8027*
BMABMK	001	0007	8562	9921
BMABSW	003	1903	8561	9920
BMAGMK	001	0007	8559	9918
BMAGSW	004	18FF	8558	9917
BMAO40	003	1921	8441	
BMAPMK	001	0007	8565	9924
BMAPSW	004	1981	8564	9923
BMASDC	001	1990	8548	8441* 8460* 8470* 8501 8511 8551
BMASDP	001	1995	8552	8531
BMASD0	002	1992	8549	8430*
BMATXR	001	18F3	8403	7409 9849
BMA010	004	18FE	8412	8404 8406 8413 8415 8558
BMA015	003	1902	8420	8421 8423 8561
BMA020	004	1905	8427	
BMA030	003	191B	8435	
BMA100	004	1927	8450	8420 8436
BMA110	003	192B	8454	
BMA120	003	1931	8460	
BMA130	004	1937	8465	8455
BMA140	003	193B	8470	
BMA150	004	193E	8474	8461
BMA200	004	1942	8482	8431* 8442
BMA210	003	1946	8486	
BMA220	004	194C	8491	
BMA230	003	1953	8496	8487

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BMA240	003	1959	8501	
BMA250	004	195F	8506	
BMA260	003	1966	8511	8497
BMA270	004	196C	8516	
BMA280	004	1970	8520	8492 8507
BMA300	005	197B	8531	8502 8512
BMA305	004	1980	8533	8534 8536 8564
BMA310	004	1984	8540	8522
BMA320	004	1988	8541	8405*
BMA330	004	198C	8542	8407*
BNRMRK	001	1AE6	9488	3365 3525 3574 9856
BNR010	004	1AE6	9492	
BNR020	004	1AEE	9497	
BPAASN	001	1ACC	9368	3589
BPALET	001	1AC4	9359	3586
BPAUFC	001	1AE2	9391	9392
BPAUFP	001	1AE5	9393	9380
BPA010	004	1AC4	9363	
BPA020	004	1ACC	9372	
BPA030	004	1AD0	9376	
BPA040	006	1AD4	9380	
BPA050	004	1ADE	9385	
BRADCA	002	19ED	8807	8734
BRADCY	001	19E9	8802	
BRADFN	001	19E8	8801	
BRADPL	001	19E8	8800	8758 9788
BRADSA	001	19EA	8803	8753 8765* 8804 9789
BRADSC	001	19EB	8806	8765
BRAENL	001	19E7	8794	8746
BRALNO	002	19F1	8815	9787
BRATAB	001	1996	8725	3506 9784
BRATEL	001	0004	8822	8739 8741 8794
BRATEN	001	19F1	8816	8739
BRATPT	004	19A9	8823	8746*
BRAVAD	002	19EF	8813	9786
BRAVPG	001	19EE	8814	9785
BRA010	003	19A4	8734	8726 8728
BRA020	004	19A7	8739	8740 8742 8823
BRA030	004	19AB	8746	
BRA040	003	19B2	8753	
BRA050	003	19B8	8758	
BRA060	004	19C5	8765	
BRA070	006	19C9	8769	
BRA080	004	19CF	8773	8727* 8747
BRA090	004	19D3	8774	8729*
BRA100	004	19D7	8775	8730*
BRA150	004	19DB	8783	8754
BRA160	004	19E3	8788	
BUZBBK	002	1A6A	9022	8970 8970* 8981* 9852
BUZBML	001	00E8	9028	8987
BUZBN1	001	1A4F	9006	8957
BUZCVA	008	1A60	9019	8971* 8981 8987 8994 8994*
BUZCVC	002	1A58	9012	8971
BUZDBK	004	1A68	9021	8966* 9029
BUZDBN	001	19F2	8940	5133 9851
BUZDDG	004	1A68	9029	8975 8982* 8993 8993*

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BUZDGD	004	1A64	9020	8948
BUZDN1	001	1A50	9007	8982
BUZDPT	004	1A0C	9030	8948* 8957* 8965
BUZSCA	001	0008	9018	8971 8994 9019
BUZ010	003	19FD	8948	8941 8943 8948
BUZ020	003	1A00	8954	8961
BUZ030	004	1A0A	8958	9030
BUZ040	004	1A15	8965	8955
BUZ050	004	1A19	8966	8965*
BUZ060	004	1A1D	8970	
BUZ070	003	1A25	8975	8995
BUZ080	004	1A2B	8981	8983
BUZ090	003	1A36	8987	8976
BUZ100	004	1A3C	8993	
BUZ110	004	1A47	8999	8942* 8988
BUZ120	004	1A4B	9000	8944*
BVDCDT	002	1ABB	9208	9155 9161
BVDCNT	002	1AC3	9225	9155* 9161*
BVDCYC	001	1AC2	9226	9174
BVDDCA	002	1AC1	9219	
BVDDCY	001	1ABD	9216	9174*
BVDDFN	001	1ABC	9215	
BVDDPL	001	1ABC	9214	9151* 9196
BVDDSA	001	1ABE	9217	9162* 9164* 9178 9178* 9179 9179* 9185* 9191*
BVDDSC	001	1ABF	9218	
BVDDTI	001	1AC3	9227	9183 9189
BVDIDM	001	0080	9234	9183
BVDITM	001	0040	9235	9189
BVDL4T	001	1A6B	9142	3484 4058 4481 4626 8759 9854
BVDNST	001	1AB9	9207	9162 9164
BVDPLB	001	0005	9233	9151 9151*
BVDSDM	001	0001	9236	9185
BVDSTM	001	0080	9237	9191
BVD010	004	1A76	9151	9143 9145
BVD020	004	1A7A	9155	
BVD030	004	1A7E	9161	9163
BVD040	004	1A8D	9174	
BVD050	004	1A91	9178	
BVD060	003	1A99	9183	
BVD070	003	1AA2	9189	9184
BVD080	004	1AAB	9195	9190
BVD090	004	1AB1	9200	9144*
BVD100	004	1AB5	9201	9146*
BZADMK	001	0001	9897	6289
BZADSW	001	159D	9896	6289*
BZARMK	001	0001	9882	7116
BZARSW	001	0A45	9881	7116*
BZBBFR	256	1DFF	9748	8769 8769*
BZBCKT	002	1590	9836	4997* 5367 5369* 5370* 6023* 6213* 6280* 6723 8034 8430
BZBDPL	001	19E8	9788	
BZBDSA	001	19EA	9789	
BZBINO	002	1A6A	9852	5139 5141
BZBRLN	002	19F1	9787	3505*
BZBROP	002	1AF7	9632	
BZBRVA	002	19EF	9786	
BZBRVP	001	19EE	9785	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BZBTAB	001	1996	9784	
BZCADR	002	1AF9	9633	
BZCBFA	001	0CBC	9814	4677
BZCCON	004	001F	9812	6717
BZCPCT	001	0CA8	9817	
BZCPWA	001	0CA6	9873	2832*
BZCRMK	001	0001	9909	7391 8070
BZCRSW	001	0E42	9908	7391 8033
BZCSCN	001	14B0	9833	
BZCSMK	001	0007	9912	7396
BZCSSW	003	14BC	9911	7396*
BZCTYP	003	0A5F	9811	6717*
BZCVPD	004	0C5D	9816	
BZCVPG	001	0CA5	9815	
BZDIST	001	0700	9777	
BZDLNK	002	1B37	9869	
BZDL4T	001	1A6B	9854	
BZDPWA	001	0E46	9874	2833*
BZDST2	001	073A	9778	
BZDVAD	002	1B37	9687	9869
BZERMK	001	0007	9885	
BZERSW	003	0993	9884	
BZESC2	002	0E4D	9822	
BZFACA	002	0E53	9820	6745 7526 8053 8431
BZFAIS	002	15AC	9837	
BZFAIW	002	15A0	9838	
BZFCON	001	0A46	9810	
BZFILT	002	1B09	9666	
BZFORT	001	1B0E	9678	9672 9677 9680 9865
BZFPWA	001	15AC	9875	2834*
BZFRMK	001	0007	9903	6233 6242
BZFRSW	003	16CC	9902	6233* 6242*
BZFRTA	001	1B0E	9865	
BZFRTE	002	1B0B	9867	
BZFRTP	002	1B0D	9866	
BZFSC1	002	0E4C	9821	
BZFSMK	001	0007	9894	
BZFSSW	003	0E5C	9893	
BZFSVA	002	0E4F	9823	
BZFTND	002	1B0B	9672	9867
BZFTPT	002	1B0D	9674	9866
BZFVME	002	15A2	9842	
BZFVMP	002	15A4	9843	
BZFVMS	002	15A6	9844	
BZFVPE	002	15A8	9839	
BZFVPP	002	15AA	9840	
BZFVPS	002	15AC	9841	
BZGBMK	001	0001	9888	5191 5260
BZGBSW	003	08AF	9887	5191* 5260*
BZGETC	001	0867	9791	
BZGPTR	004	0878	9793	3442 5375 6293 7385 7431 7694 8540
BZIFMK	001	0007	9906	6232
BZIFSW	003	16E5	9905	6232*
BZINVT	001	1B38	9862	
BZIVTB	001	1B38	9693	9862
BZKWMK	001	0001	9900	6190 9710

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BZKWSW	001	159E	9899	6190* 9710*
BZLINE	002	07D0	9779	4026* 4505
BZLIST	001	1853	9846	
BZLTYP	001	18F2	9847	
BZMABK	001	1B8F	9700	9863
BZMATR	001	18F3	9849	
BZMBMK	001	0007	9921	
BZMBSW	003	1903	9920	
BZMFBK	001	1B8F	9863	
BZMGMK	001	0007	9918	
BZMGSW	004	18FF	9917	
BZMPMK	001	0007	9924	
BZMPSW	004	1981	9923	
BZMRMK	001	0007	9915	7401 8427 8429
BZMRSW	003	0DDE	9914	7401 8427* 8429*
BZNUMC	003	0873	9792	7448* 7478* 7489* 7495* 9363* 9492*
BZNXMK	001	0007	9891	
BZNXSW	003	071D	9890	
BZPARP	003	0A41	9800	3453* 6762* 7348* 7411* 8154* 8531* 9380*
BZPBNL	004	0A01	9806	
BZPCAD	001	0A40	9801	7366* 7600*
BZPCDL	004	09D3	9805	3463
BZPCPG	001	0A35	9804	
BZPECT	001	0A44	9808	
BZPERC	001	0A39	9807	3519* 7652* 7662* 8127* 8137* 8491* 8506* 8516*
BZPFAE	003	0033	9798	3520 7666 8141 8520
BZPFCL	003	009D	9799	
BZPFNC	003	094E	9796	3520* 5352* 7666* 8141* 8520*
BZPFWP	003	0015	9797	5352
BZPNBY	001	0A41	9802	7357* 7601*
BZPPWA	001	0A35	9872	2831*
BZPRM1	002	1AF3	9630	
BZPUTC	001	093A	9795	
BZPVAD	002	0A43	9803	3462
BZRMRK	001	1AE6	9856	
BZRTRN	002	1AF5	9631	
BZSBFR	256	1CFF	9739	3494 3494*
BZSCAN	001	1514	9835	
BZSCAT	001	13C8	9830	
BZSCON	004	001B	9813	
BZSCVT	001	12E0	9828	
BZSDPL	001	07DA	9781	
BZSFAB	002	0E48	9825	
BZSFNT	001	143C	9831	
BZSLDT	001	109C	9827	
BZSLVT	001	1062	9826	
BZSNAT	001	131A	9829	
BZSPAT	001	07E0	9782	2858
BZSVRB	002	0E46	9824	
BZSYMB	001	0DBC	9819	
BZTLTH	001	0002	9642	9643
BZTOTB	001	1AF8	9643	
BZTTAB	001	1AFA	9639	9643
BZTYPE	003	0739	9780	4027*
BZWORK	002	15A0	9870	
BZZDBN	001	19F2	9851	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
RHD080	003	0746	3413	
V\$APWR	001	0800	2189	2334
V\$BFR1	001	5400	2252	2442
V\$BFR2	001	5500	2253	2443
V\$CBNZ	001	0CB2	2261	2341
V\$CCON	001	5120	2268	2439
V\$CDCV	001	3100	2265	2394
V\$CDSY	001	2E00	2264	2391
V\$CFPZ	001	0C70	2259	2340
V\$CNXZ	001	0470	2262	2329
V\$CSSR	001	5100	2267	2438
V\$CZFP	001	04AD	2260	2330
V\$DTLN	001	4600	2274	2426
V\$DTVR	001	4700	2275	2427
V\$FABS	001	1761	2160	2358 6349
V\$FACS	001	1400	2176	2350 6397
V\$FASN	001	1413	2175	2351 6394
V\$FATN	001	1100	2174	2347 6391
V\$FCOS	001	0A00	2171	2336 6382
V\$FCOT	001	0D00	2169	2342 6376
V\$FCSC	001	1725	2173	2357 6388
V\$FDEG	001	17DA	2180	2362 6409
V\$FDET	001	4540	2183	2425 6418
V\$FEXP	001	0500	2167	2331 6370
V\$FHCS	001	1500	2179	2352 6406
V\$FHSN	001	1557	2178	2353 6403
V\$FHTN	001	1593	2177	2354 6400
V\$FINT	001	176C	2161	2359 6352
V\$FLGT	001	0200	2165	2324 6364
V\$FLOG	001	0219	2164	2326 6361
V\$FLTW	001	020B	2166	2325 6367
V\$FRAD	001	17CB	2181	2361 6412
V\$FRND	001	1800	2182	2363 6415
V\$FSEC	001	1700	2172	2356 6385
V\$FSGN	001	17A7	2162	2360 6355
V\$FSIN	001	0A1A	2170	2337 6379
V\$FSQR	001	0900	2163	2335 6358
V\$FTAN	001	0D28	2168	2343 6373
V\$IFCI	001	1B00	2152	2367
V\$IFIO	001	1A00	2154	2366
V\$ISDN	001	1900	2153	2364
V\$KBTL	001	1EAC	2296	
V\$KBTS	001	0DAC	2295	
V\$LPRB	001	4F00	2250	2436
V\$LPRT	001	4D00	2248	2434
V\$LPR2	001	4E00	2249	2435
V\$MADD	001	4007	2197	2414
V\$MASN	001	43A0	2195	2421
V\$MCON	001	4324	2202	2419
V\$MIDN	001	4300	2203	2418
V\$MINV	001	4500	2207	2424
V\$MMPY	001	4100	2199	2415
V\$MSMY	001	4264	2200	2417
V\$MSUB	001	4000	2198	2413
V\$MTRN	001	4400	2206	2423
V\$MZER	001	432B	2204	2420

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
V\$PCH1	001	5200	2288	2440
V\$PCH2	001	5300	2289	2441
V\$SCDI	001	2A00	2245	2385
V\$SCDO	001	2A96	2246	2386
V\$SFA2	001	5000	2230	2437
V\$SFD1	001	0000	2240	2322
V\$SFD2	001	0100	2241	2323
V\$SKEY	001	2500	2244	2380
V\$SPRT	001	2800	2243	2383
V\$VMPL	001	4C06	2282	2433
V\$VMPS	001	4C00	2281	2432
V\$XKAF	001	1C00	2229	2368
V\$XKCA	001	2400	2233	2376
V\$XKCL	001	240A	2232	2377
V\$XKIN	001	2B00	2228	2387
V\$XKLP	001	24AD	2234	
V\$XKRS	001	240D	2231	2378
V\$XMGT	001	3E06	2222	2408
V\$XMIN	001	3D00	2221	2406
V\$XMPL	001	3F06	2225	2411
V\$XMPS	001	3F00	2224	2410
V\$XMPT	001	3E0C	2223	2409
V\$XMPU	001	3F13	2226	2412
V\$XMRD	001	3E00	2220	2407
V\$XSGT	001	2100	2215	2373
V\$XSIN	001	2B6E	2214	2388
V\$XSPR	001	3400	2217	2397
V\$XSPT	001	1D00	2216	2369
V\$XSPU	001	3800	2218	2401
V\$XSRD	001	3300	2213	2396
V\$00E1	001	0000	2322	
V\$01E1	001	0100	2323	
V\$02E1	001	0200	2324	
V\$02E2	001	020B	2325	
V\$02F3	001	0219	2326	
V\$03CC	001	0300	2327	
V\$04CC	001	0400	2328	
V\$04E1	001	0470	2329	
V\$04E2	001	04AD	2330	
V\$05E1	001	0500	2331	
V\$06CC	001	0600	2332	
V\$07CC	001	0700	2333	
V\$08E1	001	0800	2334	
V\$09E1	001	0900	2335	
V\$10E1	001	0A00	2336	
V\$10E2	001	0A1A	2337	
V\$11CC	001	0B00	2338	
V\$12CC	001	0C00	2339	
V\$12E1	001	0C70	2340	
V\$12E2	001	0CB2	2341	
V\$13E1	001	0D00	2342	
V\$13E2	001	0D28	2343	
V\$14CC	001	0E00	2344	
V\$15CC	001	0F00	2345	
V\$16CC	001	1000	2346	
V\$17E1	001	1100	2347	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
V\$18CC	001	1200	2348	
V\$19CC	001	1300	2349	
V\$20E1	001	1400	2350	
V\$20E2	001	1413	2351	
V\$21E1	001	1500	2352	
V\$21E2	001	1557	2353	
V\$21E3	001	1593	2354	
V\$22CC	001	1600	2355	
V\$23E1	001	1700	2356	
V\$23E2	001	1725	2357	
V\$23E3	001	1761	2358	
V\$23E4	001	176C	2359	
V\$23E5	001	17A7	2360	
V\$23E6	001	17CB	2361	
V\$23E7	001	17DA	2362	
V\$24E1	001	1800	2363	
V\$25E1	001	1900	2364	
V\$26E1	001	1A00	2366	
V\$27E1	001	1B00	2367	
V\$28E1	001	1C00	2368	
V\$29E1	001	1D00	2369	
V\$30CC	001	1E00	2370	
V\$31CC	001	1F00	2371	
V\$32CC	001	2000	2372	
V\$33E1	001	2100	2373	
V\$34CC	001	2200	2374	
V\$35CC	001	2300	2375	
V\$36CC	001	2400	2379	
V\$36E1	001	2400	2376	
V\$36E2	001	240A	2377	
V\$36E3	001	240D	2378	
V\$37E1	001	2500	2380	
V\$38CC	001	2600	2381	
V\$39CC	001	2700	2382	
V\$40E1	001	2800	2383	
V\$41CC	001	2900	2384	
V\$42E1	001	2A00	2385	
V\$42E2	001	2A96	2386	
V\$43E1	001	2B00	2387	
V\$43E2	001	2B6E	2388	
V\$44CC	001	2C00	2389	
V\$45CC	001	2D00	2390	
V\$46E1	001	2E00	2391	
V\$47CC	001	2F00	2392	
V\$48CC	001	3000	2393	
V\$49E1	001	3100	2394	
V\$50CC	001	3200	2395	
V\$51E1	001	3300	2396	
V\$52E1	001	3400	2397	
V\$53CC	001	3500	2398	
V\$54CC	001	3600	2399	
V\$55CC	001	3700	2400	
V\$56E1	001	3800	2401	
V\$57CC	001	3900	2402	
V\$58CC	001	3A00	2403	
V\$59CC	001	3B00	2404	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
V\$60CC	001	3C00	2405	
V\$61E1	001	3D00	2406	
V\$62E1	001	3E00	2407	
V\$62E2	001	3E06	2408	
V\$62E3	001	3E0C	2409	
V\$63E1	001	3F00	2410	
V\$63E2	001	3F06	2411	
V\$63E3	001	3F13	2412	
V\$64E1	001	4000	2413	
V\$64E2	001	4007	2414	
V\$65E1	001	4100	2415	
V\$66CC	001	4200	2416	
V\$66E1	001	4264	2417	
V\$67E1	001	4300	2418	
V\$67E2	001	4324	2419	
V\$67E3	001	432B	2420	
V\$67E4	001	43A0	2421	
V\$68E1	001	4400	2423	
V\$69E1	001	4500	2424	
V\$69E2	001	4540	2425	
V\$70E1	001	4600	2426	
V\$71E1	001	4700	2427	
V\$72CC	001	4800	2428	
V\$73CC	001	4900	2429	
V\$74CC	001	4A00	2430	
V\$75CC	001	4B00	2431	
V\$76E1	001	4C00	2432	
V\$76E2	001	4C06	2433	
V\$77CC	001	4D00	2434	
V\$78CC	001	4E00	2435	
V\$79CC	001	4F00	2436	
V\$80E1	001	5000	2437	
V\$81E2	001	5100	2438	
V\$81E3	001	5120	2439	
V\$82E1	001	5200	2440	
V\$83E2	001	5300	2441	
V\$84E1	001	5400	2442	
V\$85E2	001	5500	2443	
V@CDPT	001	0007	2454	
V@CHGH	001	0008	2559	
V@CMIC	001	0002	2455	
V@CMNI	001	00FF	2452	
V@CMUL	001	0007	2560	
V@CNIX	001	0080	2453	
V@COEX	001	001E	2450	
V@CPLS	001	00F0	2457	
V@CPRC	001	000A	2459	
V@CSQR	001	0003	2557	
V@CSTR	001	0002	2558	
V@CTTA	001	0027	2460	
V@DCAD	001	0002	2480	2481
V@DEXP	001	0000	2485	
V@DMAN	001	000D	2487	2488
V@DMN1	001	0001	2486	
V@DPDF	001	0002	2475	
V@DSAD	001	0001	2476	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
V@DSGN	001	000D	2488	
V@DVAD	001	0004	2481	
V@EART	001	0001	2458	
V@ECRT	001	0038	2531	
V@EFUL	001	00F8	2530	
V@EINV	001	00FB	2526	
V@EIPR	001	00F5	2527	
V@ENSV	001	00F7	2528	
V@ENUL	001	0000	2525	
V@ERPC	001	0020	2456	
V@ESAV	001	00F6	2529	
V@FEHN	001	0002	2555	
V@FEPL	001	0091	2551	
V@FERS	001	0003	2554	
V@FPGS	001	0081	2550	
V@FRET	001	0015	2553	
V@FSPC	001	0040	2552	
V@FTAB	001	0000	2556	
V@KADD	001	004E	2541	
V@KCLE	001	006E	2538	
V@KDIV	001	0061	2544	
V@KEMN	001	006C	2536	
V@KEPL	001	006B	2535	
V@KMUL	001	005C	2543	
V@KPER	001	004B	2546	
V@KPST	001	007B	2540	
V@KPWR	001	005A	2545	
V@KSQR	001	006F	2537	
V@KSTO	001	006D	2539	
V@KSUB	001	0060	2542	
V@LAIP	001	0003	2506	2507
V@LDEX	001	0002	2509	
V@LETE	001	0003	2513	
V@LEXP	001	0001	2503	2505
V@LFKO	001	0006	2508	
V@LINI	001	0200	2512	
V@LLKS	001	0010	2505	
V@LMAN	001	000F	2504	2505
V@LNOP	001	0015	2510	
V@LTBE	001	0007	2507	
V@LVPG	001	0100	2511	2512
V@MCHS	001	00C0	2492	
V@MCRD	001	0010	2468	
V@MDEF	001	0008	2469	
V@MEXC	001	0080	2466	
V@MEXT	001	0004	2495	
V@MICC	001	0010	2451	
V@MIPC	001	0080	2493	
V@MIPL	001	0020	2499	
V@MLST	001	0040	2467	
V@MPND	001	0000	2498	
V@MPOF	001	0080	2496	
V@MPRC	001	0020	2465	
V@MSFU	001	0002	2470	
V@MSTN	001	0004	2464	
V@OALL	001	00F4	2521	

CROSS REFERENCE

SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 04/07/20 PAGE 246

V@ONUL	001	00F0	2517	2518
V@OPM1	001	00F2	2519	2520
V@ORTN	001	00F1	2518	2519
V@OSTK	001	00F3	2520	2521
V@PEOF	001	0002	2494	
V@PSQ2	001	0014	2497	

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY = 0

OL105 I THE CODE LENGTH OF #BCOMP IS 7680 DECIMAL.
OL103 I TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS 52
 NAME-#BCOMP,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-R,CATEGORY-000

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

0600	0	#BCOMP	1E00	7680
------	---	--------	------	------

OL100 I THE TOTAL CORE USED BY #BCOMP IS 7680 DECIMAL.

OL101 I THE START CONTROL ADDRESS OF THIS MODULE IS 0600.

OL104 I TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS 31

NAME-#BCOMP,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-O

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
@@E432	001	0062	2292	2294
@@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
@@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

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@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
@@E501	001	008A	2372	2374
@@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
@@E551	001	0098	2400	2402
@@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	
@@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

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CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E604	001	00AA	2436	2438 6845
@@E606	001	00AB	2438	2440 8407
@@E607	001	00AC	2440	2442 8402
@@E608	001	00AD	2442	2444 5959
@@E609	001	00AE	2444	2446 0763
@@E610	001	00AF	2446	2448
@@E611	001	00B0	2448	2450
@@E612	001	00B1	2450	2452 0800
@@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
@@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

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES											
@@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	3095										
@@E901	001	00F6	2588	2590	3097										
@@E902	001	00F7	2590	2592	3096										
@@E903	001	00F8	2592	2594	3098										
@@E905	001	00F9	2594	2596											
@@E906	001	00FA	2596	2598											
@@E910	001	00FB	2598	3094											
@ARR	001	0008	0016	4556	4681	4697	4859	6273	6663						
@ASIGN	001	007C	0071												
@ASTER	001	005C	0069												
@BCRDL	001	0050	0088												
@BE	001	0081	0043												
@BF	001	0090	0052												
@BH	001	0084	0041												
@BL	001	0082	0042												
@BLANK	001	0040	0065												
@BM	001	0082	0054												
@BNE	001	0001	0046												
@BNH	001	0004	0044												
@BNL	001	0002	0045												
@BNM	001	0002	0057												
@BNOL	001	0020	0050												
@BNOZ	001	0008	0049												
@BNP	001	0004	0056												
@BNZ	001	0001	0058												
@BOL	001	00A0	0048												
@BOZ	001	0088	0047												
@BP	001	0084	0053												
@BR	001	0001	0013	3242	3247	3247	3256	3264	3268	3284	3289	3293	3321	3321	3333
				3333	3339	3340	3344	3353	3357	3368	3368	3374	3374	3375	3376
				3376	3382	3382	3386	3392	3392*	3393	3393*	3394	3446	3456	3460
				3464	3476	3480	3487	3487	3491	3491	3495	3499	3506	3663	3698

CROSS REFERENCE

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				3704	3705	3711	3715	3730	3745	3866	3871	3871	3895	3896	3915
				3916	3921	3922	3959	3960	3968	3968	3974	3974	3975	3977	3977
				3983	3983	3987	3993	3993*	3994	4033	4061	4064	4090	4110	4114
				4281	4290	4411	4417	4417	4420	4436	4436	4444	4445	4465	4470
				4471	4471	4477	4479	4480*	4487	4488	4489	4495	4496	4498	4498
				4504	4505	4506	4506	4513	4513	4514	4520	4520*	4521	4521*	4522
				4530	4531	4532	4536	4541	4542	4542	4543	4543	4544	4545	4556
				4560	4596	4609	4611	4616	4617	4618	4618	4619	4620	4623	4625
				4626	4627	4628	4634	4635	4636	4637	4638	4639	4644	4646	4652
				4658	4659*	4666	4666	4668	4681	4685	4697	4698	4699	4700	4701
				4703	4704	4705	4706	4706	4707	4708	4709	4709	4710	4711	4712
				4713	4714	4715	4757	4764	4765	4771	4779	4780	4781	4792	4797
				4799	4800*	4810	4811	4814	4815	4816	4817	4818	4820	4821	4822
				4823	4824	4833	4834	4835	4840	4859	4863	5001	5009	5010	5017
				5018	5018	5038	5052	5053	5057	5059	5064	5073	5075	5077*	5084
				5084	5085	5086	5093	5094	5102	5112	5112	5118	5118	5119	5120
				5120	5126	5126	5130	5131	5131	5137	5137*	5138	5138*	5139	5170
				5182	5188	5190	5195	5200	5209	5224*	5225	5230	5240	5247	5248
				5257	5393	5397	5401	5411	5416	5417	5578	5590	5623	5639	5646
				5647	5649	5650	5653	5660	5663	5667	5677	5683	5687	5694	5699
				5888	5902	5924	5927	5928	5937	5938	5942	5943	5957	5965	5968
				6118	6131	6135	6136	6157	6162	6163	6167	6169	6173	6174	6175
				6179	6183	6184	6188	6193	6197	6207	6209	6213	6214	6215	6217
				6218	6222	6226	6228	6232	6233	6237	6241	6241	6242	6253	6268
				6273	6485	6498	6500	6505	6509	6511	6526	6548	6552	6556	6564
				6583	6594	6595	6609	6610	6614	6618	6622	6624	6628	6629	6633
				6638	6642	6642	6646	6658	6663	6808	6821	6852	6853	6857	6859
				6860	6866	6899	6900	6915	6923	7077	7096	7105	7109	7115	7120
				7124	7131	7138	7144	7152	7153	7161	7161	7162	7171	7180	7189
				7329	7338	7455	7467	7468	7469	7470	7482	7490	7494	7510	7514
				7521	7537	7542	7546	7553	7562	7566	7566	7570	7571	7575	7712
				7721	7832	7848	7869	7870	7887	7891	7900	8045	8050	8050	8058
				8064	8190	8210	8219	8370	8414	8415	8422	8427	8428	8563	8576
				8580	8589	8725	8734	8867	8885	8904	8909	8912	8916	8936	8943
				8952	9120	9128	9137	9146	9272	9290	9309	9315	9318	9322	9342
				9349	9358	9519	9533	9537	9546	9673	9686	9693	9698	9703	9711
				9720	9720	9728	9741	9748	9756	9757	9892	9899	9909	0032	0144
				0157	0165	0169	0184	0202	0211	0215	0350	0357	0367	0488	0728
				0733	0733	0745	0757	0769	0809	0835	0854	0854	0860	0861	0861
				0867	0867	0871	0877	0877*	0878	0933	0960	0961	0967	0974	0979
				0980	0981	0985	0985	0986	0986	0987	0995	0996	1002	1009	1014
				1015	1016	1020	1020	1021	1021	1022	1030	1031	1037	1044	1049
				1050	1051	1055	1055	1056	1056	1057	1065	1066	1236	1349	
@BT	001	0010	0051												
@BZ	001	0081	0055												
@B1	001	0001	0063	3322	3334	4452	4488	4488	4488*	4504*	4505	4635	4635	4635*	4780
				4780	4780*	4788	5009	5034	5084	5119	5131	5182	5200	5213	5218
				5247	5909										
@CADDR	001	0002	0142	1945	1946	1947	3048	3075	3368	3374	3376	3382	3414	3416	3417
				3423	3424	3968	3974	3977	3983	4000	4003	4004	4005	4011	4014
				4015	4420	4471	4495	4498	4506	4513	4542	4543	4544	4580	4581
				4585	4588	4589	4652	4658	4666	4749	4751	5085	5112	5118	5120
				5126	5147	5149	5150	5151	5152	5274	5740	5745	5750	5755	5760
				5765	5952	5957	6002	7923	8242	8422	8446	8447	8612	9568	9932
				0242	0390	0757	0815	0854	0861	0867	0884	0886	0888	0903	0919
				0922	0923	0924	0985	1020	1055	1068	1074	1076	1077	1078	1101

CROSS REFERENCE																	
SYMBOL	LEN	VALUE	DEFN	REFERENCES											VER 15, MOD 00	20/07/20	PAGE 191
				1102	1103	1105	1106	1107	1109	1110	1111						
@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														
@CPLUS	001	004E	0079														
@DADDR	001	0002	0140														
@DBFR1	001	0004	0129														
@DBFR2	001	0005	0130														
@DCALK	001	0001	0081														
@DCBCY	001	0009	0115	1774													
@DCBT1	001	0050	0117	1777													
@DCNT	001	0003	0128														
@DCST1	001	0040	0116	1775													
@DCTRL	001	0000	0125														
@DCYL	001	0001	0126														
@DD2	001	0003	0030														
@DGET	001	0001	0134	0899	1088												
@DOLAR	001	005B	0068														
@DOP2	001	0004	0028														
@DPLNG	001	0006	0132														
@DPOS	001	0000	0133														
@DPUT	001	0002	0135														
@DSAD	001	0002	0127														
@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	3289*	3293*	3321*	3333*	3340*	3464*	3491*	3896*	3916*	3922*	3960*	5094*		
				5102*	5131	6135*	6157*	6174*	6207*	6213*	0968	1003	1038	1133	1134		
				1135													
@EOF	001	001C	0077														
@EOFTC	001	0075	0162														
@EOS	001	001E	0076	1784	5912												
@FDDBC	001	0000	0195														

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@FLFNA	001	0002	0199	
@FLHLN	001	0002	0209	
@FLLNC	001	0002	0194	
@FLNSC	001	0001	0211	
@FLSD	001	0001	0207	
@HDRLN	001	0007	0092	0672
@IAR	001	0010	0017	
@INDEX	001	0001	0156	0157
@INST3	001	0003	0032	3289 3340 6249
@INST4	001	0004	0033	0970 1005 1040
@INST5	001	0005	0034	
@INST6	001	0006	0035	
@I1IAR	001	00C0	0020	
@LINSZ	001	00F4	0084	0646
@MAPEN	001	0005	0089	
@MINCR	001	2000	0083	
@MINUS	001	0060	0080	
@NOP	001	0080	0040	6248 6382
@NUMBR	001	007B	0070	
@OPD2	001	0004	0029	
@OP1	001	0003	0027	3663* 3705 3715 3730 4420* 4556* 4658* 4681* 4697* 4859* 6273* 6663* 8576* 9533*
@OP2	001	0005	0031	
@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	4531* 4560* 4627* 4685* 4703* 4816* 4823* 4863* 5182* 5200* 6162* 6247 6381 7115* 8885* 8904* 9290* 9309*
@REGL	001	0002	0012	
@RETRN	001	0080	0153	0154
@RLDWN	001	004F	0159	
@RTRNC	001	0080	0161	
@SBLN	001	0005	0170	
@SBLNL	001	0002	0184	
@SCTSZ	001	0100	0100	
@SDFLN	001	0007	0090	
@SDF0	001	0000	0166	
@SDF1	001	0001	0167	
@SDF2	001	0002	0168	
@SDF3	001	0003	0169	
@SECCY	001	0030	0086	
@SIST	001	0001	0181	
@SLASH	001	0061	0067	
@SLAST	001	0002	0183	
@SMIDL	001	0003	0182	
@SNULL	001	0080	0173	
@SONLY	001	0000	0180	
@STEXT	001	0007	0172	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@STYPE	001	0006	0171	
@SYLVL	001	0005	3130	
@TBCNT	001	0000	0160	
@TBLEF	001	0010	0155	0157
@TBLIX	001	0011	0157	
@UCB	001	0087	0039	6382
@UPARW	001	005A	0078	3113
@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 3049 3075 3263 3264 3275 3283 3284 3425 3450 3455 3456 3535 3752 4446 4569 4609 4618 4698 4699 4706 4709 4770 4771 4772 4833 4839 4840 4870 4872 4884 5153 5256 5257 5270 5397 5409 5410 5411 5416 5417 5442 5448 5601 5611 5617 5653 5677 5693 5694 5698 5699 5772 5902 5927 5965 5966 5967 5968 5982 6003 6005 6222 6241 6365 6375 6504 6505 6516 6525 6526 6534 6614 6642 6689 6691 6828 6859 6860 6866 6899 6900 6923 6961 7105 7109 7152 7153 7154 7161 7188 7189 7201 7489 7490 7537 7566 7591 7598 7601 8388 8414 8427 8428 8454 8732 8733 8734 8755 8951 8952 8973 9357 9358 9380 9693 9710 9711 9715 9720 9756 9757 9784 0164 0165 0178 0183 0184 0192 0823 0827 0831 0835 0837 0841 0845 0846 0885 0891 0961 0967 0996 1002 1031 1037 1051 1080 1125 1126 1128 1130
@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	
@WSFIT	001	0500	0101	
@WSTBL	001	0503	0102	
@XR	001	0002	0014	3256* 3257 3268* 3269 3305* 3306 3306* 3315 3322 3322* 3327 3334 3334* 3335 3339 3344* 3345 3351* 3352 3357* 3358 3386* 3468* 3469 3469* 3471 3476 3480* 3481 3499* 3500 3506* 3507 3662* 3663 3667 3689* 3693 3697 3702* 3703 3705* 3710 3715* 3720 3730* 3735 3739 3744 3886 3891 3893 3898 3900 3905* 3906 3908 3910 3926* 3927 3987* 4043* 4050* 4061* 4062 4062* 4063 4068 4068* 4069 4090* 4091 4104* 4110* 4111 4281* 4282 4288* 4289 4444* 4447* 4477* 4478 4481* 4487* 4496* 4497 4514* 4530* 4533 4557 4561* 4610 4616* 4619* 4622 4626* 4634* 4637* 4668* 4682 4700* 4704* 4707* 4710* 4712* 4714* 4764* 4779* 4783 4797* 4798 4801* 4810* 4813 4815* 4820* 4822* 4834* 4860 5026 5051 5053* 5054 5059* 5060 5073* 5074 5078* 5130* 5178* 5182 5187 5189 5200 5206* 5207 5207* 5208 5213 5230* 5240* 5241 5248* 5249 5393* 5394 5401* 5402 5590* 5591 5623* 5624 5632 5640 5646 5647* 5648 5648* 5649 5651 5652 5652* 5653 5660 5662 5667* 5682 5687* 5688 5912 5924* 5928* 5929 5943* 5944 5949* 5950 5950* 5951 5965 5966 5967 5968 6162 6163* 6165 6165* 6166 6168 6173 6174 6202* 6216 6226* 6268* 6274 6276* 6498* 6509* 6543 6592* 6593 6622* 6658* 6664 6666* 6821* 6822 6833* 6838* 6839 6865* 6866 6875 6880 6885 6915* 6916 7096* 7097 7113* 7115 7120* 7121 7124* 7125 7144* 7145 7162* 7163 7171* 7172 7180* 7181 7329* 7330 7336* 7337 7470* 7471 7482* 7483 7494* 7514* 7515 7521* 7522 7546* 7547 7553* 7554 7712* 7713 7719* 7720 7848* 7849 7891* 7892 7898* 7899 8055 8064* 8065 8190* 8191 8210* 8211 8217* 8218 8387* 8388 8397 8414 8415* 8416 8563* 8564 8576 8580* 8581 8587* 8588 8725* 8726 8885 8890

[illegible]

CROSS REFERENCE																				
SYMBOL	LEN	VALUE	DEFN	REFERENCES													VER 15, MOD 00	20/07/20	PAGE 195	
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	6208	6232*	6604	6628*	7504	7570*											
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	4798*	5074*															
B\$CRBS	001	1509	1345	4799*	5075*															
B\$CREA	001	06CF	1232																	
B\$CREM	001	0000	1209																	
B\$CRMK	001	0001	1421	3310	3687															
B\$CRSR	001	06E3	1233																	
B\$CRST	001	06A6	1229																	
B\$CRSW	001	0E42	1420	3687	4464	4791	5037													
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					
B\$CSCN	001	14B0	1318	1250	1251	1252	1253	3424	4005	4581	4751	5152	5274	0886						
				4786	5032	5048	6148	6577	7842	7883	8063	8184	8558	9286	9328					
				9514	9888	0346														
B\$CSMK	001	0007	1424	6144	6572	7874														
B\$CSSW	001	14BC	1423	6144	6572	7874														
B\$CSTP	001	06D6	1245																	
B\$CSTR	001	14CC	1342	4802	5079															
B\$CSXA	001	2000	1202	3417	4015	5150	0924													
B\$CTYP	001	0A5F	1296	5634*	6201*	6599*	7498*													
B\$CVPD	001	0C5D	1301	0782																
B\$CVPG	001	0CA5	1300																	
B\$CWRK	001	F500	1370	4574	4732	4875														
B\$DIST	001	0700	1262	3517	3746	4097	4294	4847	5263	5426	5704	5972	6257	6560	6931					
				7195	7342	7532	7725	7904	8068	8223	8432	8593	8742	8958	9150					
				9364	9550	9765	9913	0222	0371											
B\$DLNK	001	1B37	1368	5617	5693*	5694*														
B\$DL4T	001	1A6B	1339	0746	0805	0812														
B\$DPWA	001	0E46	1374																	
B\$DST2	001	073A	1263	3387	3988	4515	4669	5132	5231	0872										
B\$ERMK	001	0007	1397	7465	0737															
B\$ERSW	001	0993	1396	7465	0737															
B\$FACA	001	0E53	1305	3662	6838	6865														

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B\$FRSW	001	16CC	1414												
B\$FSC1	001	0E4C	1306	6875*											
B\$FSC2	001	0E4D	1307	6885*	6893*										
B\$FSMK	001	0007	1406	6905	6910										
B\$FSSW	001	0E5C	1405	6905*	6910*										
B\$FSVA	001	0E4F	1308	6899*	6900*										
B\$FTND	001	1B0B	1366	5952											
B\$FTPT	001	1B0D	1365	5949	5951*	5952	5957*	8387	8422*	0757					
B\$FVME	001	15A2	1327	5755											
B\$FVMP	001	15A4	1328	5760											
B\$FVMS	001	15A6	1329	5765											
B\$FVPE	001	15A8	1324	5740											
B\$FVPP	001	15AA	1325	5745											
B\$FVPS	001	15AC	1326	5750											
B\$GBSW	001	08AF	1399												
B\$GBWK	001	0001	1400												
B\$GETC	001	0867	1276	3252	3297	3653	3657	3679	3724	3743	3877	3881	3892	3899	3901
				3943	4085	4268	4272	4428	4535	4603	4645	4667	4782	4808	4846
				5019	5047	5063	5101	5186	5384	5628	5645	5655	5661	5897	5908
				5918	6127	6494	6817	6870	6876	6887	6894	7086	7137	7320	7478
				7703	7841	7856	8036	8057	8183	8197	8202	8379	8557	8571	8717
				8877	8889	8928	9106	9141	9282	9294	9334	9513	9527	9682	9727
				9733	9887	9907	0153	0345	0365						
B\$GPTR	001	0878	1278	3351	3702	3926	4288	4447	4481	4561	4801	5078	5178	6202	6276
				6592	6666	6833	7113	7336	7719	7898	8217	8921	9135	9327	9697
				9724	0173	0209									
B\$GTBF	001	1E00	1200												
B\$IFMK	001	0007	1418												
B\$IFSW	001	16E5	1417												
B\$INVT	001	1B38	1358	3305	3436	3468									
B\$KWMK	001	0001	1412												
B\$KWSW	001	159E	1411	4454*	4790*	5036*	5049*								
B\$LBAS	001	185E	1349	4480											
B\$LBSV	001	18E7	1347	4479*											
B\$LDRP	001	1A00	1197	0823	0823*	0827*	0831*	0837*	0841*	0845*	0846*	0937*	0941*	0942*	0943*
				0947*	0951	0951*	0952	0952*	0965	1000	1035	1074			
B\$LINE	001	07D0	1264	7469											
B\$LIST	001	1853	1331	3301	4276	7114	8049	8206							
B\$LRTN	001	18EB	1348	4478*											
B\$LSTR	001	1862	1346	4482											
B\$LTYP	001	18F2	1332	3310											
B\$MATR	001	18F3	1334	3880	3942	3952	4045	4051	4086	4105	7325	7707	8575	9111	9532
				0198											
B\$MBMK	001	0007	1433	3951	3953										
B\$MBSW	001	1903	1432	3951*	3953*										
B\$MFBK	001	1B8F	1360	3891*	3898*	3900*	3905	3934	3936	4043	4050	4056*	4057*	4063	4104
B\$MGMK	001	0007	1430	3950	3954	4044	4052	4103	4106						
B\$MGSW	001	18FF	1429	3950*	3954*	4044*	4052*	4103*	4106*						
B\$MPMK	001	0007	1436	3878	3882										
B\$MPSW	001	1981	1435	3878*	3882*										
B\$MRMK	001	0007	1427												
B\$MRSW	001	0DDE	1426												
B\$NUMC	001	0873	1277	3251*	3652*	3876*	4042*	4049*	4102*	4267*	4427*	4602*	4785*	4807*	5016*
				5031*	5046*	5100*	5194*	5383*	5586*	5651*	5668*	5896*	5907*	5917*	5925*
				6126*	6192*	6493*	6816*	6886*	7085*	7319*	7477*	7500*	7702*	7840*	7855*
				7879*	8035*	8182*	8201*	8378*	8556*	8570*	8716*	8876*	8898*	8927*	9105*

CROSS REFERENCE																					
SYMBOL	LEN	VALUE	DEFN	REFERENCES												VER 15, MOD 00		20/07/20		PAGE 197	
				9110*	9281*	9303*	9333*	9512*	9526*	9681*	9732*	9886*	9906*	0152*	0344*						
B\$NXMK	001	0007	1403	0364*																	
B\$NXSW	001	071D	1402	3513	4841	5422	5700	6927	7190	7528	8426	9761									
B\$PARP	001	0A41	1285	3513*	4841*	5422*	5700*	6927*	7190*	7528*	8426*	9761*									
B\$PBNL	001	0A01	1291	7467*																	
B\$PCAD	001	0A40	1286	3257*	3269*	3345*	3358*	3481*	3500*	3507*	4069*	4091*	4111*	4282*	4557*						
				4682*	4860*	5054*	5060*	5241*	5249*	5394*	5402*	5591*	5624*	5688*	5929*						
				5944*	6274*	6664*	6822*	6916*	7097*	7121*	7125*	7145*	7163*	7172*	7181*						
				7330*	7471*	7483*	7515*	7522*	7547*	7554*	7713*	7849*	7892*	8065*	8191*						
				8211*	8416*	8564*	8581*	8726*	8937*	8944*	9121*	9129*	9343*	9350*	9520*						
				9538*	9687*	9704*	9742*	9749*	9893*	9900*	0033*	0158*	0170*	0203*	0216*						
B\$PCDL	001	09D3	1290	0351*	0358*	0489*	0770*	1237*	1350*												
B\$PCPG	001	0A35	1289	5967	6860																
B\$PECT	001	0A44	1293	0831																	
B\$PERC	001	0A39	1292	0752																	
B\$PFAE	001	0033	1283	3674*	3879*	3948	5959*	6845*	8402*	8407*											
B\$PFCL	001	009D	1284	3673	5958	6844	8393														
B\$PFNC	001	094E	1281	0742	0777																
B\$PFWP	001	0015	1282	3673*	5958*	6844*	8393*	0742*	0777*	0788*											
B\$PNBY	001	0A41	1287	0788																	
				3258*	3270*	3346*	3359*	3482*	3501*	3508*	4070*	4092*	4112*	4283*	4558*						
				4683*	4861*	5055*	5061*	5242*	5250*	5395*	5403*	5596*	5930*	5942*	6227*						
				6269*	6499*	6510*	6623*	6659*	6857*	6917*	7098*	7122*	7126*	7146*	7164*						
				7173*	7182*	7331*	7472*	7484*	7516*	7523*	7548*	7555*	7714*	7850*	7893*						
				8066*	8192*	8212*	8417*	8565*	8582*	8727*	8938*	8945*	9122*	9130*	9344*						
				9351*	9521*	9539*	9688*	9705*	9743*	9750*	9894*	9901*	0034*	0159*	0171*						
B\$PPWA	001	0A35	1372	0204*	0217*	0352*	0359*	0490*	0771*	1238*	1351*										
B\$PRM1	001	1AF3	1376	5213*	5247																
B\$PTBF	001	1F00	1201																		
B\$PUTC	001	093A	1280	3259	3271	3347	3360	3483	3502	3509	3675	3929	3941	4038	4071						
				4080	4093	4101	4113	4284	4559	4684	4862	5056	5062	5243	5251						
				5396	5404	5597	5654	5678	5689	5931	5945	5960	627								

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B\$SPAT	001	07E0	1267	
B\$SSTA	001	1BAC	1362	4452* 4788* 5034* 5909* 5911*
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	0835* 0837
B\$SYMB	001	0DBC	1304	3661 4453 4604 4789 4809 5035 5901 6834 8383
B\$TCD2	001	0001	1382	5213
B\$TLTH	001	0002	1383	1384 5207
B\$TOD1	001	0000	1381	5208
B\$TOTB	001	1AF8	1384	5206
B\$TTAB	001	1AFA	1380	1384
B\$TYPE	001	0739	1265	
B\$WORK	001	15A0	1369	4488 4635 4699 4780 7109
B\$ZDBN	001	19F2	1336	3683 3728 5106 5388 6530 8721 8932 9338 9699 0188
B@ABAS	001	0007	1969	
B@ACD1	001	0001	1966	1967 3720*
B@ACD2	001	0003	1967	1968 3739* 0961 0981* 1126
B@AFLG	001	0000	1961	3667 3697* 3710* 3735*
B@ALLA	001	005C	1786	
B@AMAX	001	0005	1968	1969
B@BLNK	001	0040	1795	4056 4057 6893
B@BLSZ	001	0100	1920	2059 2062 2065 2080 2083 3417 3423 3445 4000 4015 4032 4580 4588 4595 4756 5150 5151 5169 0884 0885 0890 0924 0932 1119
B@BREQ	001	0084	1575	8986 9393
B@BRHI	001	0088	1576	8989 9396
B@BRLO	001	0082	1574	8992 9399
B@BRNE	001	0094	1578	8995 9004 9402 9411
B@BRNH	001	0098	1579	8998 9405
B@BRNL	001	0092	1577	9001 9408
B@CADD	001	0006	1444	
B@CADF	001	0058	1485	7910 8229 8599 9556 9919 0377
B@CBAS	001	0003	1972	
B@CBNX	001	004A	1478	6676 0231
B@CBRA	001	0046	1476	3403 4568 4869 4880 5435 5710 6937 7207 7210 7584 8453 8748
B@CBRC	001	0044	1475	5267 8965 9372
B@CBRD	001	0048	1477	6951
B@CBRS	001	004C	1479	3529 7593 9774 1249
B@CCLS	001	005E	1488	0380
B@CCMC	001	0042	1474	5271 9370
B@CCMF	001	0040	1473	8964
B@CCNT	001	001F	1898	
B@CCSA	001	003E	1472	9776
B@CDCA	001	006A	1494	5713
B@CDDL	001	006C	1495	5716
B@CDIV	001	000C	1447	
B@CDMN	001	0001	1971	1972 3693* 0996 1016* 1128
B@CDWA	001	006E	1496	5984 6940
B@CEOF	001	0070	1497	0912
B@CEOP	001	0068	1493	
B@CFCI	001	0016	1452	
B@CFN0	001	0012	1450	4734 4883 5163
B@CFN1	001	0014	1451	
B@CFOR	001	004E	1480	5978

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SYMBOL	LEN	VALUE	DEFN	REFERENCES										VER 15, MOD 00		20/07/20		PAGE 199		
B@CGET	001	0052	1482	3406	4300	8232														
B@CHAR	001	0000	1911	3352	3703	3744	3886	3891	3893	3898	3900	3906	3908	3910	3927					
				4289	4533	4610	4622	4783	4813	5026	5182	5187	5189	5200	5632					
				5640	5646	5660	5662	5682	5912	6162	6216	6543	6593	6875	6880					
				6885	7115	7337	7720	7899	8055	8218	8588	8885	8890	8892	8904					
				9115	9136	9145	9290	9295	9297	9309	9545	9725	9908	0210	0366					
B@CHLT	001	0004	1443	0045																
B@CIEX	001	00C5	1871	5739	5754															
B@CIMH	001	0066	1492	7581																
B@CINI	001	0056	1484	3523																
B@CIPI	001	00D7	1874	5744	5759															
B@CIS2	001	00E2	1877	5749	5764															
B@CMF1	001	0018	1453	4157	4161	4165	7348	7730	8602	9156	9159	9559	0234							
B@CMF2	001	001A	1454	4123	4149	4153														
B@CMF3	001	001C	1455	4137	4141	4145														
B@CMAA	001	006B	1806	6216	6293	6314	6335	9725												
B@CMPY	001	000A	1446																	
B@CMSM	001	001E	1456	4120																
B@CNEG	001	0010	1449																	
B@CNXT	001	0050	1481	5981																
B@COLN	001	007A	1808																	
B@CPMK	001	00FF	1716	1720	1724	1725	1759													
B@CPRS	001	0060	1489	6371																
B@CPRU	001	0062	1490	6679	7587	0237														
B@CPUT	001	0054	1483	7913																
B@CPWR	001	000E	1448																	
B@CRSR	001	005A	1486	1362																
B@CRST	001	005C	1487	9922																
B@CSA1	001	0036	1468																	
B@CSA2	001	0038	1469																	
B@CSB1	001	003A	1470	4740																
B@CSC1	001	002A	1462	4737																
B@CSD0	001	002E	1464																	
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	3400	4722	4874	5432	6673	7213	9771	0228									
B@CSTC	001	0028	1461	4573	4725	4731	6374	6682	7590											
B@CSTF	001	0020	1457	4743	5993	7216														
B@CSTH	001	0064	1491																	
B@CSTX	001	003C	1471	3526	4728	4877	5160													
B@CSUB	001	0008	1445																	
B@CSVC	001	0002	1442	0501	0911															
B@CTYP	001	0020	1896																	
B@CUSC	001	002C	1463	4571	4886	8080														
B@CUSF	001	0026	1460	4746	7219															
B@CVAR	001	005B	1785																	
B@DAMK	001	0080	1964	3667	3697															
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																	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
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 0920
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	3415
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 0827*
B@DL02	001	0003	2042	2045 0831*
B@DL03	001	0005	2045	2048 0837*
B@DL04	001	0007	2048	2051 0823 0823* 0841*
B@DL05	001	0009	2051	2054 0845*
B@DL06	001	000B	2054	2057 0846*
B@DL07	001	0045	2057	2060 0937*
B@DL08	001	0145	2060	2063 0941*
B@DL09	001	0245	2063	2066 0942*
B@DL10	001	0289	2066	2069 0943*
B@DL11	001	02C3	2069	2072 0947* 0965
B@DL12	001	02FD	2072	2075 1000
B@DL13	001	0337	2075	2078 1035
B@DL14	001	0371	2078	2081
B@DL15	001	0471	2081	2084 0951 0951*
B@DL16	001	0507	2084	0952 0952* 1074
B@DMAT	001	0008	1748	4012
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	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
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	5148 5275
B@DSLT	001	0010	1760	
B@DSML	001	0010	1762	4577 4750
B@DSNS	001	0018	1714	
B@DSS1	001	0000	1713	
B@DSTP	001	0054	1756	
B@DTBN	001	0010	1778	0794
B@DTB1	001	0050	1777	0794
B@DTCY	001	0009	1774	
B@DTSN	001	0010	1776	
B@DTS1	001	0040	1775	
B@DTYP	001	0040	1890	
B@DURE	001	0020	1608	
B@DVCY	001	0007	1771	0900
B@DVC1	001	0056	1772	5605 6839 0901 0974 1009 1044
B@DWCY	001	0005	1768	
B@DWT1	001	0003	1769	
B@D1MK	001	0080	1962	3710
B@D2MK	001	00C0	1963	3735
B@EOST	001	001E	1784	3352 3744 3893 3927 4289 5682 6301 6322 6343 6543 6593 7337 7600 7720 7899 8218 8588 9136 9145 9545 9908 0210 0366
B@EQUL	001	007E	1810	4533 5187 7221 8055 8890 8985 8997 9000 9295 9392 9404 9407
B@EXPC	001	00C5	1787	
B@FOFL	001	005C	1789	
B@FVAD	001	0001	1974	6839 6866* 1031 1051* 1130
B@GETC	001	0001	1913	
B@GETE	001	00FF	1914	
B@GETS	001	0000	1912	4042 4049 4102 4785 5031 5194 5668 5925 6192 7500 7855 7879 8201 8570 8898 9110 9303 9526 9906 0364
B@GRTR	001	006E	1807	5189 8892 8988 8994 9000 9297 9395 9401 9407
B@ICON	001	0050	1869	5640 5662
B@LADD	001	0001	1513	
B@LADF	001	0002	1554	7850 8192 8565 9521 9894 0352
B@LADV	001	0008	1998	2019
B@LBIN	001	0002	1923	1924 1930
B@LBNX	001	0003	1547	6510 0171
B@LBRA	001	0003	1545	3270 3359 5403 6949 6960 6967 7098 7146 7182 7484 8417 8727
B@LBRC	001	0004	1544	5250 8945 9351
B@LBRD	001	0003	1546	6917
B@LBRS	001	0001	1548	3508 7523 9750 1238
B@LCCA	001	0004	1954	0996 1077 1107 1107
B@LCCC	001	0001	1506	1544 5269 5270 8967 8973 9374 9380
B@LCDV	001	0004	1999	2020
B@LCER	001	0001	1504	1568
B@LCFN	001	0004	1955	1031 1078 1111 1111
B@LCLN	001	0002	1509	1560 1561 1568 5258 7469 7582 8953 9359
B@LCLS	001	0001	1557	0359
B@LCMC	001	0001	1543	5242 9344
B@LCMF	001	0001	1542	8938
B@LCNA	001	0006	1953	0961 1076 1099 1103 1103

CROSS REFERENCE															
SYMBOL	LEN	VALUE	DEFN	REFERENCES				VER 15, MOD 00 20/07/20 PAGE 202							
B@LCNN	001	0001	1507	1532 8074	1541 8081	1553 9777	1565	3487	3524	5985	5987	6364	6941	6943	8050
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	3400	3403	3406	3523
				3526	3529	4120	4123	4137	4141	4145	4149	4153	4157	4161	4165
				4300	4568	4571	4573	4722	4725	4728	4731	4734	4737	4740	4743
				4746	4869	4874	4877	4880	4883	4886	5160	5163	5267	5271	5432
				5435	5596	5710	5713	5716	5978	5981	5984	5993	6371	6374	6673
				6676	6679	6682	6937	6940	6951	7207	7210	7213	7216	7219	7348
				7581	7584	7587	7590	7593	7730	7910	7913	8080	8229	8232	8453
				8599	8602	8748	8964	8965	9156	9159	9370	9372	9556	9559	9771
				9774	9776	9919	9922	0045	0228	0231	0234	0237	0377	0380	0501
				0911	0912	1249	1362								
B@LCRV	001	0013	1997	2017	6365	6691	7601								
B@LCSA	001	0002	1541	9743											
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	3401	3404	3407	4121	4124	4138	4142	4146
				4150	4154	4158	4162	4166	4301	5268	5433	5436	5596	5711	5714
				5717	5979	5994	6674	6677	6683	6938	6952	7208	7211	7214	7217
				7349	7585	7731	8233	8603	8749	8966	9157	9160	9373	9560	9772
				9783	0229	0232	0235								
B@LCXX	001	0001	1508	1540	1552	1554	1558	1559	3527	6372	6680	7588	7914	0238	
B@LDAT	001	0004	1667	5586											
B@LDCA	001	0003	1563												
B@LDDL	001	0003	1564												
B@LDDM	001	0004	1927												
B@LDEF	001	0003	1668	6816											
B@LDIM	001	0003	1669	3652											
B@LDIN	001	0004	1926	1927	1928										
B@LDIV	001	0001	1516												
B@LDMN	001	0002	1924	1953 1016	1954	1966	1967	1968	1971	1998	1999	3693	3720	3739	09

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
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	5061
B@LFN1	001	0003	1520	
B@LFOR	001	0003	1549	5991 6005 6009
B@LFRT	001	0004	1941	1942 5950 6002 8446
B@LGET	001	0003	1551	3346 4283 8212
B@LGSB	001	0005	1675	5383
B@LGTO	001	0004	1674	8716 9681
B@LHLT	001	0001	1512	0034
B@LIEX	001	0002	1872	5741 5756
B@LIFN	001	0003	1935	4063 4068 4136 4140 4144 4148 4152 4156 4160 4164
B@LILP	001	0009	1994	2012 2013 2014 6853 6945 6967
B@LIMG	001	0001	1686	7477
B@LIMH	001	0003	1561	7472
B@LINI	001	0002	1553	3501
B@LINP	001	0005	1681	3251
B@LIP1	001	0003	1875	5746 5761
B@LISP	001	0005	1993	2001 2007 2008 2009 6943 6949
B@LIS2	001	0005	1878	5751 5766
B@LIVT	001	0001	1951	
B@LKCL	001	0005	1680	0344
B@LKFR	001	0003	1671	5896
B@LKGT	001	0003	1677	8182
B@LKIF	001	0002	1673	5016 8876 9281
B@LKON	001	0002	1706	9732
B@LKPT	001	0003	1678	7840
B@LKPU	001	000A	1685	6493
B@LKRR	001	0007	1683	
B@LKRT	001	0005	1679	9886
B@LKTO	001	0002	1700	5907
B@LLET	001	0003	1670	4427 4558 4560 4602 4683 4685 4807 4861 4863 5046 7085 8035
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

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@LL06	001	0002	2053	2054
B@LL07	001	003A	2056	2057 0937 0937
B@LL08	001	0100	2059	2060 0941 0941 0942 0943
B@LL09	001	0100	2062	2063 0942 0942 0943
B@LL10	001	0044	2065	2066 0943 0943
B@LL11	001	003A	2068	2069 0947 0947
B@LL12	001	003A	2071	2072 0969
B@LL13	001	003A	2074	2075 1004
B@LL14	001	003A	2077	2078 1039
B@LL15	001	0100	2080	2081 0951
B@LL16	001	0096	2083	2084 0952
B@LMAT	001	0003	1687	3876
B@LMF1	001	0003	1522	4070 7331 7714 8582 9122 9130 9539 0204
B@LMF2	001	0003	1523	4112
B@LMF3	001	0003	1524	
B@LMGT	001	0006	1688	8556
B@LMIN	001	0008	1689	7319
B@LMPR	001	0008	1692	9105
B@LMPT	001	0006	1691	9512
B@LMPU	001	000D	1693	0152
B@LMPY	001	0001	1515	
B@LMRD	001	0007	1690	7702
B@LMSM	001	0003	1525	4092
B@LNEG	001	0001	1518	
B@LNEX	001	0004	1672	8378
B@LNXT	001	0003	1550	5991 6009
B@LPAR	001	004D	1798	3886 4610
B@LPRS	001	0002	1558	6269
B@LPRT	001	0005	1684	6126
B@LPRU	001	0002	1559	6659 7516 7555 0217
B@LPSE	001	0005	1694	
B@LPUT	001	0002	1552	7893
B@LPWR	001	0001	1517	
B@LREA	001	0004	1682	4267
B@LREM	001	0003	1666	
B@LRSR	001	0001	1555	1351
B@LRST	001	0001	1556	9901
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	0891
B@LSPT	001	0003	1945	1948
B@LSTA	001	0003	1536	3258 5395 6499 7164 9688 9705 0159
B@LSTC	001	0003	1530	6227 6623 7548
B@LSTE	001	0004	1701	
B@LSTF	001	0003	1526	5930 7122
B@LSTH	001	0003	1560	7599

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@LSTP	001	0004	1695	
B@LSTX	001	0002	1540	3482 4627 4816 5055
B@LSUB	001	0001	1514	
B@LSVC	001	0001	1511	0490 0771
B@LTHN	001	0004	1702	5100 8927 9333
B@LTYP	001	0001	1931	
B@LUFN	001	0002	1938	
B@LUSC	001	0002	1532	4531 4823 8066
B@LUSF	001	0001	1529	4703 7126 7173
B@LVPG	001	0100	2025	2028
B@MINS	001	0060	1804	3908 5753 5758 5763
B@MULT	001	005C	1801	3910
B@NAAR	001	001D	1989	2019 2071 1103
B@NCAR	001	001D	1990	2020 2074 1107
B@NCRV	001	001D	1988	2017 2068
B@NDGT	001	000A	1981	1987
B@NEQL	001	007F	1811	9003 9410
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	3288 3436
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 1111
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	3906 5639 5738 5743 5748
B@POWR	001	005A	1800	
B@PREC	001	0020	1892	
B@PROD	001	0023	2001	
B@PRPL	001	0002	1588	6294
B@PRPN	001	0001	1587	6218 6306 6327 6340 6348
B@PRPR	001	0004	1590	6302
B@PRPS	001	0003	1589	6298
B@PRRC	001	0007	1593	6323 6344
B@PRRL	001	0008	1594	6215
B@PRSL	001	0005	1591	6315 6336
B@PRSS	001	0006	1592	6319
B@PTAB	001	0000	1946	
B@PTAD	001	0001	1947	
B@PTSA	001	0002	1948	
B@PUD1	001	0006	1604	6583 6618
B@PUD2	001	0007	1605	6638
B@PUI0	001	0001	1598	7510
B@PUI1	001	0004	1599	7542
B@PUI2	001	0005	1600	7562
B@PUNL	001	0002	1602	6548
B@PUNS	001	0003	1603	6609
B@PUTM	001	0010	1607	6552 0238

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B@RPAR	001	005D	1802	3703	4622	4813	5051	6880
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	6297	6318	6339	9115	
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	4783	5026	5632		
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					
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					
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					
B@TGTO	001	002D	1633					
B@TIFA	001	0027	1630					
B@TIFC	001	002A	1631					
B@TIFS	001	007D	1632					
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					
B@TMLS	001	007A	1624					
B@TMPR	001	0066	1652					
B@TMPT	001	0063	1651					
B@TMPU	001	0069	1653					
B@TMRD	001	0060	1650					
B@TNXT	001	0024	1629					

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
B@TPRT	001	004E	1644	
B@TPRU	001	0051	1645	
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	
BITAD2	001	0FE7	5146	5130
BITBLS	002	0FEF	5151	5138
BITBN1	002	0FF3	5153	
BITBRC	001	1086	5267	5248
BITB01	002	1088	5268	
BITB02	001	1089	5269	5247*
BITCA2	002	0FE8	5147	5018* 5112 5120 5126* 5131* 5137
BITCMC	001	108C	5271	5240
BITEN2	001	0006	5272	5218
BITERM	001	104A	5239	
BITFCP	002	0FEB	5149	5118* 5119* 5120
BITFNO	001	0FF8	5163	5059
BITFPE	002	0FED	5150	5118
BITLNG	002	108B	5270	5257
BITLSW	001	0FF4	5157	5009* 5017* 5084* 5085
BITOOP	002	0FFA	5164	
BITPBA	002	0FF1	5152	5112 5126
BITREL	001	1000	5177	
BITRE1	001	0F06	5015	
BITSG2	001	0000	5144	5139
BITSTX	001	0FF6	5160	5053
BITTRM	001	004A	5145	5102
BIT001	001	0FF5	5158	5084
BIT100	003	0F0D	5018	5010
BIT110	004	0F25	5034	5027
BIT120	004	0F64	5058	5052
BIT140	003	0F68	5059	5057
BIT150	004	0F73	5062	
BIT160	003	0F7E	5073	5038
BIT200	004	0F95	5084	5033 5064 5073
BIT240	004	101F	5200	5188 5190
BIT260	004	1023	5206	5195
BIT270	003	1027	5207	5209
BIT280	003	102A	5208	5182* 5200*
BIT290	003	1043	5230	5219
BIT300	004	0FA9	5100	5086
BIT340	004	0FB8	5112	5095
BIT350	004	0FBF	5118	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BIT360	004	0FCF	5126	5113
BIT370	003	0FD3	5130	
BIT380	003	0FDE	5137	5121
BIT390	003	0FE4	5139	5094* 5102* 5131
BKABRC	001	1A87	8965	8943
BKAB01	002	1A89	8966	
BKAB02	001	1A8A	8967	8916*
BKACMC	001	1A86	8964	8936
BKALNG	002	1A8C	8973	8952
BKALTH	001	0002	8982	8910 8983
BKAOD1	001	0000	8980	8911
BKAOD2	001	0001	8981	8916
BKAOT1	001	1A8B	8983	8909
BKARIF	001	1A00	8871	
BKATAB	001	1A8D	8979	8983
BKA010	004	1A00	8876	
BKA020	004	1A08	8881	
BKA030	004	1A0C	8885	
BKA040	004	1A10	8889	
BKA050	004	1A20	8898	
BKA060	004	1A27	8904	8891 8893
BKA070	003	1A2B	8909	8899
BKA080	003	1A2E	8910	8912
BKA090	003	1A31	8911	8885* 8904*
BKA100	004	1A37	8916	
BKA110	004	1A3B	8921	
BKA120	004	1A43	8927	
BKA130	004	1A4B	8932	
BKA140	003	1A4F	8936	
BKA150	003	1A5E	8943	
BKA160	006	1A6D	8951	
BKA170	004	1A82	8958	
BKCBO1	002	1B89	9373	
BKCBO2	001	1B8A	9374	9322*
BKCBRC	001	1B87	9372	9349
BKCCD2	001	0001	9388	9322
BKCCMC	001	1B86	9370	9342
BKCLNG	002	1B8C	9380	9358
BKCLTH	001	0002	9389	9316 9390
BKCOD1	001	0000	9387	9317
BKCOTB	001	1B8B	9390	9315
BKCRIF	001	1B00	9276	
BKCTAB	001	1B8D	9386	9390
BKC010	004	1B00	9281	
BKC020	004	1B08	9286	
BKC030	004	1B0C	9290	
BKC040	004	1B10	9294	
BKC050	004	1B20	9303	
BKC060	004	1B27	9309	9296 9298
BKC070	003	1B2B	9315	9304
BKC080	003	1B2E	9316	9318
BKC090	003	1B31	9317	9290* 9309*
BKC100	004	1B37	9322	
BKC110	004	1B3B	9327	
BKC120	004	1B43	9333	
BKC130	004	1B4B	9338	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BKC140	003	1B4F	9342	
BKC150	003	1B5E	9349	
BKC160	006	1B6D	9357	
BKFBN2	002	12E7	6003	
BKFDAC	001	12BE	5984	
BKFDAN	001	12BF	5985	5938* 5986
BKFLLP	001	0027	6009	5937
BKFLSP	001	0001	6010	5917
BKFOCV	001	0001	6011	5965*
BKFOC1	001	12E8	6004	5924
BKFOFA	001	12E0	5989	5937* 5942 5990
BKFOFC	001	12B8	5978	5943
BKFOFO	002	12BA	5979	5902* 5965
BKFONC	001	12BB	5981	
BKFOND	001	0003	6012	5966* 5967* 5968*
BKFONO	002	12BD	5982	
BKFOPR	032	12DF	5988	
BKFORX	001	1200	5892	
BKFOSC	001	12E1	5993	5928
BKFOSO	002	12E3	5994	5927*
BKFOTL	002	12E5	6002	5957
BKFOX3	002	12EA	6005	5968
BKF010	004	1200	5896	
BKF020	004	1208	5901	
BKF030	004	1211	5906	
BKF040	004	122F	5917	
BKF050	003	123E	5924	5913
BKF060	004	125D	5935	5920
BKF070	005	126A	5942	5936
BKF080	004	127A	5949	
BKF090	005	128E	5957	
BKF100	004	12A2	5965	5953
BKF120	004	12B4	5972	5961
BKGBN1	002	19EB	8755	8734
BKGBRC	001	19E7	8748	8725
BKGBRO	002	19E9	8749	
BKGOTO	001	19B3	8712	
BKG010	004	19B3	8716	
BKG020	004	19BB	8721	
BKG030	003	19BF	8725	
BKG040	006	19CE	8732	
BKG050	004	19DF	8738	
BKG060	004	19E3	8742	
BKMBN1	002	1CA3	9783	9711 9720 9757
BKMBRC	001	1C9F	9774	9748
BKMCSC	001	1CA0	9776	9741
BKMCSO	001	1CA1	9777	9698* 9720*
BKMGTO	001	1C00	9677	
BKMSTC	001	1C9C	9771	9686 9703
BKMSTO	002	1C9E	9772	
BKMVAD	002	1CA5	9784	9693* 9756
BKM010	004	1C00	9681	
BKM020	003	1C08	9686	
BKM030	005	1C17	9693	
BKM035	004	1C1C	9697	
BKM040	004	1C23	9699	9728

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BKM050	003	1C27	9703	
BKM060	006	1C36	9710	
BKM070	006	1C41	9715	
BKM080	004	1C4B	9720	
BKM090	004	1C4F	9724	
BKM100	004	1C60	9732	9726
BKM110	004	1C68	9737	
BKM120	003	1C6C	9741	
BKM125	003	1C7B	9748	
BKM130	005	1C8A	9756	
BKM140	004	1C94	9761	
BKM150	004	1C98	9765	
BKNBRC	001	1962	8453	8415
BKNBRO	002	1964	8454	8414* 8427
BKNDUM	001	0000	8441	8397
BKNEXT	001	1900	8374	
BKNEX2	002	1961	8447	8428
BKNFEL	002	195F	8446	8422
BKNFTD	001	0001	8440	8388 8397
BKNNXT	001	0003	8442	8414
BKN010	004	1900	8378	
BKN020	004	1908	8383	
BKN030	004	190C	8387	
BKN040	004	1918	8393	
BKN050	003	191C	8397	
BKN060	004	1922	8402	
BKN070	004	1929	8407	8398
BKN080	004	192D	8408	8403
BKN090	004	1934	8414	8389
BKN100	005	1947	8422	
BKN110	004	194C	8426	
BKN120	004	195A	8432	8409
BKRBRN	001	1FE2	1249	1236
BKRTRN	001	1FCF	1232	
BKR010	003	1FCF	1236	
BKR020	004	1FDE	1243	
BKSBN1	002	10ED	5442	5411 5417
BKSBRC	001	10E9	5435	5401
BKSBRO	002	10EB	5436	
BKSTAC	001	10E6	5432	5393
BKSTAO	002	10E8	5433	
BKSUBG	001	1090	5379	
BKSVAS	002	10EF	5448	5397* 5416
BKS010	004	1090	5383	
BKS020	004	1098	5388	
BKS030	003	109C	5393	
BKS040	003	10B0	5401	
BKS050	006	10BF	5409	
BKS060	005	10D4	5416	
BKS070	004	10DE	5422	
BKS080	004	10E2	5426	
BMDM1C	001	1AEA	9156	9120
BMDM10	002	1AEC	9157	
BMDM2C	001	1AED	9159	9128
BMDM20	002	1AEF	9160	
BMDPRT	001	1A9B	9101	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BMD010	004	1A9B	9105	
BMD020	004	1AA3	9110	9146
BMD030	003	1AAB	9115	
BMD040	003	1AB1	9120	
BMD050	003	1AC3	9128	9116
BMD055	004	1AD2	9135	
BMD060	004	1ADC	9141	9124
BMD070	003	1AE0	9145	
BMD080	004	1AE6	9150	9137
BMGAFC	001	19AC	8599	8563
BMGAFO	001	19AD	8600	
BMGBN1	002	19B2	8612	
BMGETX	001	1965	8552	
BMGMFC	001	19AE	8602	8580
BMGMFO	002	19B0	8603	
BMGSFA	001	19B1	8611	
BMG010	004	1965	8556	
BMG100	003	1971	8563	
BMG110	004	1980	8570	
BMG120	004	1988	8575	8589
BMG140	003	198F	8580	
BMG150	004	199E	8587	8576*
BMG160	004	19A8	8593	
BMIMFC	001	16FC	7348	7329
BMIMFO	002	16FE	7349	
BMINPT	001	16D3	7315	
BMI010	004	16D3	7319	
BMI020	004	16DB	7325	7338
BMI030	003	16DF	7329	
BMI040	004	16EE	7336	
BMI050	004	16F8	7342	
BMMAD2	001	0AF3	4010	3987
BMMATA	001	0A00	3870	4032
BMMAT2	001	0B00	4034	3895 3896 3915 3916 3921 3922 3959 3960
BMMBK0	001	0000	4019	3891* 4043 4056* 4104
BMMBK1	001	0001	4020	3898* 3905 3934 3936
BMMBK2	001	0002	4021	3900* 4050 4057* 4063
BMMBLS	002	0AF0	4000	3993
BMMCA2	002	0AF4	4011	3871* 3968 3977 3983*
BMMFCP	002	0AF7	4014	3974* 3975* 3977
BMMFND	001	0002	4132	4063
BMMFPE	002	0AF9	4015	3974
BMMIA2	001	0AF5	4012	
BMMINV	001	00D5	4007	3934
BMMMSC	001	0B99	4120	4090
BMMMSO	002	0B9B	4121	
BMMM2C	001	0B9C	4123	4110
BMMM2O	002	0B9E	4124	
BMPBA	002	0AF2	4003	3895* 3915* 3921* 3959* 3968 3983
BMPID	001	0003	4131	
BMPPI	001	0004	4024	4012
BMSG2	001	0000	4023	
BMTAB	001	0B9F	4133	4134
BMTBS	001	0B99	4134	4061
BMTTEL	001	0006	4130	4062 4134
BMTTRN	001	00D9	4008	3936

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BMM005	005	0A3D	3898	3894
BMM010	003	0A65	3915	3907 3909
BMM020	003	0A6E	3921	3911
BMM030	004	0A85	3934	3928
BMM040	004	0A93	3941	3935
BMM050	004	0AA2	3948	3937
BMM060	003	0AC1	3959	3887
BMM070	004	0AC7	3968	3897 3917 3930 3944 3955
BMM080	004	0ADE	3983	3969
BMM090	003	0AE9	3993	3978
BMM095	003	0AEC	3994	3896* 3916* 3922* 3960*
BMM100	004	0B00	4038	3915 3916
BMM110	003	0B2C	4061	3921 3922
BMM120	003	0B2F	4062	4064
BMM130	003	0B3A	4068	
BMM140	004	0B4C	4080	3959 3960
BMM150	004	0B6B	4097	4075 4114
BMM160	004	0B6F	4101	3895 3896
BMPAFC	001	1BE2	9556	9519
BMPAFO	001	1BE3	9557	
BMPBN1	002	1BE8	9568	
BMPMFC	001	1BE4	9559	9537
BMPMFO	002	1BE6	9560	
BMPSFA	001	1BE7	9566	
BMPUTX	001	1B9B	9508	
BMP010	004	1B9B	9512	
BMP100	003	1BA7	9519	
BMP110	004	1BB6	9526	
BMP120	004	1BBE	9532	9546
BMP130	003	1BC5	9537	
BMP140	004	1BD4	9544	9533*
BMP150	004	1BDE	9550	
BMREAD	001	17D0	7698	
BMRMFC	001	17F9	7730	7712
BMRMFO	002	17FB	7731	
BMR010	004	17D0	7702	
BMR020	004	17D8	7707	7721
BMR030	003	17DC	7712	
BMR040	004	17EB	7719	
BMR050	004	17F5	7725	
BMUBNC	001	1D8B	0231	0169
BMUBN1	002	1D94	0242	0165 0184
BMUMFC	001	1D8E	0234	0202
BMUMFO	002	1D90	0235	
BMUPRC	001	1D91	0237	0215
BMUPRO	001	1D92	0238	
BMUPRT	001	1D00	0148	
BMURNO	002	1D8D	0232	
BMUSTC	001	1D88	0228	0157
BMUSTO	002	1D8A	0229	
BMU010	004	1D00	0152	
BMU020	003	1D08	0157	
BMU030	006	1D17	0164	
BMU040	003	1D22	0169	
BMU050	006	1D35	0178	
BMU060	006	1D3F	0183	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BMU070	004	1D4A	0188	
BMU080	006	1D4E	0192	
BMU090	004	1D58	0198	0211
BMU100	003	1D5C	0202	
BMU110	004	1D6B	0209	
BMU120	003	1D75	0215	
BMU130	004	1D84	0222	
BNABNI	002	09F7	3752	
BNADIM	001	0973	3648	
BNA010	004	0973	3652	
BNA020	004	097B	3657	3745
BNA030	004	097F	3661	
BNA040	003	098A	3667	
BNA060	004	099C	3679	3669
BNA070	004	09A0	3683	
BNA080	004	09A4	3687	
BNA090	004	09AB	3689	3663* 3705 3715 3730
BNA100	005	09AF	3693	
BNA110	003	09B4	3697	
BNA120	004	09BA	3702	3688
BNA130	003	09CD	3715	3704
BNA140	005	09D0	3720	
BNA150	004	09D5	3724	
BNA160	004	09D9	3728	
BNA170	003	09E0	3735	
BNA180	005	09E3	3739	3711
BNA190	004	09E8	3743	3698
BNDATA	001	1100	5582	
BNDBKL	001	0002	5732	5649 5735
BNDBKT	001	11DA	5734	5639* 5646* 5649 5660* 5667
BNDBK0	001	0000	5723	5639* 5660* 5667
BNDBK1	001	0001	5724	5646* 5649
BNDBN1	001	11FA	5772	5694 5699
BNDBRC	001	11D1	5710	5590
BNDBRO	002	11D3	5711	
BNDDAC	001	11D4	5713	5623
BNDDAO	002	11D6	5714	5653* 5677*
BNDDLCL	001	11D7	5716	5687
BNDDLLO	002	11D9	5717	
BNDICA	001	0000	5731	5653
BNDTAB	001	11DC	5737	5647
BNDTB1	001	0001	5727	5649
BNDTB3	001	0003	5728	5652
BNDTB4	001	0004	5729	5651
BNDTEL	001	0005	5726	5647 5648
BND010	004	1100	5586	
BND020	003	1104	5590	
BND030	006	1113	5601	
BND040	004	1119	5605	
BND050	006	1120	5611	
BND060	006	1129	5617	5606
BND070	003	1133	5623	5612
BND080	004	113A	5628	5683
BND090	003	113E	5632	
BND100	003	114B	5639	5633
BND110	004	1154	5645	5663

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BND120	003	115F	5648	5650
BND130	004	1180	5660	5641
BND170	004	1195	5672	5635
BND180	005	1199	5677	
BND190	003	11A2	5682	5656
BND200	003	11A8	5687	
BND210	006	11B3	5693	
BND220	006	11BE	5698	
BND230	004	11CD	5704	
BNFBDC	001	15CB	6951	6915
BNFBDO	002	15CD	6952	6859* 6860* 6866 6899
BNFBN1	001	15CF	6961	6923
BNFBRC	001	15BC	6937	6821
BNFBRO	002	15BE	6938	
BNFDAC	001	15BF	6940	
BNFDAN	001	15C0	6941	6853* 6942
BNFDEF	001	1500	6812	
BNFLIP	001	000D	6967	6852
BNFLTH	001	15CE	6960	6900
BNFSKP	001	0002	6965	6886
BNFSPA	001	15CA	6947	6852* 6857 6948
BNFWKA	009	15C9	6945	
BNF010	004	1500	6816	
BNF020	003	1508	6821	
BNF030	006	1513	6828	
BNF040	004	1519	6833	
BNF050	004	1521	6838	
BNF060	004	152B	6844	
BNF070	004	1537	6850	6840
BNF080	005	1544	6857	6851
BNF090	004	1557	6865	
BNF100	004	155F	6870	
BNF110	005	1563	6875	
BNF120	003	156C	6880	
BNF130	005	1572	6885	
BNF140	004	1582	6893	6881
BNF150	005	158A	6899	6888
BNF160	004	1594	6905	
BNF170	004	1598	6909	
BNF180	003	15A0	6915	
BNF190	005	15AF	6923	
BNF200	004	15B4	6927	
BNF210	004	15B8	6931	
BNIBN1	002	17CB	7598	7490 7570
BNIBRC	001	17C1	7584	7482
BNIBRO	002	17C3	7585	
BNIBSC	001	17C9	7593	7521
BNIEOS	001	17CD	7600	7494
BNIIHO	002	17C0	7582	7469*
BNIIMH	001	17BE	7581	7470
BNIMAG	001	1700	7459	
BNIPRC	001	17C4	7587	7514 7553
BNIPRO	001	17C5	7588	7510* 7542* 7562*
BNISHL	001	17CC	7599	7467 7468
BNISTC	001	17C6	7590	7546
BNISTO	002	17C8	7591	7537* 7566*

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BNISUB	002	17CF	7601	7566
BNI005	004	1725	7477	7466
BNI010	003	172D	7482	
BNI020	006	173C	7489	
BNI030	003	1747	7494	
BNI040	004	174A	7498	
BNI050	004	1756	7504	
BNI060	003	175D	7510	
BNI070	003	1760	7514	
BNI080	003	176F	7521	7575
BNI090	004	177E	7528	
BNI100	004	1782	7532	
BNI110	005	1786	7537	7505
BNI120	003	178B	7542	
BNI130	003	178E	7546	7571
BNI140	003	179D	7553	
BNI150	003	17AC	7562	
BNI160	004	17AF	7566	
BNI170	005	17B3	7570	
BNI180	003	17BB	7575	
BPCASN	001	1871	8040	
BPCBN1	001	18A0	8074	8050
BPCLET	001	1869	8031	
BPCUCC	001	18A1	8080	8064
BPCUCO	001	18A2	8081	8045* 8050*
BPC010	004	1869	8035	
BPC020	003	1871	8045	
BPC030	004	1874	8049	8058
BPC040	003	187C	8055	
BPC050	004	1889	8063	8056
BPMASN	001	1608	7090	
BPMBIC	001	16C5	7207	7096 7144
BPMBIO	002	16C7	7208	
BPMBN1	002	16C4	7201	7153 7189
BPMBRC	001	16C8	7210	7180
BPMBRO	002	16CA	7211	7105* 7152
BPMIND	001	16D2	7221	7131
BPMLET	001	1600	7081	
BPMSAC	001	16CB	7213	7162
BPMSAO	002	16CD	7214	7161*
BPMSFC	001	16CE	7216	7120
BPMSFO	002	16D0	7217	7109* 7161
BPMUFC	001	16D1	7219	7124 7171
BPM010	004	1600	7085	
BPM020	003	1608	7096	
BPM030	005	1617	7105	
BPM040	005	161C	7109	
BPM045	004	1621	7113	
BPM050	004	1625	7114	7138
BPM060	003	162D	7120	
BPM070	003	164B	7131	7115*
BPM080	004	1651	7137	
BPM090	003	1658	7144	7132
BPM100	005	1667	7152	
BPM110	004	167B	7161	
BPM120	004	168E	7170	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BPM130	003	16A1	7180	
BPM140	006	16B0	7188	
BPM150	004	16BF	7195	
BPREAD	001	0BCF	4263	
BPRGTC	001	0BFC	4300	4281
BPRGTO	002	0BFE	4301	
BPR010	004	0BCF	4267	
BPR020	004	0BD7	4272	4290
BPR030	004	0BDB	4276	
BPR040	003	0BDF	4281	
BPR050	004	0BEE	4288	
BPR060	004	0BF8	4294	
BPXRSC	001	1FF6	1362	1349
BPXRSR	001	1FE3	1345	
BPX010	003	1FE3	1349	
BPX020	004	1FF2	1356	
BRA050	004	0990	3673	
BSTRAS	001	0C1B	4435	
BSTRIF	001	0F00	5002	5169
BSTRLT	001	0C00	4416	4595 4756
BST010	004	0C0F	4421	4420*
BST020	004	0C13	4427	4419
BST080	003	0C1E	4444	
BST100	004	0C2E	4452	4536
BST120	004	0C3A	4464	
BST130	003	0C4B	4477	4465
BST131	003	0C62	4487	4477
BST132	005	0C70	4495	4472
BST134	004	0C7C	4498	4545
BST136	004	0C92	4513	4499
BST138	003	0C9D	4520	4507
BST140	003	0CA6	4530	4490 4496
BST145	003	0CBC	4541	4534
BST150	003	0CCF	4556	4445 4489 4532
BST160	004	0CD6	4558	4531* 4560*
BST170	004	0CE5	4562	4556*
BST200	004	0D00	4602	
BST210	004	0D27	4621	4646
BST220	003	0D38	4626	4623
BST230	003	0D41	4634	4625
BST240	003	0D55	4644	4611
BST250	005	0D5F	4652	4639
BST260	004	0D70	4660	4658*
BST270	004	0D74	4666	4653
BST300	003	0D83	4681	4617 4620 4628 4636 4638 4701 4705 4708 4711 4713 4715
BST310	004	0D8A	4683	4627* 4685* 4703*
BST320	004	0D95	4686	4681*
BST340	003	0D99	4697	4644
BST360	004	0DD9	4716	4697*
BST400	003	0E00	4764	
BST410	004	0E3B	4788	4784
BST440	003	0E4E	4797	
BST460	004	0E51	4798	4811
BST500	004	0E65	4807	4792
BST540	004	0E77	4812	4810
BST545	004	0E8D	4819	4814

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BST547	003	0E91	4820	4818
BST550	003	0EC2	4859	4765 4781 4817 4821 4824 4835
BST560	004	0EC9	4861	4816* 4823* 4863*
BST570	004	0ED4	4864	4859*
BST600	003	0E97	4822	4787 4797
BTPAUS	001	1CE7	0028	
BTPHTC	001	1CFA	0045	0032
BTP010	003	1CE7	0032	
BTP020	004	1CF6	0039	
BTRAD2	001	1EFA	0918	0871
BTRBLS	002	1EE7	0884	0877
BTRBND	001	00FF	1119	0782
BTRCA2	002	1EFB	0919	0733* 0854 0861 0867*
BTRCCD	001	1FC6	1129	1016
BTRCCE	001	1FC6	1128	0996* 1129
BTRCCL	002	1FB9	1077	1020
BTRCCP	002	1FCC	1105	0995 1020*
BTRCFA	001	1FC6	1131	1051
BTRCFE	001	1FC6	1130	1031* 1131
BTRCFL	002	1FBB	1078	1055
BTRCFP	002	1FCE	1109	1030 1055*
BTRCND	001	1FC8	1127	0981
BTRCNE	001	1FC8	1126	0961* 1127
BTRCNL	002	1FB7	1076	0985
BTRCNP	002	1FCA	1101	0960 0985*
BTRCTP	004	1F61	1134	1021*
BTRDPA	002	1FB3	1068	1066*
BTRDPL	001	1FBD	1087	1065
BTRECA	002	1EF7	0903	
BTRECY	001	1EF3	0900	
BTREFN	001	1EF2	0899	
BTREOF	001	1EF9	0912	
BTREPL	001	1EF2	0898	0745
BTRESA	001	1EF4	0901	
BTRESC	001	1EF5	0902	
BTRFAC	002	1FB5	1074	0980 1015 1050
BTRFCP	002	1EFE	0922	0860* 0861
BTRFTA	002	1EED	0888	0757
BTRFTP	004	1F8B	1135	1056*
BTRMNT	001	1E00	0732	0932
BTRNTP	004	1F37	1133	0986*
BTRPBA	002	1EEB	0886	0854 0867
BTRPCA	001	1EF8	0909	0769
BTRPSI	001	0004	1118	0920
BTRSA2	001	1EFC	0920	
BTRSEL	001	0004	0891	0809 0892
BTRSG2	001	0000	1117	0878
BTRSHA	001	1CFF	0890	0809*
BTRSHE	004	1EF1	0892	0809
BTRSTL	001	1FBC	1080	0986 1021 1056
BTRSVL	001	1EF8	0911	
BTRTEN	001	1FC3	1098	1125 1126 1128 1130
BTRVAD	001	1FC4	1125	0967 0974 0979 1002 1009 1014 1037 1044 1049
BTRVBA	002	1EE9	0885	0835
BTR010	004	1E03	0737	
BTR020	004	1E0A	0742	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BTR030	004	1E19	0750	
BTR040	005	1E2B	0757	0738
BTR050	004	1E33	0762	
BTR060	003	1E3F	0769	0758
BTR070	004	1E4E	0777	
BTR080	004	1E56	0782	
BTR090	004	1E5D	0788	
BTR100	004	1E65	0793	0783
BTR110	004	1E70	0799	
BTR120	004	1E7C	0805	0795
BTR130	005	1E80	0809	
BTR150	006	1E93	0823	
BTR160	006	1E99	0827	
BTR170	006	1E9F	0831	
BTR180	005	1EA5	0835	
BTR190	006	1EB0	0841	
BTR200	006	1EB6	0845	
BTR250	004	1EC2	0854	
BTR260	005	1EC9	0860	
BTR270	004	1ED5	0867	
BTR280	003	1ED9	0871	0855
BTR290	003	1EE0	0877	0862
BTR300	006	1F00	0937	
BTR310	006	1F06	0941	
BTR320	006	1F18	0947	
BTR330	006	1F1E	0951	
BTR350	003	1F2A	0960	0987
BTR360	004	1F31	0965	
BTR370	004	1F35	0967	0968 0970 1133
BTR380	003	1F39	0974	
BTR390	003	1F3F	0979	
BTR400	004	1F49	0985	0975
BTR410	003	1F54	0995	1022
BTR420	004	1F5B	1000	
BTR430	004	1F5F	1002	1003 1005 1134
BTR440	003	1F63	1009	
BTR450	003	1F69	1014	
BTR460	004	1F73	1020	1010
BTR470	003	1F7E	1030	1057
BTR480	004	1F85	1035	
BTR490	004	1F89	1037	1038 1040 1135
BTR500	003	1F8D	1044	
BTR510	003	1F93	1049	
BTR520	004	1F9D	1055	1045
BTR600	003	1FA8	1065	
BTSSVC	001	1DE9	0501	0488
BTSTOP	001	1DD6	0484	
BTS010	003	1DD6	0488	
BTS020	004	1DE5	0495	
BXCAFC	001	1DD1	0377	0350
BXCAFO	001	1DD2	0378	
BXCBN1	002	1DD5	0390	
BXCCLC	001	1DD3	0380	0357
BXCLOS	001	1D95	0340	
BXCSFA	001	1DD4	0388	
BXC010	004	1D95	0344	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BXC020	004	1D9D	0346	0367
BXC120	003	1DA1	0350	
BXC130	003	1DB0	0357	
BXC140	004	1DBF	0364	
BXC150	004	1DCD	0371	
BXDBN1	001	13EF	6364	6232
BXDDMY	001	0009	6360	
BXDDP0	001	0000	6357	6166 6168
BXDDP1	001	0001	6358	6173
BXDDP2	001	0002	6359	6174
BXDDUM	001	0000	6286	6168 6305 6326 6347
BXDLTH	001	0003	6283	6135 6157 6165 6207 6213 6360
BXDMD1	001	13CB	6292	6135 6213
BXDMD2	001	13D7	6313	6157
BXDMD3	001	13E3	6334	6207
BXDM14	001	13D6	6307	6136* 6214*
BXDPRC	001	13F2	6371	6268
BXDPRO	001	13F3	6372	6173* 6215* 6218*
BXDPRT	001	1300	6122	6135 6136 6157 6207 6213 6214 6295 6299 6303 6316 6320 6324 6328 6337 6341 6345 6349
BXDRM1	001	0007	6382	6131 6183
BXDROM	001	0004	6284	
BXDRS1	003	13A8	6381	6131* 6183*
BXDSTC	001	13F4	6374	6226
BXDSTO	002	13F6	6375	6222* 6241*
BXDSUB	002	13F1	6365	6241
BXD010	004	1300	6126	
BXD020	003	1308	6131	
BXD030	003	130B	6135	6184 6193 6341
BXD040	004	1311	6140	
BXD050	004	1315	6144	
BXD060	004	1319	6148	
BXD065	004	131D	6152	
BXD070	003	1324	6157	
BXD080	004	1327	6162	6153 6209 6233
BXD090	003	132B	6163	6135* 6157* 6207* 6213*
BXD095	003	132E	6165	6169
BXD100	003	1331	6166	6162*
BXD110	004	133D	6173	6167
BXD120	003	1345	6175	6174*
BXD140	003	1348	6179	6295 6299 6316 6320 6337
BXD150	003	134B	6183	
BXD160	003	1351	6188	6214
BXD170	004	1354	6192	6349
BXD180	003	135B	6197	6136
BXD190	004	135E	6201	6328
BXD200	003	136A	6207	
BXD210	003	1374	6213	
BXD220	005	1386	6222	
BXD230	003	138B	6226	6242
BXD240	005	1395	6232	
BXD250	003	139D	6237	
BXD260	004	13A0	6241	
BXD270	003	13A7	6246	6247 6249 6324 6381
BXD280	003	13AA	6253	6303 6345
BXD290	004	13AD	6257	6246

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BXD300	003	13B1	6268	6179 6188 6197 6217 6237 6253
BXD310	003	13B8	6273	6228
BXD320	004	13C7	6277	6273*
BXGAFC	001	18EB	8229	8190
BXGAFO	001	18EC	8230	
BXGBN1	002	18F1	8242	
BXGETX	001	18A3	8178	
BXGGTC	001	18ED	8232	8210
BXGGTO	002	18EF	8233	
BXGI60	004	18E7	8223	
BXGSFA	001	18F0	8241	
BXG010	004	18A3	8182	
BXG100	003	18AF	8190	
BXG110	004	18BE	8197	
BXG120	004	18C6	8202	8219
BXG130	004	18CA	8206	
BXG140	003	18CE	8210	
BXG150	004	18DD	8217	
BXIAD2	001	08EE	3413	3386
BXIBLS	002	08F6	3423	3393
BXIBN1	002	08FA	3425	3264 3284 3321 3333 3339
BXIBRC	001	08E8	3403	3268 3357
BXIBRO	002	08EA	3404	
BXIBSC	001	0970	3529	3506
BXICA2	002	08EF	3414	3247* 3368 3376 3382* 3392
BXICMK	001	0080	3437	3315 3327 3335
BXIFCP	002	08F2	3416	3374* 3375* 3376
BXIFPE	002	08F4	3417	3374
BXIGTC	001	08EB	3406	3344
BXIGTO	002	08ED	3407	
BXIINC	001	096C	3523	3499
BXIINO	001	096D	3524	3460* 3487*
BXILTE	001	0001	3434	
BXINPT	001	0800	3246	3445
BXIONE	002	0972	3535	3456 3487 3491
BXIPBA	002	08F8	3424	3368 3382
BXIPSI	001	0004	3431	3415
BXISG2	001	0000	3432	3394
BXISTC	001	08E5	3400	3256
BXISTO	002	08E7	3401	
BXISXC	001	096E	3526	3480
BXISXO	001	096F	3527	3476*
BXITB1	001	1B8E	3436	3288 3288*
BXIVTE	001	0000	3433	3315 3327 3335* 3339* 3471 3476
BXI010	004	0803	3251	
BXI020	003	080B	3256	
BXI030	006	081A	3263	
BXI040	003	0825	3268	
BXI050	006	0834	3275	
BXI060	004	083A	3279	
BXI070	006	083E	3283	
BXI080	006	0849	3288	
BXI090	003	0852	3293	
BXI100	004	0855	3297	3353
BXI110	004	0859	3301	
BXI120	004	085D	3305	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BXI130	003	0861	3306	3293* 3321* 3333*
BXI140	004	0864	3310	
BXI145	003	0868	3311	3289 3289* 3340 3340*
BXI150	003	086B	3315	
BXI160	004	0871	3321	
BXI170	003	087B	3327	3340
BXI180	004	0881	3333	
BXI185	003	0888	3335	3289
BXI190	004	088B	3339	3316 3323 3328
BXI210	003	0892	3344	
BXI220	004	08A1	3351	
BXI230	003	08AB	3357	
BXI240	004	08BA	3368	
BXI250	004	08C1	3374	
BXI260	004	08D1	3382	3369
BXI270	003	08D5	3386	
BXI280	003	08DC	3392	3377
BXI290	006	0900	3450	
BXI300	006	090A	3455	
BXI310	003	0915	3460	
BXI320	003	0918	3464	
BXI330	004	091B	3468	3495
BXI340	003	091F	3469	3464* 3491*
BXI350	003	0922	3471	
BXI360	004	0928	3476	
BXI370	003	092C	3480	
BXI380	004	093B	3487	
BXI390	004	093F	3491	
BXI400	003	0943	3495	
BXI410	003	0946	3499	3472
BXI420	003	0955	3506	
BXI430	004	0964	3513	
BXI440	004	0968	3517	
BXPAFC	001	1863	7910	7848
BXPAFO	001	1864	7911	
BXPBN1	002	1868	7923	
BXPC02	001	0002	7927	7869
BXPC04	001	0004	7928	7887
BXPPTC	001	1865	7913	7891
BXPPTO	001	1866	7914	7869* 7887*
BXPSFA	001	1867	7922	
BXPUTX	001	1800	7836	
BXP010	004	1800	7840	
BXP100	003	180C	7848	
BXP120	004	181B	7855	
BXP140	004	1823	7860	7900
BXP150	004	1827	7864	
BXP160	003	182E	7869	
BXP170	004	1834	7874	7865
BXP180	004	183B	7879	
BXP190	004	183F	7883	7875
BXP200	003	1843	7887	
BXP210	003	1846	7891	7870
BXP220	004	1855	7898	
BXP230	004	185F	7904	
BXRAFC	001	1CE2	9919	9892

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BXRAFO	001	1CE3	9920	
BXRBNI	002	1CE6	9932	
BXRRTC	001	1CE4	9922	9899
BXRSET	001	1CA6	9882	
BXRSFA	001	1CE5	9930	
BXR010	004	1CA6	9886	
BXR020	004	1CAE	9888	9909
BXR110	003	1CB2	9892	
BXR120	003	1CC1	9899	
BXR130	004	1CD0	9906	
BXR140	004	1CDE	9913	
BXUBNC	001	14DF	6676	6509
BXUBNO	002	14E1	6677	
BXUBN1	002	14E8	6689	6505 6526 6628
BXUPRC	001	14E2	6679	6658
BXUPRO	001	14E3	6680	6548* 6552* 6583* 6609* 6618* 6638*
BXUPRT	001	1400	6489	
BXUSCC	001	14E4	6682	6622
BXUSCO	002	14E6	6683	6614* 6642*
BXUSTC	001	14DC	6673	6498
BXUSTO	002	14DE	6674	
BXUSUB	002	14EA	6691	6642
BXU010	004	1400	6493	
BXU020	003	1408	6498	
BXU025	006	1412	6504	
BXU030	003	141D	6509	
BXU040	006	1427	6516	
BXU050	004	142D	6521	
BXU060	006	1431	6525	
BXU070	004	143C	6530	
BXU080	006	1440	6534	
BXU090	004	1446	6539	
BXU100	003	144A	6543	
BXU110	003	1450	6548	
BXU120	003	1453	6552	6595
BXU130	003	1456	6556	
BXU140	004	1459	6560	
BXU150	003	145D	6564	6594
BXU170	004	1460	6568	6544
BXU180	004	1464	6572	
BXU190	004	146B	6577	
BXU200	003	146F	6583	6573
BXU210	004	1472	6587	
BXU220	004	1479	6592	6610 6629
BXU230	004	1486	6599	6588
BXU240	004	148E	6604	
BXU250	003	1495	6609	
BXU260	005	149B	6614	6605
BXU270	003	14A0	6618	
BXU280	003	14A3	6622	6646
BXU290	005	14AD	6628	
BXU300	003	14B5	6633	
BXU310	003	14B8	6638	
BXU320	004	14BB	6642	
BXU340	003	14BF	6646	
BXU350	003	14C2	6658	6556 6564 6633

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
BXU360	003	14C9	6663	6500 6511 6624
BXU370	004	14D8	6667	6663*
CNTAD2	001	0CF5	4584	4514
CNTBLS	002	0CF2	4580	4521
CNTBL1	002	0CFB	4588	4543
CNTBOP	002	0CEB	4569	4544
CNTBRA	001	0CE9	4568	4444
CNTCA2	002	0CF6	4585	4417* 4436* 4471 4495 4498 4513* 4542
CNTCWR	001	0CEE	4573	4487 4488*
CNTENT	001	0000	4576	4522
CNTFCP	002	0CFD	4589	4504* 4505* 4506
CNTFPE	001	001F	4590	4504
CNTPBA	002	0CF4	4581	4498 4513
CNTPSI	001	0004	4575	4577 4578
CNTSAD	001	0CF7	4586	4470* 4541*
CNTSTR	001	0014	4577	4470 4578
CNTTRM	001	0018	4578	4541
CNTUSC	001	0CEC	4571	4530
CNTWRK	002	0CF9	4587	4471* 4506 4520 4542* 4543*
STRAD2	001	0DF5	4748	4668
STRAOP	002	0DDF	4723	4609* 4618 4699* 4706
STRBOP	002	0DF0	4741	4709*
STRCA2	002	0DF6	4749	4666*
STRCOP	002	0DE2	4726	4618*
STRCWR	001	0DE5	4731	4634
STRFN2	001	0DE8	4734	4637
STRFOP	002	0DF3	4744	4706*
STRPBA	002	0DF9	4751	4652 4666
STRSB1	001	0DEE	4740	4710
STRSC1	001	0DEB	4737	4714
STRSTA	001	0DDD	4722	4616 4700
STRSTC	001	0DE0	4725	4619
STRSTF	001	0DF1	4743	4707 4712
STRSTX	001	0DE3	4728	4626
STRUSF	001	0DF4	4746	4704
STRWOP	002	0DE7	4732	4635*
STRXOP	001	0DE4	4729	
STR1OP	002	0DED	4738	4698* 4709
TRMAOP	002	0EDF	4875	4780*
TRMBIC	001	0ED8	4869	4764
TRMBN1	002	0EDC	4872	4771 4840
TRMBOP	002	0EE4	4881	4833*
TRMBRC	001	0EE2	4880	4834
TRMFN1	001	0EE5	4883	4820
TRMSTA	001	0EDD	4874	4779
TRMSTX	001	0EE0	4877	4815
TRMUSC	001	0EE8	4886	4822
TWOAD2	001	108D	5273	5230
TWOCA2	002	108E	5274	
V\$APWR	001	0800	2757	2902
V\$BFR1	001	5400	2820	3010
V\$BFR2	001	5500	2821	3011
V\$CBNZ	001	0CB2	2829	2909
V\$CCON	001	5120	2836	3007 4735
V\$CDCV	001	3100	2833	2962
V\$CDSY	001	2E00	2832	2959

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
V\$CFPZ	001	0C70	2827	2908
V\$CNXZ	001	0470	2830	2897
V\$CSSR	001	5100	2835	3006 4884 5164
V\$CZFP	001	04AD	2828	2898
V\$DTLN	001	4600	2842	2994
V\$DTVR	001	4700	2843	2995
V\$FABS	001	1761	2728	2926
V\$FACS	001	1400	2744	2918
V\$FASN	001	1413	2743	2919
V\$FATN	001	1100	2742	2915
V\$FCOS	001	0A00	2739	2904
V\$FCOT	001	0D00	2737	2910
V\$FCSC	001	1725	2741	2925
V\$FDEG	001	17DA	2748	2930
V\$FDET	001	4540	2751	2993
V\$FEXP	001	0500	2735	2899
V\$FHCS	001	1500	2747	2920
V\$FHSN	001	1557	2746	2921
V\$FHTN	001	1593	2745	2922
V\$FINT	001	176C	2729	2927
V\$FLGT	001	0200	2733	2892
V\$FLOG	001	0219	2732	2894
V\$FLTW	001	020B	2734	2893
V\$FRAD	001	17CB	2749	2929
V\$FRND	001	1800	2750	2931
V\$FSEC	001	1700	2740	2924
V\$FSGN	001	17A7	2730	2928
V\$FSIN	001	0A1A	2738	2905
V\$FSQR	001	0900	2731	2903
V\$FTAN	001	0D28	2736	2911
V\$IFCI	001	1B00	2720	2935
V\$IFIO	001	1A00	2722	2934
V\$ISDN	001	1900	2721	2932
V\$KBTL	001	1EAC	2864	
V\$KBTS	001	0DAC	2863	
V\$LPRB	001	4F00	2818	3004
V\$LPRT	001	4D00	2816	3002
V\$LPR2	001	4E00	2817	3003
V\$MADD	001	4007	2765	2982 4138
V\$MASN	001	43A0	2763	2989 4124
V\$MCON	001	4324	2770	2987 4162
V\$MIDN	001	4300	2771	2986 4166
V\$MINV	001	4500	2775	2992 4150
V\$MMPY	001	4100	2767	2983 4146
V\$MSMY	001	4264	2768	2985 4121
V\$MSUB	001	4000	2766	2981 4142
V\$MTRN	001	4400	2774	2991 4154
V\$MZER	001	432B	2772	2988 4158
V\$PCH1	001	5200	2856	3008
V\$PCH2	001	5300	2857	3009
V\$SCDI	001	2A00	2813	2953
V\$SCDO	001	2A96	2814	2954
V\$SFA2	001	5000	2798	3005
V\$SFD1	001	0000	2808	2890
V\$SFD2	001	0100	2809	2891
V\$SKEY	001	2500	2812	2948

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
V\$SPRT	001	2800	2811	2951
V\$VMPL	001	4C06	2850	3001
V\$VMPS	001	4C00	2849	3000
V\$XKAF	001	1C00	2797	2936
V\$XKCA	001	2400	2801	2944
V\$XKCL	001	240A	2800	2945
V\$XKIN	001	2B00	2796	2955
V\$XKLP	001	24AD	2802	
V\$XKRS	001	240D	2799	2946
V\$XMGT	001	3E06	2790	2976 8603
V\$XMIN	001	3D00	2789	2974 7349
V\$XMPL	001	3F06	2793	2979 9160
V\$XMPS	001	3F00	2792	2978 9157
V\$XMPT	001	3E0C	2791	2977 9560
V\$XMPU	001	3F13	2794	2980 0235
V\$XMRD	001	3E00	2788	2975 7731
V\$XSGT	001	2100	2783	2941 8233
V\$XSIN	001	2B6E	2782	2956 3407
V\$XSPR	001	3400	2785	2965
V\$XSPT	001	1D00	2784	2937
V\$XSPU	001	3800	2786	2969
V\$XSRD	001	3300	2781	2964 4301
V\$00E1	001	0000	2890	
V\$01E1	001	0100	2891	
V\$02E1	001	0200	2892	
V\$02E2	001	020B	2893	
V\$02F3	001	0219	2894	
V\$03CC	001	0300	2895	
V\$04CC	001	0400	2896	
V\$04E1	001	0470	2897	
V\$04E2	001	04AD	2898	
V\$05E1	001	0500	2899	
V\$06CC	001	0600	2900	
V\$07CC	001	0700	2901	
V\$08E1	001	0800	2902	
V\$09E1	001	0900	2903	
V\$10E1	001	0A00	2904	
V\$10E2	001	0A1A	2905	
V\$11CC	001	0B00	2906	
V\$12CC	001	0C00	2907	
V\$12E1	001	0C70	2908	
V\$12E2	001	0CB2	2909	
V\$13E1	001	0D00	2910	
V\$13E2	001	0D28	2911	
V\$14CC	001	0E00	2912	
V\$15CC	001	0F00	2913	
V\$16CC	001	1000	2914	
V\$17E1	001	1100	2915	
V\$18CC	001	1200	2916	
V\$19CC	001	1300	2917	
V\$20E1	001	1400	2918	
V\$20E2	001	1413	2919	
V\$21E1	001	1500	2920	
V\$21E2	001	1557	2921	
V\$21E3	001	1593	2922	
V\$22CC	001	1600	2923	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
V\$23E1	001	1700	2924	
V\$23E2	001	1725	2925	
V\$23E3	001	1761	2926	
V\$23E4	001	176C	2927	
V\$23E5	001	17A7	2928	
V\$23E6	001	17CB	2929	
V\$23E7	001	17DA	2930	
V\$24E1	001	1800	2931	
V\$25E1	001	1900	2932	
V\$26E1	001	1A00	2934	
V\$27E1	001	1B00	2935	
V\$28E1	001	1C00	2936	
V\$29E1	001	1D00	2937	
V\$30CC	001	1E00	2938	
V\$31CC	001	1F00	2939	
V\$32CC	001	2000	2940	
V\$33E1	001	2100	2941	
V\$34CC	001	2200	2942	
V\$35CC	001	2300	2943	
V\$36CC	001	2400	2947	
V\$36E1	001	2400	2944	
V\$36E2	001	240A	2945	
V\$36E3	001	240D	2946	
V\$37E1	001	2500	2948	
V\$38CC	001	2600	2949	
V\$39CC	001	2700	2950	
V\$40E1	001	2800	2951	
V\$41CC	001	2900	2952	
V\$42E1	001	2A00	2953	
V\$42E2	001	2A96	2954	
V\$43E1	001	2B00	2955	
V\$43E2	001	2B6E	2956	
V\$44CC	001	2C00	2957	
V\$45CC	001	2D00	2958	
V\$46E1	001	2E00	2959	
V\$47CC	001	2F00	2960	
V\$48CC	001	3000	2961	
V\$49E1	001	3100	2962	
V\$50CC	001	3200	2963	
V\$51E1	001	3300	2964	
V\$52E1	001	3400	2965	
V\$53CC	001	3500	2966	
V\$54CC	001	3600	2967	
V\$55CC	001	3700	2968	
V\$56E1	001	3800	2969	
V\$57CC	001	3900	2970	
V\$58CC	001	3A00	2971	
V\$59CC	001	3B00	2972	
V\$60CC	001	3C00	2973	
V\$61E1	001	3D00	2974	
V\$62E1	001	3E00	2975	
V\$62E2	001	3E06	2976	
V\$62E3	001	3E0C	2977	
V\$63E1	001	3F00	2978	
V\$63E2	001	3F06	2979	
V\$63E3	001	3F13	2980	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
V\$64E1	001	4000	2981	
V\$64E2	001	4007	2982	
V\$65E1	001	4100	2983	
V\$66CC	001	4200	2984	
V\$66E1	001	4264	2985	
V\$67E1	001	4300	2986	
V\$67E2	001	4324	2987	
V\$67E3	001	432B	2988	
V\$67E4	001	43A0	2989	
V\$68E1	001	4400	2991	
V\$69E1	001	4500	2992	
V\$69E2	001	4540	2993	
V\$70E1	001	4600	2994	
V\$71E1	001	4700	2995	
V\$72CC	001	4800	2996	
V\$73CC	001	4900	2997	
V\$74CC	001	4A00	2998	
V\$75CC	001	4B00	2999	
V\$76E1	001	4C00	3000	
V\$76E2	001	4C06	3001	
V\$77CC	001	4D00	3002	
V\$78CC	001	4E00	3003	
V\$79CC	001	4F00	3004	
V\$80E1	001	5000	3005	
V\$81E2	001	5100	3006	
V\$81E3	001	5120	3007	
V\$82E1	001	5200	3008	
V\$83E2	001	5300	3009	
V\$84E1	001	5400	3010	
V\$85E2	001	5500	3011	
V@CDPT	001	0007	3022	
V@CHGH	001	0008	3127	
V@CMIC	001	0002	3023	
V@CMNI	001	00FF	3020	
V@CMUL	001	0007	3128	
V@CNIX	001	0080	3021	
V@COEX	001	001E	3018	
V@CPLS	001	00F0	3025	
V@CPRC	001	000A	3027	
V@CSQR	001	0003	3125	
V@CSTR	001	0002	3126	
V@CTTA	001	0027	3028	
V@DCAD	001	0002	3048	3049
V@DEXP	001	0000	3053	
V@DMAN	001	000D	3055	3056
V@DMN1	001	0001	3054	
V@DPDF	001	0002	3043	
V@DSAD	001	0001	3044	
V@DSGN	001	000D	3056	
V@DVAD	001	0004	3049	
V@EART	001	0001	3026	
V@ECRT	001	0038	3099	
V@EFUL	001	00F8	3098	
V@EINV	001	00FB	3094	
V@EIPR	001	00F5	3095	
V@ENSV	001	00F7	3096	

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
V@ENUL	001	0000	3093	
V@ERPC	001	0020	3024	
V@ESAV	001	00F6	3097	
V@FEHN	001	0002	3123	
V@FEPL	001	0091	3119	
V@FERS	001	0003	3122	
V@FPGS	001	0081	3118	
V@FRET	001	0015	3121	
V@FSPC	001	0040	3120	
V@FTAB	001	0000	3124	
V@KADD	001	004E	3109	
V@KCLE	001	006E	3106	
V@KDIV	001	0061	3112	
V@KEMN	001	006C	3104	
V@KEPL	001	006B	3103	
V@KMUL	001	005C	3111	
V@KPER	001	004B	3114	
V@KPST	001	007B	3108	
V@KPWR	001	005A	3113	
V@KSQR	001	006F	3105	
V@KSTO	001	006D	3107	
V@KSUB	001	0060	3110	
V@LAIP	001	0003	3074	3075
V@LDEX	001	0002	3077	
V@LETE	001	0003	3081	
V@LEXP	001	0001	3071	3073
V@LFKO	001	0006	3076	
V@LINI	001	0200	3080	
V@LLKS	001	0010	3073	
V@LMAN	001	000F	3072	3073
V@LNOP	001	0015	3078	
V@LTBE	001	0007	3075	
V@LVPG	001	0100	3079	3080
V@MCHS	001	00C0	3060	
V@MCRD	001	0010	3036	
V@MDEF	001	0008	3037	
V@MEXC	001	0080	3034	
V@MEXT	001	0004	3063	
V@MICC	001	0010	3019	
V@MIPC	001	0080	3061	
V@MIPL	001	0020	3067	
V@MLST	001	0040	3035	
V@MPND	001	0000	3066	
V@MPOF	001	0080	3064	
V@MPRC	001	0020	3033	
V@MSFU	001	0002	3038	
V@MSTN	001	0004	3032	
V@OALL	001	00F4	3089	
V@ONUL	001	00F0	3085	3086
V@OPM1	001	00F2	3087	3088
V@ORTN	001	00F1	3086	3087
V@OSTK	001	00F3	3088	3089
V@PEOF	001	0002	3062	
V@PSQ2	001	0014	3065	

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY = 0

OL105 I THE CODE LENGTH OF #BOVLY IS 8183 DECIMAL.

OL103 I TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS 40

NAME-#BOVLY,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-R,CATEGORY-000

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

0600	0	#BOVLY	1FF7	8183
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OL100	I	THE TOTAL CORE USED BY #BOVLY IS 8183 DECIMAL.		
OL101	I	THE START CONTROL ADDRESS OF THIS MODULE IS 0600.		
OL104	I	TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS 32		
		NAME-#BOVLY,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-O		