

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

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



0000	1	#KALLO	START	0
	2		PRINT	ON,NODATA
	3	*	@SYS	EXP-N
	214+		PRINT	ON
	215	*	@ERM	EXP-N
	837+		PRINT	ON
	838	*	@SPF	EXP-N
	1301+		PRINT	ON
	1302	*	@FXD	EXP-N
	1707+		PRINT	ON
	1708	*	@CAN	EXP-N
	1811+		PRINT	ON
	1812	*	@WKA	EXP-N
	1882+		PRINT	ON
	1883	*	@DIR	EXP-N
	2003+		PRINT	ON
	2004	*	@VMD	EXP-N
	2125+		PRINT	ON
	2126	*	@VOL	EXP-N
	2164+		PRINT	ON

#KALLO - ALLOCATE SYSTEM COMMAND

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE	3
					2166	*	HDR #KALLO,0				PROGRAM HEADER
					2167		*****				
					2168	*	PROGRAM HEADER FOR DISK LOAD				
					2169		*****				
					2170	*#\$KALL	EQU X'06A4'				DISK ADDR OF #KALLO
					2171	*#\$KAL	EQU X'0C00'				CORE LOAD ADDRESS OF #KALLO
					2172	*#\$@KAL	EQU 015				SECTOR CNT OF #KALLO
0C00					2173		ORG #KAL				CORE LOAD ADDRESS
				0C00	2174	\$\$\$\$\$	EQU *				FIRST LOCATION IN PROGRAM
0C00	7BD2C1D3D3D6			0C05	2175		DC CL6'#KALLO'				PROGRAM NAME
0C06	2A			0C06	2176		DC IL1'042'				PROGRAM NUMBER OF #KALLO
				0C07	2177	#KALL	EQU *				ENTRY POINT TO PROGRAM
					2178	***	END OF EXPANSION ***				

## #KALLO - ALLOCATE SYSTEM COMMAND

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	23/05/20	PAGE	4
			2180		*****				
			2181	*	5703-XM1	COPYRIGHT IBM CORP, 1970			*
			2182	*		REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083			*
			2183	*					*
			2184		*****				
			2185	*	STATUS -				*
			2186	*	VERSION 1 MODIFICATION 0				*
			2187	*					*
			2188	*	FUNCTION				*
			2189	*	THE FUNCTION OF KALLO IS TO SYNTAX CHECK THE PARAMETERS SPECIFIED				*
			2190	*	WITH THE ALLOCATE COMMAND, IF A 'NEW', 'PERMANENT', 'DISK' FILE				*
			2191	*	IS SPECIFIED, KALLO BUILDS A USER DIRECTORY ENTRY TO RESERVE				*
			2192	*	SPACE FOR THE FILE. KALLO THEN UPDATES THE 110 RECORD ASSOCIA-				*
			2193	*	TED WITH THE WORK FILE,				*
			2194	*					*
			2195	*	ENTRY POINTS				*
			2196	*	THE ONLY ENTRY POINT TO KALLO IS THE FIRST INSTRUCTION WHICH				*
			2197	*	FOLLOWS THE SEVEN-BYTE PROGRAM HEADER.				*
			2198	*					*
			2199	*	INPUT				*
			2200	*	THE WORK FILE I/O RECORD IS CHECKED AND UPDATED.				*
			2201	*					*
			2202	*	OUTPUT				*
			2203	*	IF THE 'NEW', 'PERMANENT', 'DISK' PARAMETERS ARE SPECIFIED.				*
			2204	*	KALLO WILL UTILIZE THE PASSWORD, USER AND NULL DIRECTORIES.				*
			2205	*					*
			2206	*	EXTERNAL REFERENCES				*
			2207	*	\$CAERR - ERROR CODE SAVE AREA,				*
			2208	*	\$CAEHK - INTERFACE TO ERRPGM,				*
			2209	*	\$CARPL - INTERFACE TO GUFUDI,				*
			2210	*	\$RLOAD - INTERFACE TO SPACKU,				*
			2211	*	\$DISKN - DISK IOCR,				*
			2212	*	\$PASWD - 'CURRENT' PASSWORD				*
			2213	*	\$FILIB - 'CURRENT' DISK ADDRESS OF FILE LIBRARY.				*
			2214	*	\$CIMSK - MASK INQUIRY REQUESTS,				*
			2215	*	\$VOLID - CORE RESIDENT VOLUME ID TABLE.				*
			2216	*	SUFFER - SYNTAX CHECKER FOR FILE-SPECIFICATION.				*
			2217	*	SALPHA - SYNTAX CHECKER FOR GET/PUT NAME.				*
			2218	*	SVOLID - RESOLVE VOLUME-ID REFERENCE.				*
			2219	*	SGETDB - GET USER DIRECTORY,				*
			2220	*	SRCHFN - SEARCH USER DIRECTORY FOR FILENAME.				*
			2221	*	SURCHN - SEARCH NULL DIRECTORY FOR SPACE.				*
			2222	*	STUFID - INSERT ENTRY IN USER DIRECTORY.				*
			2223	*	DL2ICS - LOGICAL TWO-TRACK IDCR,				*
			2224	*	SHALES - DISK MANAGEMENT SAVE AREAS AND EQUATES.				*
			2225	*					*
			2226	*	EXITS, NORMAL				*
			2227	*	\$CARPL - NUCLEUS INTERFACE TO GUFUDI ON NORMAL END.				*
			2228	*	\$RLOAD - NUCLEUS INTERFACE USED TO LOAD SPACKU WHEN DISK				*
			2229	*	SPACE REQUIRED MAY ONLY BE OBTAINED BY PACKING THE				*
			2230	*	FILE LIBRARY,				*
			2231	*					*
			2232	*	EXITS, ERROR				*
			2233	*	\$CAERK - NUCLEUS INTERFACE TO THE ERROR PROGRAM. SEE NOTES				*
			2234	*	FOR SPECIFIC ERROR PROCEDURES.				*
			2235	*					*

## #KALLO - ALLOCATE SYSTEM COMMAND

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 23/05/20 PAGE 5
		2236	*	*TABLES/WORK AREAS	*
		2237	*	* KALLOC BUILDS A TEMPORARY ENTRY TO THE I/O RECORD FROM THE	*
		2238	*	* PARAMETERS SPECIFIED WHICH INDICATES THE DEVICE CODE. THE GET /	*
		2239	*	* PUT NAME, AND DISK FILE IDENTIFICATION.	*
		2240	*		*
		2241	*	*ATTRIBUTES	*
		2242	*	* KALLOC IS RELOCATABLE AND REUSABLE,	*
		2243	*		*
		2244	*	*CHARACTER CODE DEPENDENCY	*
		2245	*	* THE OPERATION OF THIS MODULE DEPENDS UPON AN INTERNAL REPRESENTA-	*
		2246	*	* TION OF THE EXTERNAL CHARACTER SET WHICH IS EQUIVALENT TO THE ONE	*
		2247	*	* USED AT ASSEMBLY TIME, THE CODING HAS BEEN ARRANGED SO THAT	*
		2248	*	* REDEFINITION OF CHARACTER CONSTANTS BY REASSEMBLY WILL RESULT IN	*
		2249	*	* A CORRECT MODULE FOR THE NEW DEFINITIONS.	*
		2250	*		*
		2251	*	*NOTES	*
		2252	*	* ERROR PROCEDURES	*
		2253	*	* WHENEVER KALLOC DISCOVERS AN ERROR, AN ERROR CODE IS PLACED IN	*
		2254	*	* \$CAERR AND CONTROL IS PASSED TO \$CAERK. THE ERRORS POSSIBLE	*
		2255	*	* ARE:	*
		2256	*	* ANY DEVIATION FROM THE EXACT SYNTAX OF THE ALLOCATE COMMAND.	*
		2257	*	* CONFLICTING PARAMETERS SPECIFIED. THIS INCLUDES THE	*
		2258	*	* SPECIFICATION OF MEANINGLESS PARAMETERS WITH A NON-DISK FILE.	*
		2259	*	* THE 'OLD' GET/PUT NAME IS NOT IN THE I/O RECORD OR THE 'NEW'	*
		2260	*	* NAME SPECIFIED WITH AN 'OLD' GET/PUT NAME IS IN THE I/O	*
		2261	*	* RECORD,	*
		2262	*	* THE I/O RECORD IS FULL AND THE PARAMETERS INDICATE THE	*
		2263	*	* NECESSITY FOR A NEW ENTRY,	*
		2264	*	* A ONE-STAR FILENAME IS SPECIFIED FOR A 'NEW', 'DISK' FILE.	*
		2265	*	* THE SPACE PARAMETER SPECIFIED EXCEEDS THE LIMITATION FOR A	*
		2266	*	* DISK FILE.	*
		2267	*	* A DISK FILE IDENTIFICATION IS NOT COMPLETELY SPECIFIED IN	*
		2268	*	* THE FILE SPECIFICATION AND THE USER IS ANONYMOUS.	*
		2269	*	* THE FILENAME SPECIFIED FOR A 'NEW', 'PERMANENT', 'DISK' FILE	*
		2270	*	* IS ALREADY IN THE USER DIRECTORY FOR THE SPECIFIED PASSWORD.	*
		2271	*	* SPACE FOR A 'NEW', 'PERMANENT', 'DISK' FILE IS NOT AVAILABLE	*
		2272	*	* IN THE SPECIFIED FILE LIBRARY EVEN IF THAT LIBRARY WERE TO	*
		2273	*	* BE PACKED,	*
		2274	*	* ERRORS ASSOCIATED WITH REQUIRED SUBROUTINES.	*
		2275	*		*
		2276	*	* REGISTER USAGE	*
		2277	*	* BOTH REGISTERS ARE USED FOR INDEXING PURPOSES DURING EXECUTION.	*
		2278	*		*
		2279	*	* SAVED/RESTORED AREAS	*
		2280	*	* N/A	*
		2281	*		*
		2282	*	* REQUIRED MODULES	*
		2283	*	* @SYSEQ - COMMON SYSTEM EQUATES	*
		2284	*	* @FXDEQ - SYSTEM NUCLEUS AND INDICATOR VALUE EQUATES	*
		2285	*	* @CANEQ - COMMON CORE LOCATIONS OUTSIDE NUCLEUS EQUATES	*
		2286	*		*
		2287	*	* MODIFICATION CONSIDERATIONS	*
		2288	*	* N/A	*
		2289	*		*
		2290	*	* OTHER	*
		2291	*	* N/A	*

[illegible]

#KALLO - ALLOCATE SYSTEM COMMAND

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE	7
					2295	*	MTEXT @@M300-@PRETR				
					2296	*****					
					2297	*	PPL'S AND TEXT FOR MESSAGE				*
					2298	*****					
0C0B	C0			0C0B	2299	@@M300	DC AL1(@PRETR)			PRINT	CONTROL FUNCTION
0C0C	37			0C0C	2300		DC IL1'55'			LENGTH	OF MESSAGE
0C0D	0C0F			0C0E	2301		DC AL(@CADDR)(@@T300)			ADDR	OF MESSAGE
				0C0F	2302	@@T300	EQU *			LEFT	BYTE OF MESSAGE
0C0F	C5D9D9D6D940F5F8			0C41	2303		DC CL051'ERROR 580 DUPLICATE DISK LABELS - SPECIFY DISK LOCA'				
0C42	E3C9D6D5			0C45	2304		DC CL004'TION'				
					2305	*					
					2306	*	PATCH AREA FOR MESSAGES				
					2307	*					
0C46				0C54	2308	\$\$\$001	DS CL15			MSG	EXPANSION PATCH AREA



## #KALLO - ALLOCATE SYSTEM COMMAND

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE	8
					2310	*					
					2311	*	SEARCH I/O RECORD				
					2312	*					
					2313	*	ONLY ONE USER FILENAME SPECIFIED				
					2314	*					
	0C55	BD	00 00		2315	KAL100	CLI 0(,@XR),KALEMP			NO --CHECK FOR NULL ENTRY	
	0C58	F2	81 8A		2316		JE KAL150			NULL -- MAKE ENTRY	
	0C5B	8D	07 08 0ECC		2317		CLC KALENG(KALENG,@XR),KALUF1			PREVIOUSLY ALLOCATED	
	0C60	F2	81 82		2318		JE KAL150			YES UPDATE ENTRY	
	0C63	E2	02 20		2319		LA @\$L1E(,@XR),@XR			INCR @XR TO NEXT ENTRY	
	0C66	0F	00 0EC2 0EDE		2320		SLC KALCTR,KALONE			DECR ENTRY COUNTER	
	0C6C	C0	01 0C55		2321		BNZ KAL100			MORE ROWS AVAILABLE	
					2322	*					
					2323	*	MODIFICATIONS DONE FOR MORE THAN 08 ALLOCATE COMMANDS				
					2324	*					
	0C70	3D	00 0EC3		2325		CLI KAL2SS,@ZERO			2 SECTOR SWITCH ON?	
	0C74	F2	01 0C		2326		JNE KAL110			YES - ERROR	
	0C77	3C	0C 0EC3		2327		MVI KAL2SS,@\$MBEN			TURN ON 2 SECTOR SWITCH	
	0C7B	3C	04 0EC2		2328		MVI KALCTR,#@@#04			COUNTER FOUR	
	0C7F	C0	87 0C55		2329		B KAL100			SEARCH 2ND SECTOR	
	0C83	3C	46 03CD		2330	KAL110	MVI \$CAERR,@@E303			FILE LIMIT EXCEEDED	
	0C87	F2	87 46		2331		J KAL135			GO TO ERROR ROUTINE	
					2333	*					
					2334	*	TWO USER FILENAMES SPECIFIED				
					2335	*					
	0C8A	8D	07 08 0ED4		2336	KAL120	CLC @\$D1BF(@\$L1BF,@XR),KALUF2			OLD FILENAME ENTRY ?	
	0C8F	F2	81 14		2337		JE KAL125			YES, GO SEARCH ON NEW FILENAME	
	0C92	E2	02 20		2338		LA @\$L1E(,@XR),@XR			INCR @XR TO NEXT ENTRY	
	0C95	0F	00 0EC2 0EDE		2339		SLC KALCTR,KALONE(1)			DECR ENTRY COUNTER	
	0C9B	C0	01 0C8A		2340		BNZ KAL120			GO CHK NEXT IF MORE ENTRIES	
	0C9F	3C	44 03CD		2341		MVI \$CAERR,@@E301			SET OLD FILENAME NOT FOUND ERR	
	0CA3	F2	87 2A		2342		J KAL135			GO TO ERROR EXIT	
					2344	*					
	0CA6	34	02 0E76		2345	KAL125	ST KALXRS,@XR			SAVE ADDR OF MATCHED ENTRY	
	0CAA	BC	00 08		2346		MVI @\$D1BF(,@XR),@ZERO			SET IT NULL	
	0CAD	C2	02 1C00		2347		LA KALIOR,@XR			POINT @XR AT FIRST I/O ENTRY	
					2348	*					
					2349	*	MODIFICATIONS DONE FOR MORE THAN 08 ALLOCATE COMMANDS				
					2350	*					
	0CB1	3D	00 0EC3		2351		CLI KAL2SS,@ZERO			2 SECTOR SWITCH ON ?	
	0CB5	F2	81 08		2352		JE KAL126				
	0CB8	3C	0C 0EC2		2353		MVI KALCTR,@\$MBEN			RESET COUNTER 12	
	0CBC	C0	87 0CC4		2354		B KAL130				
	0CC0	3C	08 0EC2		2355	KAL126	MVI KALCTR,#@@#08			RESET COUNTER 8	
					2356	*					
	0CC4	8D	07 08 0ECC		2357	KAL130	CLC @\$D1BF(@\$L1BF,@XR),KALUF1			NEW FILENAME MATCH THIS ENTRY ?	
	0CC9	F2	01 08		2358		JNE KAL140			NO, GO INCR @XR TO NEXT ENTRY	
	0CCC	3C	45 03CD		2359		MVI \$CAERR,@@E302			SET NEW FILENAME ALREADY ALLOCD	
	0CD0	C0	87 0469		2360	KAL135	B \$CAERK			ERROR EXIT	
	0CD4	E2	02 20		2361	KAL140	LA @\$L1E(,@XR),@XR			INCR @XR TO NEXT ENTRY	
	0CD7	0F	00 0EC2 0EDE		2362		SLC KALCTR,KALONE(1)			MORE ENTRIES ?	
	0CDD	C0	01 0CC4		2363		BNZ KAL130			YES, GO CHECK	
					2364	*					
	0CE1	35	02 0E76		2365		L KALXRS,@XR			NO MATCH, RESTORE OLD POINTER	

## #KALLO - ALLOCATE SYSTEM COMMAND

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE	9
					2367	*					
					2368	*	CHECK STATUS MASK TO SEE IF DISK SPECIFIED IF NOT DISK				
					2369	*	SET DEVICE CODE IN I/O RECORD AND REWRITE I/O RECORD				
					2370	*					
				0CE5	2371	KAL150	EQU *				
0CE5	3D	00	0ED5		2372		CLI KALIDC,@ZERO			CARD,PRINTER OR CRT ?	
0CE9	F2	81	33		2373		JE KAL250			NO, GJ SET FOR DISK	
					2374	*					
				0CEC	2375	KAL200	EQU *				
0CEC	8C	00	00 0ED5		2376		MVC @\$D1DC(@\$L1DC,@XR),KALIDC			SET DEVICE CODE IN I/O RCD	
0CF1	8C	07	08 0ECC		2377		MVC @\$D1BF(@\$L1BF,@XR),KALUF1			MOVE I/O NAME TO ENTRY	
0CF6	3C	02	0EE0		2378		MVI KALDPL+@DCTRL,@DPUT			WRITE FUNCTION	
					2379	*					
					2380	*	MODIFICATIONS DONE FOR MORE THAN 08 ALLOCATE COMMANDS				
					2381	*					
0CFA	C2	02	1C00		2382		LA KALIOR,@XR			POINT XR AT I/O RECORD	
0CFE	8C	00	1F 0EC3		2383		MVC @\$D1SW(1,@XR),KAL2SS			SET 2 SECTOR INDICATOR	
0D03	3D	00	0EC3		2384		CLI KAL2SS,@ZERO			2 SECTOR SWITCH ON?	
0D07	F2	01	07		2385		JNE KAL205			YES - WRITE 2 SECTORS	
0D0A	3C	01	0EE3		2386		MVI KALDPL+@DCNT,#@@#IO			NO - WRITE ONE SECTOR	
0D0E	F2	87	04		2387		J KAL210				
					2389	KAL205	SBN \$DBGUF,\$IOPGS			SET 2 SECTOR INDR ON	
				0D15	2390	KAL210	EQU *				
					2391	*	DISK KALDPL			WRITE NEW I/O RECORD	
0D15	C0	87	0025		2392		B \$DISKN			PERFORM PHYSICAL DISK OP	
0D19	0EE0			0D1A	2393		DC AL2(KALDPL)			DPL ADDRESS	
					2394	***	END OF EXPANSION ***				
					2396		B \$CARPL			RETURN TO SUPERVISOR	

## #KALLO - ALLOCATE SYSTEM COMMAND

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 23/05/20 PAGE 10
				0D1F	2398	KAL250	EQU *	DISK SPECIFIED
	0D1F	3C	40	0ED5	2399		MVI KALIDC,@\$MBSD	SET DEVICE CODE FOR SCRATCH
	0D23	8C	01	0A 0EA1	2400		MVC @\$D1FS(@\$L1FS,@XR),KALSPC	MOVE FILE SIZE TO I/O ENTRY
	0D28	38	40	0EC4	2401		TBN KALMSK,@\$MBSD	SCRATCH DISK SPECIFIED ?
	0D2C	C0	10	0CEC	2402		BT KAL200	YES, GO SET REST OF ENTRY
	0D30	38	80	0EC4	2403		TBN KALMSK,KALKS1	WAS A FILE-SPECIFICATION GIVEN?
	0D34	F2	90	1D	2404		JF KAL253	NO, GO SET ERROR CODE
	0D37	3C	80	0ED5	2405		MVI KALIDC,@\$MBPD	SET DEVICE CODE FOR PERM DISK
	0D3B	34	02	0E76	2406		ST KALXRS,@XR	SAVE I/O RECORD ENTRY POINTER
	0D3F	3D	40	0F05	2407		CLI SMPSWD-7,@BLANK	PASSWORD SPECIFIED?
	0D43	F2	01	4C	2408		JNE KAL300	YES -- SPECIFIED IN FILE SPEC
	0D46	3D	00	03D9	2409		CLI \$FILIB-1,@ZERO	CURRENT USER IN FORCE ?
	0D4A	F2	01	0F	2410		JNE KAL255	YES -- GO GET CURRENT PASSWORD
	0D4D	3C	21	03CD	2411	KAL251	MVI \$CAERR,@E200	NO FILESPEC
	0D51	F2	87	04	2412		J KAL254	GO TO EXIT
	0D54	3C	51	03CD	2414	KAL253	MVI \$CAERR,@E338	SET INVALID PARAM COMBINATION
	0D58	C0	87	0469	2415	KAL254	B \$CAERK	GO TO #ERRPG
				0D5C	2416	KAL255	EQU *	FIND VOL-1D
	0D5C	0C	07	0F0C 042D	2417		MVC SMPSWD,\$PASWD(@\$L1DP)	PICK UP CURRENT PASSWORD
					2418	*		
					2419	*	SEARCH VOL-ID TABLE FOR VOL-LABEL OF CURRENT DISK	
					2420	*		
				0D62	2421	KAL258	EQU *	\$VOLID SEARCH
	0D62	C2	02	03F6	2422		LA \$VOLID,@XR	PICK-UP VOL-ID ADDRESS
	0D66	8D	01	07 03DA	2423	KAL260	CLC KALSVN(@CADDR,@XR),\$FILIB	FIND ENTRY
	0D6B	F2	81	07	2424		JE KAL270	PICK-UP VOL-ID
	0D6E	E2	02	08	2425		LA KALENG(,@XR),@XR	GET TO NEXT ENTRY
	0D71	C0	87	0D66	2426		B KAL260	FIND CORRECT VOL-ID
	0D75	2C	05	0F04 05	2427	KAL270	MVC SMVOID(KALSIX),KALFIV(,@XR)	MOVE ADDRESS
	0D7A	38	08	0EC4	2428	KAL280	TBN KALMSK,KALKS5	NEW FILE INDICATOR ON ?
	0D7E	F2	90	F2	2429		JF KAL400	NO -- GO SET FILE SPEC IN ENTRY
	0D81	0D	01	0F06 0EDB	2430		CLC SMPSWD-6,KALSTR(2)	ONE STAR PASSWORD ?
	0D87	F2	01	24	2431		JNE KAL350	NO -- CONTINUE
	0D8A	3C	14	03CD	2432		MVI \$CAERR,@E135	* LIBRARY SPECIFIED
	0D8E	C0	87	0469	2433		B \$CAERK	ERROR EXIT
				0D92	2435	KAL300	EQU *	PASSWORD SPECIFIED
	0D92	3D	40	0EFF	2436		CLI SMVOID-KALFIV,@BLANK	VOL-ID SPECIFIED ?
	0D96	C0	01	0D7A	2437		BNE KAL280	YES
					2438	*		
					2439	*	CHECK PASSWORD	
					2440	*		
	0D9A	3D	5C	0F05	2441		CLI SMPSWD-7,@ASTER	ONE OR TWO STAR FILE ?
	0D9E	C0	81	0D7A	2442		BE KAL280	YES -- CHECK STATUS
	0DA2	3D	00	03D9	2443		CLI \$FILIB-1,@ZERO	CURRENT USER IN FORCE ?
	0DA6	C0	81	0D4D	2444		BE KAL251	ERROR -- NOT DEFINED
	0DAA	C0	87	0D62	2445		B KAL258	GO GET CURRENT VOL-LABEL
					2446	*		
					2447	*	A NEW PERMANENT FILE HAS BEEN SPECIFIED - FIND SPACE FOR IT	
					2448	*		
				0DAE	2449	KAL350	EQU *	DIRECTORY UPDATE
	0DAE	3C	00	0EFE	2450		MVI SMIND1,@ZERO	CLEAR TSMIES INDICATOR
	0DB2	C0	87	1977	2451		B SFINDF	GO TRY TO FIND FILE
	0DB6	38	08	0EFE	2452		TBN SMIND1,SM1PNF	WAS THE PASSWORD FOUND
	0DBA	C0	10	0469	2453		BT \$CAERK	NO, ERROR EXIT

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	0DBE	38 80	0EFE		2454	TBN	SMIND1,SM1FNE			WAS THE FILE FOUND ?
	0DC2	F2 10	08		2455	JT	KAL355			NO, BYPASS ERROR
	0DC5	3C 47	03CD		2456	MVI	\$CAERR,@E304			SET FILE ALREADY DEF'D ERR CODE
	0DC9	C0 87	0469		2457	SFIERR B	\$CAERK			ERROR EXIT
	0DCD	3D 40	0EFF		2459	KAL355 CLI	SMVOID-KALFIV,@BLANK			VOLUME SPECIFIED ?
	0DD1	F2 01	20		2460	JNE	KAL370			YES, GO FIND SPACE THIS DISK
	0DD4	3C 80	1A60		2461	MVI	SFISTR,@NOP			SET SFINDF TO SEARCH ONE
	0DD8	3C 80	1A63		2462	MVI	SFIFND,@NOP			* LIBRARY AT A TIME
					2463	*				
					2464	*				
	0DDC	3D 06	1A91		2465	KAL360 CLI	SFINTR,SFIETD			TRY COUNTER AT MAX ? 1-2
	0DE0	F2 81	4B		2466	JE	KAL375			YES, GO GIVE ERROR 1-2
	0DE3	0E 00	1A91	0EDE	2467	ALC	SFINTR,KALONE(@B1)			SET SFINDF TO SEARCH NEXT DISK
	0DE9	C0 87	1977		2468	B	SFINDF			SEARCH FIRST/NEXT LIBRARY
	0DED	38 08	0EFE		2469	TBN	SMIND1,SM1PNF			WAS A BIS LIBR FOUND ?
	0DF1	F2 10	3A		2470	JT	KAL375			NO, GO SET NO SPACE FOR ** FILE
					2471	*				
					2472	*	GET NULL DIRECTORY FOR CURRENT LIBRARY AND LOOK FOR SPACE			
					2473	*				
	0DF4	0C 01	0F20	0EA1	2474	KAL370 MVC	SMNSCT,KALSPC(@\$L1FS)			SET SIZE REGUIRED
					2475	*	DSKL2 KALDP2,WAIT			READ NULL DIRCTY & WAIT
	0DFA	C0 87	1616		2476	B	DL2ICS			PERFORM RELATIVE DISK OP
	0DFE	0EE6		0DFF	2477	DC	AL2(KALDP2)			DPL ADDRESS
	0E00	C0 87	0025		2478	B	\$DISKN			WAIT AND CHECK DISK ERRORS
	0E04	057F		0E05	2479	DC	AL2(\$WAITF)			WAIT DPL ADDRESS
					2480	***	END OF EXPANSION ***			
	0E06	0C 01	0F2A	0EEB	2482	MVC	SMNDBA,KALDP2+@DBFR2(@CADDR)			SET NULL DIRCTY BFR CADDR
	0E0C	C0 87	1824		2483	B	SURCHN			GO SEEK SPACE
	0E10	3C 80	0476		2484	MVI	\$CIMSK,@NOP			MASK OFF INQUIRY REQUESTS
	0E14	0D 01	0F1E	0ED9	2485	CLC	SMNDEA,KALZRO(@DADDR)			WAS SPACE FOUND ?
	0E1A	F2 01	19		2486	JNE	KAL380			YES, GO MAKE ENTRY
	0E1D	0D 01	0F1C	0EA1	2487	CLC	SMNULT,KALSPC(@\$L1FS)			WILL 'PACK' GET THE SPACE ?
	0E23	F2 02	5A		2488	JNL	KAL450			YES, GO PACK THE LIBRARY
	0E26	3D 40	0EFF		2489	STUERR CLI	SMVOID-KALFIV,@BLANK			CAN ANOTHER LIBR. BE TRIED ?
	0E2A	C0 81	0DDC		2490	BE	KAL360			YES, GO SO DO
	0E2E	3C 43	03CD		2491	KAL375 MVI	\$CAERR,@E300			SET NO LIBR. SPACE ERROR CODE
	0E32	C0 87	0469		2492	B	\$CAERK			ERROR EXIT
					2493	*				
					2494	*	MAKE NEW USER DIRECTORY ENTRY - WRITE OUT DIRECTORIES			
					2495	*				
	0E36	0C 01	0F24	0ED7	2496	KAL380 MVC	SMUPEN,KALNEA(@CADDR)			NEW ENTRY ADDRESS
	0E3C	0C 07	0E9D	0F14	2497	MVC	KALUEN(##LUEN),SMFNAM			MOVE IN DISK FILENAME
	0E42	0C 02	0EA8	043A	2498	MVC	KALUED(##LUED),\$DATE			MOVE IN DATE
	0E48	0C 01	0E9F	0F1E	2499	MVC	KALUEA(##LAAA),SMNDEA			MOVE IN REL. START DADDR
	0E4E	38 04	0EC4		2500	TBN	KALMSK,KALKS6			WAS 'LONG' SPECIFIED
	0E52	F2 90	04		2501	JF	KAL385			NO. BYPASS
	0E55	3A 02	0EA3		2502	SBN	KALUES,##MUEV			SET FILE PRECISION LONG
	0E59	C0 87	16AF		2503	KAL385 B	STUFID			MAKE USER DIRCTY ENTRY
	0E5D	3C 02	0EE6		2504	MVI	KALDP2+@DCTRL,@DPUT			SET NULL DPL FOR WRITE
					2505	*	DSKL2 KALDP2			WRITE NULL DIRECTORY
	0E61	C0 87	1616		2506	B	DL2ICS			PERFORM RELATIVE DISK OP
	0E65	0EE6		0E66	2507	DC	AL2(KALDP2)			DPL ADDRESS
					2508	***	END OF EXPANSION ***			

#KALLO - ALLOCATE SYSTEM COMMAND

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE 12
0E67	0C	01	0EEE 0E9F		2510		MVC KALDP3+@DADDR,KALUEA(##LAAA) SET FILE RELATIVE DISK ADDR			
					2511	*	DSKL2 KALDP3 WRITE AN EOF RCD TO THE FILE			
0E6D	C0	87	1616		2512	B	DL2ICS PERFORM RELATIVE DISK OP			
0E71	0EEC			0E72	2513	DC	AL2(KALDP3) DPL ADDRESS			
					2514	***	END OF EXPANSION ***			
					2516	*				
					2517	*	SET PERMANENT DISK FILE REFERENCES			
					2518	*				
0E73	C2	02	0000		2519	KAL400 LA	*-*,@XR RESET @XR TO I/O ENTRY			
				0E76	2520	KALXRS EQU	KAL400+@OP1 @XR SAVE AREA			
0E77	8C	15	1E 0F14		2521	MVC	@\$D1DF(@\$L1DF+@\$L1DP+@\$L1DV,@XR),SMFNAM SET DISK REFERENCE			
0E7C	C0	87	0CEC		2522	B	KAL200 GO SET REST OF I/O ENTRY			

## #KALLO - ALLOCATE SYSTEM COMMAND

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE 13
					2524	*				
					2525	*	THIS CODING WILL HANDLE 'ROLL-IN' OF SPACKU			
					2526	*	SPACKU WILL CONDENSE THE DIRECTORIES IN AN EFFORT TO			
					2527	*	FIND SPACE IN THE FILE LIBRARY			
					2528	*				
				0E80	2529	KAL450 EQU	*			
	0E80	0C	01	06FF	16AE		MVC \$\$FLIB,DL2RAD(@DADDR)	PASS FILE LIBR. DADDR		
	0E86	0C	05	0449	0EF7		MVC \$DPLSV,KALDPA+@DBFR2(@DPLNG)	SET #KALLO RELOAD		
	0E8C	C2	02	0000		2532 KAL460 LA	*-*,@XR	RESTORE INPUT BFR POINTER		
				0E8F	2533	KALINP EQU	KAL460+@OP1	POINTER SAVE AREA		
					2534	*	RLOAD KALPDP	LOAD & EXECUTE LIBR. PACKER		
	0E90	C0	87	051E		2535	B \$RLOAD	LOAD AND EXECUTE PGM		
	0E94	0EF8			0E95	2536	DC AL2(KALPDP)	DPL ADDRESS		
					2537	***	END OF EXPANSION ***			
					2539	*****	*****			
					2540	*	CONSTANTS, WORKAREAS AND EQUATES			
					2541	*				
				0E96	2542	KALNEW EQU	*	USER DIRECTORY ENTRY		
	0E96			0E9D	2543	KALUEN DS	CL(##LUEN)	* FILE NAME		
	0E9E			0E9F	2544	KALUEA DS	CL(##LAAA)	* RELATIVE DISK ADDRESS		
				0EA0	2545	KALUEF EQU	*	* FILE LENGTH		
	0EA0			0EA1	2546		DS CL(##LUEF)	* INITIALIZE TO		
	0EA0				2547		ORG KALUEF	* TEN		
	0EA0	000A		0EA1	2548	KALSPC DC	IL2'10'	* SECTORS		
	0EA2	00		0EA2	2549		DC XL(##LUEI)'0'	* FIT LENGTH		
	0EA3	20		0EA3	2550	KALUES DC	AL(##LUES)(##MUEG)	* STATUS		
	0EA4	0001		0EA5	2551		DC XL(##LUEL)'1'	* NO. OF LINES		
	0EA6			0EA8	2552	KALUED DS	CL(##LUED)	* DATE		
				0EA9	2553	KALUEH EQU	*	* FILE-ID		
	0EA9			0EC1	2554		DS CL(##LUEH)	* INITIALIZE		
	0EA9				2555		ORG KALUEH	* TO		
	0EA9	4040404040404040		0EC1	2556		DC CL(##LUEH)' '	* BLANKS		
					2557	*				
				0007	2558	KALSVN EQU	7	DISPLACEMENT IN VOL-ID TABLE		
				0006	2559	KALSIX EQU	6	LENGTH OF VOL-ID		
				0005	2560	KALFIV EQU	5	DISPLACEMENT OF VOL-ID IN TABLE		
				004D	2561	KALLPR EQU	X'4D'	LEFT PARENTHESIS		
				0008	2562	KALENG EQU	8	LENGTH OF USER FILENAME		
				005D	2563	KALRPR EQU	X'5D'	RIGHT PARENTHESIS		
				0000	2564	KALEMP EQU	0	NULL I/O ENTRY		
	0EC2			0EC2	2565	KALCTR DS	CL1	I/O RECORD ENTRTROUTNER		
	0EC2				2566		ORG KALCTR	* INITIALIZED TO		
	0EC2	0C		0EC2	2567		DC AL1(@\$MBEN)	* MAXIMUM NUMBER OF ENTRIES		
	0EC3			0EC3	2568	KAL2SS DS	CL1	2 I/O SECTOR SWITCH SAVE AREA		
	0EC4			0EC4	2569	KALMSK DS	CL1	PARAMETER COMBINATION		
	0EC4				2570		ORG KALMSK	* INITIALIZE TO		
	0EC4	00		0EC4	2571		DC XL1'0'	* ZERO		
	0EC5			0ECC	2572	KALUF1 DS	CL8	USER FILENAME ONE(1)		
				0ECD	2573	KALU2E EQU	*	START OF USER NAME 2		
	0ECD			0ED4	2574	KALUF2 DS	CL(@\$L1BF)	USER FILENAME 2		
	0ECD				2575		ORG KALU2E	* INITIALIZE TO		
	0ECD	000000000000000000		0ED4	2576		DC XL(@\$L1BF)'0'	* ZERO		
	0ED5			0ED5	2577	KALIDC DS	CL(@\$L1DC)	SPECIFIED DEVICE CODE		
	0ED5				2578		ORG KALIDC	* INITIALIZED TO		
	0ED5	00		0ED5	2579		DC XL(@\$L1DC)'0'	* ZERO		



## #KALLO - ALLOCATE SYSTEM COMMAND

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 23/05/20 PAGE 14
	0ED6	0E96		0ED7	2580	KALNEA	DC AL(@CADDR)(KALNEW)	CADDR OF NEW USER DIRCTY ENTRY
	0ED8	0000		0ED9	2581	KALZRO	DC IL2'0'	
	0EDA	5C40		0EDB	2582	KALSTR	DC CL2'*'	MASK FOR ONE-STAR PASSWORD
	0EDC	2547		0EDD	2583	KALMFS	DC XL(\$L1FS)'2547'	MAX FILE SIZE ALLOWED
	0EDE	01		0EDE	2584	KALONE	DC IL1'1'	
	0EDF	1C		0EDF	2585	KALEOF	DC AL1(@EOF)	END OF FILE INDICATOR
					2586	*KALDPL	DPL FUNC-@DGET,DADDR-#@#IO1,CNT-#@#SC,CADDR-KALIOR	
				0EE0	2587	KALDPL	EQU *	DISK PARAMETER LIST
	0EE0	01		0EE0	2588		DC AL1(@DGET)	REQUESTED FUNCTION
	0EE1	0459		0EE2	2589		DC AL2(@#IO1)	DISK ADDRESS
	0EE3	02		0EE3	2590		DC AL1(@#SC)	SECTOR COUNT
	0EE4	1C00		0EE5	2591		DC AL2(KALIOR)	BUFFER ADDRESS
					2592	***	END OF EXPANSION ***	
					2594	*KALDP2	DPL FUNC-@DGET,CNT-1,CADDR-KALNUL	
				0EE6	2595	KALDP2	EQU *	DISK PARAMETER LIST
	0EE6	01		0EE6	2596		DC AL1(@DGET)	REQUESTED FUNCTION
	0EE7	00		0EE7	2597		DC AL1(*-*)	CYLINDER ADDRESS
	0EE8	00		0EE8	2598		DC AL1(*-*)	HEAD/SECTOR/DRIVE/DISK SPEC
	0EE9	01		0EE9	2599		DC AL1(1)	SECTOR COUNT
	0EEA	1B00		0EEB	2600		DC AL2(KALNUL)	BUFFER ADDRESS
					2601	***	END OF EXPANSION ***	
					2603	*KALDP3	DPL FUNC-@DPUT,CNT-1,CADDR-KALEOF	
				0EEC	2604	KALDP3	EQU *	DISK PARAMETER LIST
	0EEC	02		0EEC	2605		DC AL1(@DPUT)	REQUESTED FUNCTION
	0EED	00		0EED	2606		DC AL1(*-*)	CYLINDER ADDRESS
	0EEE	00		0EEE	2607		DC AL1(*-*)	HEAD/SECTOR/DRIVE/DISK SPEC
	0EEF	01		0EEF	2608		DC AL1(1)	SECTOR COUNT
	0EF0	0EDF		0EF1	2609		DC AL2(KALEOF)	BUFFER ADDRESS
					2610	***	END OF EXPANSION ***	
					2612	*KALDPA	DPL FUNC-@DGET,DADDR-#\$KALL,CNT-#\$@KAL,CADDR-#\$KAL	
				0EF2	2613	KALDPA	EQU *	DISK PARAMETER LIST
	0EF2	01		0EF2	2614		DC AL1(@DGET)	REQUESTED FUNCTION
	0EF3	06A4		0EF4	2615		DC AL2(\$KALL)	DISK ADDRESS
	0EF5	0F		0EF5	2616		DC AL1(\$@KAL)	SECTOR COUNT
	0EF6	0C00		0EF7	2617		DC AL2(\$KAL)	BUFFER ADDRESS
					2618	***	END OF EXPANSION ***	
					2620	*KALPDP	DPL FUNC-@DGET,DADDR-#\$SPAC,CNT-#\$@SPA,CADDR-#\$SPA	
				0EF8	2621	KALPDP	EQU *	DISK PARAMETER LIST
	0EF8	01		0EF8	2622		DC AL1(@DGET)	REQUESTED FUNCTION
	0EF9	04CC		0EFA	2623		DC AL2(\$SPAC)	DISK ADDRESS
	0EFB	04		0EFB	2624		DC AL1(\$@SPA)	SECTOR COUNT
	0EFC	0C00		0EFD	2625		DC AL2(\$SPA)	BUFFER ADDRESS
					2626	***	END OF EXPANSION ***	
					2628	*		
					2629	*	SYNTAX CHECKING SECTION	
					2630	*		
				0EFE	2631	KAL500	EQU *	
					2632	*	DISK KALDPL	READ I/O RECORD
	0EFE	C0 87 0025			2633	B	\$DISKN	PERFORM PHYSICAL DISK OP
	0F02	0EE0		0F03	2634		DC AL2(KALDPL)	DPL ADDRESS
					2635	***	END OF EXPANSION ***	

## #KALLO - ALLOCATE SYSTEM COMMAND

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 23/05/20 PAGE 15
0F04	35	02	03C7		2637	L	\$XRSAB,@XR	PICK UP INPUT LINE POINTER
0F08	34	02	0E8F		2638	ST	KALINP,@XR	SAVE IT, IN CASE WE NEED TO PACK
0F0C	3C	18	03CD		2639	MVI	\$CAERR,@E139	SET ERROR CODE FOR DASH
0F10	BD	60	00		2640	CLI	@ZERO(,@XR),@MINUS	DASH FOLLOWING KEYWORD ?
0F13	C0	81	1186		2641	BE	KAL669	YES, GO TO ERROR RETURN
0F17	C0	87	14CA		2642	B	SCANIT	SCAN FOR DELIMITER
0F1B	C0	82	1186		2643	BL	KAL669	GO TO ERROR RETURN IF ERROR
0F1F	3C	10	03CD		2644	MVI	\$CAERR,@E130	SET ERROR FOR REO'D PARM MISSNG
0F23	BD	1E	00		2645	CLI	@ZERO(,@XR),@EOS	END OF STATEMENT ?
0F26	C0	81	1186		2646	BE	KAL669	YES, GO TO ERROR RETURN
0F2A	BD	4D	00		2647	CLI	@ZERO(,@XR),KALLPR	IS IT A ( ?
0F2D	F2	81	24		2648	JE	KAL510	YES, BYPASS FILE-SPEC
					2649	*		
0F30	38	80	0EC4		2650	TBN	KALMSK,KALKS1	ANYTHING OTHER THAN '(' ALLOWED
0F34	C0	10	1186		2651	BT	KAL669	NO, GO TO ERROR EXIT
0F38	3C	81	1399		2652	MVI	SUF625+@Q,@BE	SET SUFFER TO ALLOW A '('
0F3C	C0	87	1316		2653	B	SUFFER	GO CHECK FILE-SPEC
0F40	C0	82	1186		2654	BL	KAL669	GO TO ERROR RETURN IF BAD
0F44	3A	80	0EC4		2655	SBN	KALMSK,KALKS1	SET FILE?SPEC INDR.
0F48	3C	87	14E7		2656	MVI	SCAMMA,SCACOF	TURN OFF COMMA SCAN
0F4C	3C	87	1024		2657	MVI	KALNDC,@UCB	SET NON-DISK CONFLICT INST SW
0F50	C0	87	0F1F		2658	B	KAL505	GO CHECK FOR '('
					2659	*		
					2660	*	CHECK USER FILE NAME SPECIFICATION	
					2661	*		
0F54	E2	02	01		2662	KAL510	LA @B1(,@XR),@XR	INCR @XR PAST '('
0F57	C0	87	14CA		2663	B	SCANIT	BYPASS BLANKS FOLLOWING '('
0F5B	C0	82	1186		2664	BL	KAL669	ERROR EXIT
0F5F	C0	87	124B		2665	B	SALPH8	CHECK USER FILE NAME
0F63	C0	82	1186		2666	BL	KAL669	ERROR EXIT
0F67	0C	07	0ECC	1311	2667	MVC	KALUF1(@\$L1BF),SALPHR+@\$L1BF-1	SAVE USER NAME 1
0F6D	F2	01	04		2668	JNE	KAL515	BYPASS SWITCH SET IF BLANKS
0F70	3C	80	0F81		2669	MVI	KALNB1,@NOP	SET NO BLANK FOLLOWING U.NAME 1
0F74	BD	5D	00		2670	KAL515	CLI @ZERO(,@XR),KALRPR	SCAN TERMINATED BY ')''
0F77	F2	81	38		2671	JE	KAL535	YES, GO BYPASS ')''
0F7A	BD	6B	00		2672	CLI	@ZERO(,@XR),@COMMA	SCAN TERMINATED BY COMMA ?
0F7D	F2	81	11		2673	JE	KAL525	YES, GO SCAN PAST COMMA
0F80	F2	87	1A		2674	KAL518	JC KAL530,@UCB	BYPASS ERR SET IF BLANK FOUND
				0F81	2675	KALNB1	EQU KAL518+@Q	SET TO @NOP IF NO BLANK FOUND
0F83	3C	11	03CD		2676	KAL520	MVI \$CAERR,@E131	SET INVALID PARAMETER ERR CODE
0F87	0C	01	1185	129F	2677	MVC	KALESX(@CADDR),SAL375+@OP1	RETRIEVE PARAM START ADDR
0F8D	C0	87	1182		2678	B	KAL665	ERROR EXIT
0F91	3C	01	14E7		2679	KAL525	MVI SCAMMA,SCACOM	SET SCAN TO BYPASS COMMA
0F95	C0	87	14CA		2680	B	SCANIT	SCAN COMMA AND BLANKS
0F99	3C	87	14E7		2681	MVI	SCAMMA,SCACOF	SET OFF COMMA SCAN
					2682	*		
					2683	*	CHECK SECOND USER FILE NAME SPECIFICATION	
					2684	*		
0F9D	C0	87	124B		2685	KAL530	B SALPH8	CHECK SECOND NAME
0FA1	C0	82	1186		2686	BL	KAL669	ERROR EXIT
0FA5	0C	07	0ED4	1311	2687	MVC	KALUF2(KALENG),SALPHR+7	MOVE SECOND FILENAME
0FAB	BD	5D	00		2688	CLI	@ZERO(,@XR),KALRPR	IS IT A RIGHT PAREN ?
0FAE	C0	01	0F83		2689	BNE	KAL520	GO SET BAD DELIMITER ERR CODE
					2690	*		
0FB2	E2	02	01		2691	KAL535	LA @B1(,@XR),@XR	BYPASS ')''
0FB5	3C	01	14E7		2692	MVI	SCAMMA,SCACOM	SET FOR COMMA SCAN



## #KALLO - ALLOCATE SYSTEM COMMAND

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 23/05/20 PAGE 16
	0FB9	C0	87 14CA		2693	B	SCANIT	BYPASS BLANKS
	0FBD	C0	82 1186		2694	BL	KAL669	ERROR EXIT
					2695	*		
					2696	*	CHECK KEYWORD PARAMETERS FOLLOWING THE USER FILE NAME SPEC	
					2697	*		
					2698	*	CHECK FOR NON-DISK FILE SPECIFIED	
					2699	*		
				0FC1	2700	KAL540 EQU	*	
	0FC1	BD	1E 00		2701	CLI	@ZERO(, @XR), @EOS	ANOTHER PARAMETER TO CHECK ?
	0FC4	C0	81 118A		2702	BE	KAL700	NO, GO TO FIND I/O RECORD ENTRY
	0FC8	34	02 1185		2703	ST	KALESX, @XR	SAVE @XR IN CASE ERROR OCCURS
	0FCC	C2	01 11E9		2704	LA	KALNDT, @BR	POINT @BR AT NON-DISK TABLE
				0FD0	2705	KAL545 EQU	*	LOOP THRU TABLE
	0FD0	7D	FF 00		2706	CLI	@ZERO(, @BR), KALTEM	END OF TABLE ?
	0FD3	F2	81 59		2707	JE	KAL600	YES, GO CHECK DISK TABLE
	0FD6	1C	00 0FED 01		2708	MVC	KAL550+@D1, 1(1, @BR)	SET UP DISP. TO POTENTIAL KEYWRD
	0FDB	1C	00 0FEC 01		2709	MVC	KAL550+@Q, 1(1, @BR)	SET UP LENGTH OF KEYWORD ENTRY
	0FE0	1C	00 0FEE 01		2710	MVC	KAL550+@DD2, 1(1, @BR)	SET UP DISPLACEMENT TO
	0FE5	0E	00 0FEE 124A		2711	ALC	KAL550+@DD2, KALTEK(1)	* KEYWORD ENTRY
	0FEB	9D	00 00 00		2712	KAL550 CLC	0(, @XR), 0(@VQ, @BR)	THIS KEYWORD ENTRY SPECIFIED ?
	0FEF	F2	81 0A		2713	JE	KAL555	YES, GO INCR TO DEVICE CODE
	0FF2	76	01 01		2714	A	1(, @BR), @BR	INCR TABLE PT BY KEYWORD LENGTH
	0FF5	D2	01 04		2715	LA	KALNFI(, @BR), @BR	INCR TABLE PT BY TABLE OVERHEAD
	0FF8	C0	87 0FD0		2716	B	KAL545	GO LOOK AT NEXT ENTRY
					2717	*		
					2718	*	MATCH FOUND - CHECK FOR DUPLICATE OR CONFLICT	
					2719	*		
	0FFC	76	02 01		2720	KAL555 A	1(, @BR), @XR	INCR INPUT LINE POINTER TO CHAR
	0FFF	E2	02 01		2721	LA	@B1(, @XR), @XR	A FOLLOWING MATCHED PORTION
	1002	C0	87 1152		2722	B	KAL650	GO CHECK FOR VALID PARAM
	1006	76	01 01		2723	A	1(, @BR), @BR	INCR TABLE POINTER TO ENTRY
	1009	D2	01 03		2724	LA	KALTSB(, @BR), @BR	* DEVICE CODE
	100C	3C	13 03CD		2725	MVI	\$CAERR, @E134	SET ERROR CODE FOR DUPLICATE
	1010	7D	FF 00		2726	CLI	@ZERO(, @BR), KALDUP	DUPLICATE KEYWORD ?
	1013	C0	81 1182		2727	BE	KAL665	YES. GO RESTORE INPUT LINE PT
	1017	1C	00 0ED5 00		2728	MVC	KALIDC, @ZERO(@\$L1DC, @BR)	SET DEVICE CODE IN I/O ENTRY
	101C	7C	FF 00		2729	MVI	@ZERO(, @BR), KALDUP	SET FOR DUPLICATE NEXT MATCH
	101F	3C	15 03CD		2730	MVI	\$CAERR, @E136	SET ERROR CODE FOR LONFLICT
	1023	C0	80 1182		2731	KAL560 BC	KAL665, @NOP	CONFLICT INDR - SET TO BUCB IF
				1024	2732	KALNDC EQU	KAL560+@Q	A ANOTHER PARAMETER MATCHED
	1027	3C	87 1024		2733	MVI	KALNDC, @UCB	SET NON-DISK CONFLICT INST SW
	102B	C0	87 0FC1		2734	B	KAL540	GO CHECK NEXT PARAMETER
					2735	*		
					2736	*	CHECK FOR DISK FILE PARAMETERS SPECIFIED	
					2737	*		
				102F	2738	KAL600 EQU	*	
	102F	C2	01 1201		2739	LA	KALDKT, @BR	POINT @BR AT DISK TABLE
	1033	3C	87 1024		2740	MVI	KALNDC, @UCB	SET NON-DISK CONFLICT INST SW
				1037	2741	KAL605 EQU	*	
	1037	7D	FF 00		2742	CLI	@ZERO(, @BR), KALTEM	END OF TABLE ?
	103A	F2	81 D3		2743	JE	KAL630	YES. GO CHECK FOR FILE-ID
	103D	1C	00 1054 01		2744	MVC	KAL610+@D1, 1(1, @BR)	SET UP DISP TO POTENTIAL KEYWRD
	1042	1C	00 1053 01		2745	MVC	KAL610+@Q, 1(1, @BR)	SET UP LENGTH OF KEYWORD ENTRY
	1047	1C	00 1055 01		2746	MVC	KAL610+@DD2, 1(1, @BR)	SET UP DISPLACEMENT TO KEYWORD
	104C	0E	00 1055 124A		2747	ALC	KAL610+@DD2, KALTEK(1)	* ENTRY
	1052	9D	00 00 00		2748	KAL610 CLC	0(, @XR), 0(@VQ, @BR)	THIS KEYWORD ENTRY SPECIFIED

[illegible]

## #KALLO - ALLOCATE SYSTEM COMMAND

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 23/05/20 PAGE 18
105C	D2	01	05		2752	LA	KALDFI(, @BR), @BR	INCR TABLE PT BY TABLE OVERHEAD
105F	C0	87	1037		2753	B	KAL605	GO LOOK AT NEXT ENTRY
					2754	*		
					2755	*	MATCH FOUND - CHECK FOR DUPLICATE OR CONFLICT	
					2756	*		
1063	76	02	01		2757	KAL615 A	1(, @BR), @XR	INCR INPUT LINE POINTER TO CHAR
1066	E2	02	01		2758	LA	@B1(, @XR), @XR	* FOLLOWING MATCHED PORTION
1069	76	01	01		2759	A	1(, @BR), @BR	INCR TABLE POINTER TO ENTRY
106C	D2	01	03		2760	LA	KALTSB(, @BR), @BR	* SPECIFIED MASK
106F	7D	01	00		2761	CLI	@ZERO(, @BR), KALKS8	'SPACE' ?
1072	F2	01	0F		2762	JNE	KAL617	NO BYPASS SPEC DELIM CHK
1075	BD	40	00		2763	CLI	@ZERO(, @XR), @BLANK	FOLLOWED BY A BLANK?
1078	F2	81	0D		2764	JE	KAL618	YES, CONTINUE
107B	BD	4D	00		2765	CLI	@ZERO(, @XR), KALLPR	FOLLOWED BY '(' ?
107E	F2	81	07		2766	JE	KAL618	YES, CONTINUE
1081	F2	87	EF		2767	J	KAL663	GO SET INVALID PARAM ERR
1084	C0	87	1152		2769	KAL617 B	KAL650	GO CHECK FOR VALID DELIM
1088	3C	13	03CD		2770	KAL618 MVI	\$CAERR, @@E134	SET ERROR CODE FOR DUPLICATE
108C	7D	FF	01		2771	CLI	1(, @BR), KALDUP	DUPLICATE KEYWORD ?
108F	F2	81	F0		2772	JE	KAL665	YES, GO RESTORE INPUT LINE PT
1092	1C	00	10B2 00		2773	MVC	KALSET, @ZERO(1, @BR)	MOVE SPECIFIED MASK TO SET INST
1097	3C	15	03CD		2774	MVI	\$CAERR, @@E136	SET ERROR CODE FOR CONFLICT
109B	3D	00	0ED5		2775	CLI	KALIDC, @ZERO	NOM-DISK PARAM MATCHED ?
109F	F2	01	E0		2776	JNE	KAL665	YES, GO RESTORE INPUT LINE PT
10A2	1C	00	10AB 01		2777	MVC	KALTST, 1(1, @BR)	SET UP CONFLICT INST TEST MASK
10A7	7C	FF	01		2778	MVI	1(, @BR), KALDUP	SET FOR DUPLICATE NEXT MATCH
10AA	39	01	0EC4		2779	KAL620 TBF	KALMSK, @VQ	THIS PARAMETER CONFLICT ?
				10AB	2780	KALTST EQU	KAL620+@Q	* MASK SUPPLIED FROM TABLE
10AE	F2	90	D1		2781	JF	KAL665	YES, GO RESTORE INPUT LINE PT
10B1	3A	01	0EC4		2782	KAL625 SBN	KALMSK, @VQ	SET KEYWORD SPECIFIED MASK
				10B2	2783	KALSET EQU	KAL625+@Q	* SUPPLIED FROM TABLE
10B5	3D	01	10B2		2784	CLI	KALSET, KALKS8	WAS KEYWORD SPECIFIED 'SPACE' ?
10B9	C0	01	0FC1		2785	BNE	KAL540	GO CHECK NEXT PARAM
					2786	*		
					2787	*	SPACE SPECIFIED - CHECK & CONVERT SIZE	
					2788	*		
10BD	3C	87	14E7		2789	MVI	SCAMMA, SCACOF	TURN OFF COMMA SCAN
10C1	C0	87	14CA		2790	B	SCANIT	SCAN BLANKS
10C5	F2	82	BE		2791	JL	KAL669	ERROR EXIT
10C8	BD	4D	00		2792	CLI	@ZERO(, @XR), KALLPR	SCAN TERMINATED BY '(' ?
10CB	F2	01	A5		2793	JNE	KAL663	NO, GO SET INVALID PARAM ERROR
10CE	E2	02	01		2794	LA	@B1(, @XR), @XR	BYPASS '('
10D1	C0	87	14CA		2795	B	SCANIT	BYPASS BLANKS
10D5	F2	82	AE		2796	JL	KAL669	ERROR EXIT
10D8	C0	87	145A		2797	B	C4BIN2	CONVERT NUMBER
10DC	F2	04	94		2798	JNH	KAL663	GO SET INVALID PARM IF ERROR
10DF	0D	01	14C4 0ED9		2799	CLC	C4BVAL(@\$L1FS), KALZRO	'0' SPACE SPECIFIED ?
10E5	F2	81	8B		2800	JE	KAL663	YES, GO SET INVALID PARAM ERR
10E8	C0	87	14CA		2801	B	SCANIT	SCAN BLANKS
10EC	0C	01	0EA1 14C4		2802	MVC	KALSPC(@\$L1FS), C4BVAL	SAVE NO. OF SECTORS SPECIFIED
10F2	F2	82	91		2803	JL	KAL669	ERROR EXIT
10F5	BD	5D	00		2804	CLI	@ZERO(, @XR), KALRPR	SCAN TERMINATED BY ')' ?
10F8	F2	01	78		2805	JNE	KAL663	NO, GO SET INVALID PARAM ERROR
10FB	E2	02	01		2806	LA	@B1(, @XR), @XR	BYPASS ')'
10FE	3C	01	14E7		2807	MVI	SCAMMA, SCACOM	RESET TO SCAN BLANKS & A COMMA

## #KALLO - ALLOCATE SYSTEM COMMAND

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE 19
1102	C0	87	1152		2808	B	KAL650			GO CHECK FOR DELIM
1106	0C	01	1194	1185	2809	MVC	KALSPT(@\$L1FS),KALESX			SAVE FARAH ADDR FOR SPEC TEST
110C	C0	87	0FC1		2810	B	KAL540			GO CHECK NEXT PARAM
					2811	*				
					2812	*	UNRECOGNIZED PARAM - CHECK FOR FILE-ID			
					2813	*				
1110	BD	7D	00		2814	KAL630 CLI	@ZERO(,@XR),SCSQUO			IS 1ST CHARACTER A QUOTE ?
1113	F2	01	5D		2815	JNE	KAL663			NO, GO SET INVALID PARAM ERROR
1116	3C	15	03CD		2816	MVI	\$CAERR,@E136			SET ERROR CODE FOR CONFLICT
111A	3D	00	0ED5		2817	CLI	KALIDC,@ZERO			NON-DISK PARAM MATCHED ?
111E	F2	01	61		2818	JNE	KAL665			YES, GO RESTORE INPUT LINE PT
1121	39	50	0EC4		2819	TBF	KALMSK,KALKE9			FILE-ID CONFLICT PREV. MATCH ?
1125	F2	90	5A		2820	JF	KAL665			YES, GO RESTORE INPUT LINE PT
1128	3C	13	03CD		2821	MVI	\$CAERR,@E134			SET ERROR CODE FOR DUPLICATE
112C	F2	80	57		2822	KAL635 JC	KAL669,@NOP			GO TO ERROR RETURN IF
112F	3C	87	112D		2823	MVI	KAL635+@Q,@UCB			* FILE-ID SPECIFIED TWICE
1133	3A	21	0EC4		2824	SBN	KALMSK,KALKS9			SET FILE-ID SPECIFIED
1137	3C	19	1430		2825	MVI	SCSLNG,##LUEH			SET MAX FILE-ID LENGTH
113B	C0	87	13DF		2826	B	SCSTRG			CHECK CHARACTER CONSTANT
113F	0EA9			1140	2827	DC	AL2(KALUEH)			STRING ADDRESS
1141	F2	84	3E		2828	JH	KAL665			ERR, GO RESTORE INPUT LINE PT
1144	0C	01	1194	1185	2829	MVC	KALSPT(@\$L1FS),KALESX			SAVE PARAM ADDR FOR SPEC TEST
114A	C0	87	1152		2830	B	KAL650			GO CHECK FOR DELIM
114E	C0	87	0FC1		2831	B	KAL540			GO CHECK NEXT PARAM
					2832	*				
					2833	*	CHECK FOR VALID DELIMITER FOLLOWING PARAMETER			
					2834	*				
1152	34	08	1164		2835	KAL650 ST	KAL653+@OP1,@ARR			SAVE RETURN ADDR
1156	34	08	116B		2836	ST	KAL656+@OP1,@ARR			SAVE RETURN ADDR
115A	C0	87	14CA		2837	B	SCANIT			SCAN BLANKS AND A COMMA
115E	F2	82	25		2838	JL	KAL669			ERROR EXIT
1161	C0	01	0000		2839	KAL653 BNE	*-*			DELINETER PASSED, RETURN
1165	BD	1E	00		2840	CLI	@ZERO(,@XR),@EOS			WAS @EOS HIT ?
1168	C0	81	0000		2841	KAL656 BE	*-*			YES, RETURN
116C	3C	11	03CD		2842	MVI	\$CAERR,@E131			SET INVALID PARAM ERROR CODE
1170	F2	87	0F		2843	J	KAL665			GU RESTORE INPUT LINE POINTER
					2844	*				
					2845	*	SYNTAX ERROR HANDLING			
					2846	*				
1173	3C	11	03CD		2847	KAL663 MVI	\$CAERR,@E131			SET INVALID PARAM ERROR CODE
1177	3D	00	0ED5		2848	CLI	KALIDC,@ZERO			HAS A NON-DISK PARAM BEEN RFC'D
117B	F2	81	04		2849	JE	KAL665			NO, GO RESTORE INPUT LINE PT
117E	3C	12	03CD		2850	MVI	\$CAERR,@E133			SET TOO MANY PARAN'S ERROR CODE
					2851	*				
1182	C2	02	0000		2852	KAL665 LA	*-*,@XR			RESTORE INPUT LINE POINTER
				1185	2853	KALESX EQU	KAL665+@OP1			SAVED START ADDR OF BAD PARAM
					2854	*				
1186	C0	87	0469		2855	KAL669 B	\$CAERK			GO TO IPERRPG INTERFACE
					2856	*				
					2857	*	SYNTAX CHECKING COMPLETED			
					2858	*				
					2859	*	CHECK FOR VALID FILE SIZE			
					2860	*				
118A	38	01	0EC4		2861	KAL700 TBN	KALMSK,KALKS8			'SPACE' OR FILE-ID SPECIFIED ?
118E	F2	90	2B		2862	JF	KAL710			NO, BYPASS ERROR CHECK
1191	C2	02	0000		2863	KAL703 LA	*-*,@XR			POINT EA TO PARAMETER

## #KALLO - ALLOCATE SYSTEM COMMAND

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE 20
				1194	2864	KALSPT	EQU KAL703+@OP1			POINTER SAVE AREA
1195	3C	15	03CD		2865		MVI \$CAERR,@E136			SET CONFLICT ERR CODE IN CASE
1199	38	40	0EC4		2866		TBN KALMSK,KALKS2			IF 'SCRATCH' SPECIFIED, CHECK
119D	F2	10	08		2867		JT KAL706			* FOR 'NEW' NOT REQUIRED
11A0	38	08	0EC4		2868		TBN KALMSK,KALKS5			WAS NEW SPECIFIED ?
11A4	C0	90	0469		2869		BF \$CAERK			NO, GO TO ERRPGM
11A8	0D	01	0EDD 0EA1		2870	KAL706	CLC KALMFS(@\$L1FS),KALSPC			IS 'SPACE' TOO LARGE ?
11AE	F2	02	0B		2871		JNL KAL710			NO, BYPASS ERR HANDELING
11B1	E2	02	FF		2872		LA KALTEM(, @XR), @XR			GET @XR OUT OF INPUT BUFFER
11B4	3C	48	03CD		2873		MVI \$CAERR,@E305			SET TOO LARGE ERR CODE
11B8	C0	87	0469		2874		B \$CAERK			GO TO ERROR EXIT
					2875	*				
					2876	*	WAIT FOR I/O RECORD TO READ IN - DETERMINE WHICH SEARCH			
					2877	*	ROUTINE TO USE			
					2878	*				
11BC	C2	02	1C00		2879	KAL710	LA KALIOR, @XR			POINT OXR AT 1ST I/O ENTRY
					2880	*	DISK \$WAITF			WAIT FOR READ COMPLETE
11C0	C0	87	0025		2881		B \$DISKN			PERFORM PHYSICAL DISK OP
11C4	057F			11C5	2882		DC AL2(\$WAITF)			DPL ADDRESS
					2883	***	END OF EXPANSION ***			
					2885	*				
					2886	*	MODIFICATIONS DONE FOR MORE THAN 08 ALLOCATE COMMANDS			
					2887	*				
11C6	2C	00	0EC3 1F		2888		MVC KAL2SS, @\$D1SW(1, @XR)			SAVE 2 SECTOR SWITCH
11CB	BD	00	1F		2889		CLI @\$D1SW(, @XR), @ZERO			2 SECTOR SWITCH ON ?
11CE	F2	81	08		2890		JE KAL720			
11D1	3C	0C	0EC2		2891		MVI KALCTR, @\$MBEN			YES - MAX OF 12 ENTRIES
11D5	C0	87	11DD		2892		B KAL800			
11D9	3C	08	0EC2		2893	KAL720	MVI KALCTR, #@@#08			NO - 8 ENTRIES MAX
11DD	3D	00	0ED4		2894	KAL800	CLI KALUF2, @ZERO			PREVIOUS NAME SPECIFIED ?
11E1	C0	81	0C55		2895		BE KAL100			NO, GO FIND NULL OR 1ST NAME
11E5	C0	87	0C8A		2896		B KAL120			YES, GO FIND PREVIOUS NAME
					2898	*****				
					2899	*				
					2900	*	CARD, CRT & PRINTER FILE TYPE KEYWORD TABLE			
					2901	*	FORMAT:			
					2902	*	1. LENGTH-1 OF KEYWORD			
					2903	*	2. KEYWORD			
					2904	*	3. DEVICE CODE (ALSO USED AS DUPLICATE INDICATOR			
					2905	*	BY SETTING X'FF' AFTER 1ST USE)			
					2906	*				
				11E9	2907	KALNDT	EQU *			NON-DISK FILE TYPE TABLE
11E9	0002			11EA	2908		DC IL2'2'			LENGTH-1 OF 'CRT'
11EB	C3D9E3			11ED	2909		DC CL3'CRT'			KEYWORD 'CRT'
11EE	08			11EE	2910		DC AL1(@\$MBCR)			CRT DEVICE CODE
					2911	*				
11EF	0003			11F0	2912		DC IL2'3'			LENGTH-1 OF 'CARD'
11F1	C3C1D9C4			11F4	2913		DC CL4'CARD'			KEYWORD 'CARD'
11F5	20			11F5	2914		DC AL1(@\$MBCD)			CARD DEVICE CODE
					2915	*				
11F6	0006			11F7	2916		DC IL2'6'			LENGTH-1 OF 'PRINTER'
11F8	D7D9C9D5E3C5D9			11FE	2917		DC CL7'PRINTER'			KEYWORD 'PRINTER'
11FF	10			11FF	2918		DC AL1(@\$MBPT)			PRINTER DEVICE CODE
					2919	*				





## #KALLO - ALLOCATE SYSTEM COMMAND

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE 22
					2923	*****				
					2924	*				
					2925	*	DISK FILE TYPE PARAMETER TABLE			
					2926	*	FORMAT:			
					2927	*	1. LENGTH-1 OF KEYWORD			
					2928	*	2. KEYWORD			
					2929	*	3. PARAMETER SPECIFIED MASK (ALSO USED AS DUPLICATE			
					2930	*	INDICATOR BY SETTING X'FF' AFTER 1ST USE)			
					2931	*	4. PARAMETER ERROR MASK			
					2932	*				
				1201	2933	KALDKT EQU *	DISK FILE TYPE TABLE			
					2934	*				
1201	0003			1202	2935	DC	IL2'3'			LENGTH-1 OF 'DISK'
1203	C4C9E2D2			1206	2936	DC	CL4'DISK'			KEYWORD 'DISK'
1207	00			1207	2937	DC	AL1(KALKS0)			'DISK' SPECIFIED MASK
1208	00			1208	2938	DC	AL1(KALKE0)			'DISK' ERROR MASK
					2939	*				
1209	0006			120A	2940	DC	IL2'6'			'SCRATCH' ENTRY
120B	E2C3D9C1E3C3C8			1211	2941	DC	CL7'SCRATCH'			
1212	40			1212	2942	DC	AL1(KALKS2)			
1213	16			1213	2943	DC	AL1(KALKE2)			
					2944	*				
1214	0008			1215	2945	DC	IL2'8'			'PERMANENT' ENTRY
1216	D7C5D9D4C1D5C5D5			121E	2946	DC	CL9'PERMANENT'			
121F	20			121F	2947	DC	AL1(KALKS3)			
1220	40			1220	2948	DC	AL1(KALKE3)			
					2949	*				
1221	0002			1222	2950	DC	IL2'2'			'OLD' ENTRY
1223	D6D3C4			1225	2951	DC	CL3'OLD'			
1226	10			1226	2952	DC	AL1(KALKS4)			
1227	4F			1227	2953	DC	AL1(KALKE4)			
					2954	*				
1228	0002			1229	2955	DC	IL2'2'			'NEW' ENTRY
122A	D5C5E6			122C	2956	DC	CL3'NEW'			
122D	08			122D	2957	DC	AL1(KALKS5)			
122E	10			122E	2958	DC	AL1(KALKE5)			
					2959	*				
122F	0003			1230	2960	DC	IL2'3'			'LONG' ENTRY
1231	D3D6D5C7			1234	2961	DC	CL4'LONG'			
1235	04			1235	2962	DC	AL1(KALKS6)			
1236	52			1236	2963	DC	AL1(KALKE6)			
					2964	*				
1237	0004			1238	2965	DC	IL2'4'			'SHORT' ENTRY
1239	E2C8D6D9E3			123D	2966	DC	CL5'SHORT'			
123E	02			123E	2967	DC	AL1(KALKS7)			
123F	54			123F	2968	DC	AL1(KALKE7)			
					2969	*				
1240	0004			1241	2970	DC	IL2'4'			'SPACE' ENTRY
1242	E2D7C1C3C5			1246	2971	DC	CL5'SPACE'			
1247	01			1247	2972	DC	AL1(KALKS8)			
1248	10			1248	2973	DC	AL1(KALKE8)			
					2974	*				
1249	FF			1249	2975	KALTED DC	XL1'FF'			END OF TABLE

## #KALLO - ALLOCATE SYSTEM COMMAND

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE 23
				2977		*****				
				2978	*					
				2979	*	KEYWORD	SPECIFIED MASK			
				2980	*					
		0000		2981	KALKS0	EQU	X'00'			DISK SPECIFIED MASK
		0080		2982	KALKS1	EQU	X'80'			FILE-SPEC SPECIFIED MASK
		0040		2983	KALKS2	EQU	X'40'			SCRATCH SPECIFIED MASK
		0020		2984	KALKS3	EQU	X'20'			PERMANENT SPECIFIED MASK
		0010		2985	KALKS4	EQU	X'10'			OLD SPECIFIED MASK
		0008		2986	KALKS5	EQU	X'08'			NEW SPECIFIED MASK
		0004		2987	KALKS6	EQU	X'04'			LONG SPECIFIED MASK
		0002		2988	KALKS7	EQU	X'02'			SHORT SPECIFIED MASK
		0001		2989	KALKS8	EQU	X'01'			SPACE SPECIFIED MASK
		0021		2990	KALKS9	EQU	X'21'			FILE-ID SPECIFIED MASK
				2991	*					
				2992	*	KEYWORD	SPECIFIED CORRESPONDING ERROR MASK			
				2993	*					
		0000		2994	KALKE0	EQU	X'00'			ERROR MASK FOR DISK
		0000		2995	KALKE1	EQU	X'00'			ERROR MASK FOR FILE-SPEC (N/A)
		0016		2996	KALKE2	EQU	X'16'			ERROR MASK FOR SCRATCH
		0040		2997	KALKE3	EQU	X'40'			ERROR MASK FOR PERMANENT
		004F		2998	KALKE4	EQU	X'4F'			ERROR MASK FOR OLD
		0010		2999	KALKE5	EQU	X'10'			ERROR MASK FOR NEW
		0052		3000	KALKE6	EQU	X'52'			ERROR MASK FOR LONG
		0054		3001	KALKE7	EQU	X'54'			ERROR MASK FOR SHORT
		0010		3002	KALKE8	EQU	X'10'			ERROR MASK FOR SPACE
		0050		3003	KALKE9	EQU	X'50'			ERROR MASK FOR FILE-ID
				3004	*					
124A	02			124A	3005	KALTEK	DC	IL1'2'		DISP. TO END OF TABLE ENTRY
		0004		3006	KALNFI	EQU	4			NON-DISK TABLE FIXED INCREMENT
		0003		3007	KALTSB	EQU	3			INCR TO TABLES STATUS BYTE
		00FF		3008	KALDUP	EQU	X'FF'			DUPLICATE INDICATOR MASK
		0005		3009	KALDFI	EQU	5			DISK TABLE FIXED INCREMENT
		00FF		3010	KALTEM	EQU	X'FF'			END OF TABLE MASK
				3011	*****					
				3012	*					
				3013	*	\$ALPH				



## SALPHA - SYNTAX CHECKER MODULE

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	23/05/20	PAGE 24
3015+				*****			
3016+	*	5703-XM1		COPYRIGHT IBM CORP. 1970			*
3017+	*			REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083			*
3018+	*						*
3019+	*			*****			*
3020+	*			STATUS			*
3021+	*			VERSION 1 MODIFICATION 0			*
3022+	*						*
3023+	*			FUNCTION			*
3024+	*			THE FUNCTION OF SALPHA IS TO SYNTAX CHECK AN 8 CHARACTER OR 6			*
3025+	*			CHARACTER ALPHAMERIC PARAMETER DETERMINED BY THE ENTRY POINT,			*
3026+	*			SALPH8 OR SALPH6 RESPECTIVELY. ENTRY AT SALPHA IMPLIES A REQUEST			*
3027+	*			THAT THE FIRST CHARACTER BE ALPHABETIC. A SYNTACTICALLY CORRECT			*
3028+	*			PARAMETER WILL BE SAVED AT SALPHR (LEFTMOST BYTE ADDRESS), THE			*
3029+	*			COUNT OF THE NUMBER OF VALID CMARACTERS, IF NEEDED, IS FOOD IN			*
3030+	*			SALCNT. UPON ENTRY, SALPHA REQUIRES INDEX RESISTER 2 (OM TO BE			*
3031+	*			ADDRESSING THE FIRST CHARACTER 0, THE PARAMETER TO BE SYNTAX			*
3032+	*			CHECKED. UPON NORMAL RETURN INDEX REGISTER 2 (@XR) WILL BE			*
3033+	*			ADDRESSING THE FIRST NON-DELIMITER FOLLOWING THE PARAMETER (NOTE			*
3034+	*			INPUT),			*
3035+	*						*
3036+	*			ENTRY POINTS			*
3037+	*			* SALPH8 - ENTRY POINT TO SYNTAX CHECK AN EIGHT CHARACTER			*
3038+	*			ALPHAMERIC PARAMETER WHOSE FIRST CHARACTER MUST BE			*
3039+	*			ALPHABETIC.			*
3040+	*			* SALPH6 - ENTRY POINT TO SYNTAX CHECK A SIX CHARACTER			*
3041+	*			ALPHAMERIC PARAMETER WHICH HAS NO RESTRICTIONS ON			*
3042+	*			THE TYPE OF THE FIRST CHARACTER. (NOTE MODIFICA-			*
3043+	*			TION CONSIDERATIONS)			*
3044+	*						*
3045+	*			INPUT			*
3046+	*			UPON ENTRY TO SALPHA, AT EITHER ENTRY POINT, INDEX REGISTER 2			*
3047+	*			(@XR) SHOULD BE ADDRESSING THE LEFTMOST CHARACTER OF THE PARAMETER*			*
3048+	*			TO BE SYNTAX CHECKED. ALSO, THE SWITCH 'SCAMMA' IN SCANIT SHOULD			*
3049+	*			BE SET FOR THE TYPE OF DELIMITER SCAN REQUESTED AFTER THE SYNTAX			*
3050+	*			CHECK. (IE. BLANKS ONLY OR BLANKS WITH 1 COMMA).			*
3051+	*						*
3052+	*			OUTPUT			*
3053+	*			OUTPUT FROM SALPHA INCLUDES THE SYNTAX CHECKED PARAMETER AT SALPHR*			*
3054+	*			(LEFTMOST BYTE OF SAVE AREA) AND THE COUNT OF VALID CHARACTERS			*
3055+	*			IN SALCNT, AND INDEX REGISTER 2 (@XR) WILL BE POINTING AT THE			*
3056+	*			FIRST NON-DELIMITER AFTER THE PARAMETER. THE ONLY EXCEPTION TO			*
3057+	*			THIS IS UPON DETECTION OF AN ERROR (SEE ERROR EXITS AND PROC.)			*
3058+	*						*
3059+	*			EXTERNAL REFERENCES			*
3060+	*			SCANIT - DELIMITER SCAN MODULE			*
3061+	*			\$CAERR - ADDR IN SYSTEM NUCLEUS-ERROR CODE SAVE AREA			*
3062+	*						*
3063+	*			EXITS, NORMAL			*
3064+	*			NEXT SEQUENTIAL INSTRUCTION IN CALL ROUTINE WITH INDEX			*
3065+	*			REGISTER 2 (@XR) POINTING TO THE NEXT NON-DELIMITER			*
3066+	*			FOLLOWING THE PARAMETER AND WITH A NON-LOW CONDITION CODE			*
3067+	*			IN THE PROGRAM STATUS RESISTER (@PSR),			*
3068+	*						*
3069+	*			EXITS, ERROR			*
3070+	*			NEXT SEQUENTIAL INSTRUCTION IN CALL ROUTINE WILH INDEX			*

## SALPHA - SYNTAX CHECKER MODULE

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 23/05/20 PAGE 25
		3071+*		REGISTER 2 (@XR) POINTING TO THE LEFTMOST CHARACTER OF THE	*
		3072+*		INVALID PARAMETER AND WITH A LOW CONDITION CODE IN THE	*
		3073+*		PROGRAM STATUS REGISTER (@PSR),	*
		3074+*			*
		3075+*		TABLES/WORK AREAS	*
		3076+*		ALL OF THE CONSTANTS AND WORK AREAS IN SALPHA ARE LOCATED AT THE	*
		3077+*		END OF THE MODULE AND ARE ADDRESSED BY INDEX REGISTER 1 (RBR).	*
		3078+*			*
		3079+*		ATTRIBUTES	*
		3080+*		REUSABLE, RELOCATABLE	*
		3081+*			*
		3082+*		CHARACTER CODE DEPENDENCY	*
		3083+*		CHARACTER CODE DEPENDENCY CLASS - E	*
		3084+*		THE OPERATION OF THIS MODULE DEPENDS UPON THE FOLLOWING PROPERTIES	*
		3085+*		OF THE INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET:	*
		3086+*		* THE FOLLOWING SPECIAL ALPHABETIC CHARACTERS ARE PART OF	*
		3087+*		@SYSEQ AND ARE SPECIFICALLY COMPARED FOR:	*
		3088+*		* @DOLAR	*
		3089+*		* @NUMBR	*
		3090+*		* @ASIGN	*
		3091+*		* THE REMAINING-ALPHABETIC CHARACTERS ARE DEFINED TO BE	*
		3092+*		INCLUSIVELY IN THE RANGE DEFINED BY THE FOLLOWING IN @SYSEQ:	*
		3093+*		* @CHARA	*
		3094+*		* @CHARZ	*
		3095+*			*
		3096+*		THE DECIMAL NUMBERS FALL INTO THE CATEGORY OF BEING GREATER	*
		3097+*		THAN AN @CHARZ (IE. THIS IS DEFAULTED TO BY CHECKING METHOD)	*
		3098+*		THE SPECIFIC INSTRUCTIONS WHICH REQUIRE MODIFICATION IF THESE	*
		3099+*		PROPERTIES OF THE CHARACTER SET ARE CHANGED MAY BE IDENTIFIED BY:	*
		3100+*		* SAL200 - FOR THE THREE SPECIAL CHARACTERS	*
		3101+*		* SAL250 - FOR THE REMAINING ALPHABETIC RANGE	*
		3102+*		* SAL425 - BRANCHES 'TO' THIS LOCATION IMPLY DEFAULT TO NUMERIC	*
		3103+*			*
		3104+*		NOTES	*
		3105+*		ERROR PROCEDURES	*
		3106+*		THE FOLLOWING ERROR CONDITIONS WILL RESULT IN AN ERROR CODE	*
		3107+*		BEING SET IN \$CAERR AND AN ERROR EXIT BEING MADE (SEE EDITS,	*
		3108+*		ERROR):	*
		3109+*		* A NON-ALPHABETIC FIRST CHARACTER WHEN ENTRY WAS AT	*
		3110+*		SALPH8.	*
		3111+*		* A NON-ALPHAMERIC CHARACTER EMBEDDED IN A PARAMETER WHICH	*
		3112+*		SALPH8 WAS CALLED TO CHECK.	*
		3113+*		* A NON-ALPHAMERIC CHARACTER BEING FIRST OR EMBEDDED IN A	*
		3114+*		PARAMETER WHICH SALPH6 WAS CALLED TO CHECK.	*
		3115+*		* A PARAMETER OF GREATER THAN EIGHT CHARACTERS WHEN ENTRY	*
		3116+*		WAS AT SALPH8.	*
		3117+*		* A PARAMETER OF GREATER THAN SIX CHARACTERS WHEN ENTRY	*
		3118+*		WAS AT SALPH6.	*
		3119+*			*
		3120+*		REGISTER USAGE	*
		3121+*		INDEX REGISTER 1 (@BR) IS USED AS A BASE REGISTER THROUGHOUT	*
		3122+*		THE EXECUTION OF THE MODULE. IT IS SAVED FOR THE CALL PROGRAM	*
		3123+*		UPON ENTRY AND RESTORED UPON EXIT.	*
		3124+*		INDEX REGISTER 2 (@XR) IS USED AS A PARAMETER PASSING REGISTER.	*
		3125+*		UPON ENTRY IT CONTAINS THE ADDRESS OF THE LEFTMOST BYTE OF	*
		3126+*		PARAMETER TO BE SYNTAX CHECKED AND UPON EXIT IT CONTAINS THE	*

## SALPHA - SYNTAX CHECKER MODULE

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 23/05/20 PAGE 26
			3127+	*	ADDRESS OR THE FIRST NON-DELIMITER FOLLOWING THE PARAMETEP.	*
			3128+	*	(NOTE ERROR EXITS AND PROCEDURES),	*
			3129+	*		*
			3130+	*	SAVED/RESTORED AREAS	*
			3131+	*	NONE	*
			3132+	*		*
			3133+	*	MODIFICATION CONSIDERATIONS	*
			3134+	*	BECAUSE OF ITS CHARACTER CODE DEPENDENCY AND PARAMETER LENGTH	*
			3135+	*	QUALIFICATIONS, ONE MUST TAKE SPECIAL CARE IN MODIFYING SALPHA,	*
			3136+	*	ESPECIALLY THE CONSTANTS AND WORK AREAS AND THEIR RE-INITIAL,	*
			3137+	*	IZATION. SALPHA IS MOST COMMONLY USED TO SYNTAX FILENAMES,	*
			3138+	*	PASSWORDS, AND VOL-IDS AND IS THEREFORE USED BY THE MODULE	*
			3139+	*	SUFFER (FILE SPECIFICATION SYNTAX CHECKER). THEREFORE, ANY	*
			3140+	*	SIGNIFICANT CHANGE IN SALPHA WILL REQUIRE AN INVESTIGATION	*
			3141+	*	into ITS USE AND IMPACT ON SUFFER.	*
			3142+	*	SPECIAL NOTE: AN IRREGULAR USE OF SALPHA WHICH CAN BE	*
			3143+	*	EFFECTED IS THE SYNTAY CHECK OF A PARAMETER WITH A MAXIMUM	*
			3144+	*	OF 10 CHARACTERS. THIS IS DONE BY MODIFYING THE Q-CODE OF	*
			3145+	*	THE INSTRUCTION AT SAL450 PRIOR TO ENTRANCE AT SALPH6, WITH	*
			3146+	*	X'0A' OR ITS EQUIVALENT. (NOTE: ONE SUCH MODULE WHICH	*
			3147+	*	USES THIS OPTION IS UINITL)	*
			3148+	*		*
			3149+	*	REQUIRED MODULES	*
			3150+	*	SCANIT - DELIMITER SCAN ROUTINE	*
			3151+	*	@DIREQ - SYSTEM LIBRARY DIRECTORY EQUATES	*
			3152+	*	@ERMEQ - ERROR MESSAGE EQUATES	*
			3153+	*	@FXDEQ - COMMON CORE LOCATIONS WITHIN THE SYSTEM NUCLEUS	*
			3154+	*	@SYSEQ - COMMON SYSTEM SOFTWARE EQUATES	*
			3155+	*		*
			3156+	*	OTHER	*
			3157+	*	N/A	*
			3158+	*	*****	*
			3160+	*	*****	*
			3161+	*		*
			3162+	*	SALPHA MODULE EQUATES	*
			3163+	*		*
			3164+	*	*****	*
	0008		3165+	SALCT8 EQU	##LUEN	COUNT COMPARE FIELD
			3166+	*		
	0006		3167+	SALCT6 EQU	@VOLID	COUNT COMPARE FIELD
			3169+	*	*****	*
			3170+	*		*
			3171+	*	INITIALIZATION OF MODULE	*
			3172+	*		*
			3173+	*	*****	*
			3175+	*SALPH8 ENTER CHECK	FILENAME OR PASSWORD	
	124B		3176+	SALPH8 EQU *	MODULE ENTRY POINT	
			3177+	*** END OF EXPANSION ***		
	124B	3A 80 1306	3179+	SBN	SALIDR,SAL008	SET ON SALPH8 INDR
			3180+	*		
			3181+	*SALPH6 ENTER BASE-SALBSE,EXIT-SALND,@BR,,@ARR	VOL-ID CHECK	

## SALPHA - SYNTAX CHECKER MODULE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE 27
				126B	3182+		USING SALBSE,@BR			BASE ADDRESS SPECIFICATION
				124F	3183+SALPH6	EQU	*			MODULE ENTRY POINT
124F	34	01	1301		3184+		ST SALND0+@OP1,@BR			SAVE ABA
1253	C2	01	126B		3185+		LA SALBSE,@BR			LOAD BASE RESISTER
1257	74	08	9A		3186+		ST SALND2+@OP1(,@BR),@ARR			SAVE RETURN ADDRESS
					3187+***		END OF EXPANSION ***			
125A	74	02	34		3189+		ST SAL375+@OP1(,@BR),@XR			SAVE ERROR POINTER
					3191+		*****			
					3192+		*			
					3193+		INITIALIZE WORK AREAS AND VARIABLE INSTRUCTIONS			*
					3194+		*			
					3195+		*****			
125D	7C	40	A8		3196+SAL100	MVI	SALPR7(,@BR),@BLANK			BLANK OUT SALPAR FOR PROCESSING
1260	5C	08	A7 A8		3197+		MVC SALPR6(##LPEN+@B1,@BR),SALPR7(,@BR)			
1264	7C	00	9C		3198+		MVI SALCNT(,@BR),@ZERO			ZERO OUT COUNTER
1267	5C	01	63 AA		3199+		MVC SAL525+@OP1(2,@BR),SALPHS(,@BR)			MODIFY MOVE OF CHARACTER
					3201+		*****			
					3202+		*			
					3203+		CHECK EBCDIC CHARACTERS			*
					3204+		*			
					3205+		*****			
					3206+		*			
				126B	3207+SALBSE	EQU	*			MODULE BASE ADDR
126B	BD	5B	00		3208+SAL200	CLI	@ZERO(,@XR),@DOLAR			IS IT A '\$' ?
126E	F2	81	32		3209+		JE SAL400			YES, PROCESS CHARACTER
1271	BD	7B	00		3210+		CLI @ZERO(,@XR),@NUMBR			IS IT A '#' ?
1274	F2	81	2C		3211+		JE SAL400			YES, PROCESS CHARACTER
1277	BD	7C	00		3212+		CLI @ZERO(,@XR),@ASIGN			IS IT A '@' ?
127A	F2	81	26		3213+		JE SAL400			YES, PROCESS CHARACTER
					3214+		*			
127D	BD	C1	00		3215+		CLI @ZERO(,@XR),@CHARA			IS IT AN ALPHA (A-Z) ?
1280	F2	82	53		3216+SAL250	JL	SAL750			NO, CHECK FOR DELIMITERS
1283	BD	E9	00		3217+		CLI @ZERO(,@XR),@CHARZ			IS IT AN ALPHA (A-Z) ?
1286	F2	04	1A		3218+		JNH SAL400			YES, PROCESS CHARACTER
1289	78	80	9B		3219+		TBN SALIDR(,@BR),SAL008			ENTERED AT SALPH8 ?
128C	F2	90	17		3220+		JF SAL425			NO, CHECK IF NUMERIC
					3221+		*			
128F	78	01	9B		3222+		TBN SALIDR(,@BR),SALFST			WAS FIRST CHAR FOUND ALPHA ?
1292	3C	00	03CD		3223+		MVI \$CAERR,@@E100			ALPHA CHAR REQUIRED--ERROR
1296	F2	10	0D		3224+		JT SAL425			YES, CONTINUE
1299	75	04	16		3225+SAL350	L	SALERR(,@BR),@PSR			LOAD ERROR CODE - LOW
129C	C2	02	0000		3226+SAL375	LA	*-*,@XR			RESTORE ERROR POINTER
12A0	F2	87	58		3227+		J SAL800			TAKE ERROR FAIT
					3229+		*****			
					3230+		*			
					3231+		PROCESS ALPHAMERIC CHARACTER			*
					3232+		*			
					3233+		*****			
12A3	7A	01	9B		3234+SAL400	SBN	SALIDR(,@BR),SALFST			SET ON ALPHA :NOR
					3235+		*			
12A6	5E	00	9C 9E		3236+SAL425	ALC	SALCNT(1,@BR),SAL001(,@BR)			ADD 1 TO CHARACTER COUNTER
12AA	78	80	9B		3237+		TBN SALIDR(,@BR),SAL008			WAS ENTRY AT SALPH8 ?

## SALPHA - SYNTAX CHECKER MODULE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE	28
12AD	D0	90	52	3238+	BF		SAL450(,@BR)				NO, CHECK COUNT FOR VALUE OF SIX
12B0	7D	08	9C	3239+	CLI		SALCNT(,@BR),##LPEN				HAS COUNT EXCEEDED 8 ?
12B3	3C	02	03CD	3240+	MVI		\$CAERR,@E102				PASSWORD/FILENAME LENGTH ERROR
12B7	D0	84	2E	3241+	BH		SAL350(,@BR)				YES, TAKE ERROR EXIT
12BA	F2	87	0A	3242+	J		SAL500				NO, CONTINUE PROCESSING
12BD	7D	06	9C	3243+	CLI	SAL450	SALCNT(,@BR),@VOLID				HAS COUNT EXCEEDED 6 ?
12C0	3C	03	03CD	3244+	MVI		\$CAERR,@E103				INVALID VOL-ID LENGTH
12C4	D0	84	2E	3245+	BH		SAL350(,@BR)				YES, TAKE ERROR EXIT
				3247+*							
				3248+*			MODIFY MOVE OF CHARACTER				
				3249+*							
12C7	5E	01	63 9E	3250+	ALC	SAL500	SAL525+@OP1(2,@BR),SAL001(,@BR)				
12CB	2C	00	0000 00	3251+	MVC	SAL525	*-*,@ZERO(1,@XR)				MOVE CHARACTER TO OUTPUT AREA
12D0	E2	02	01	3252+	LA		@B1(,@XR),@XR				INCREMENT XR BY I
12D3	D0	87	00	3253+	B		SAL200(,@BR)				CHECK NEXT CHARACTER
				3255+*****							
				3256+*							*
				3257+*			CHECK ERRORS AND BYPASS DELIMITERS				*
				3258+*							*
				3259+*****							
12D6	7D	00	9C	3260+	CLI	SAL750	SALCNT(,@BR),@ZERO				ANY VALID CHARACTERS ?
12D9	3C	10	03CD	3261+	MVI	SAL755	\$CAERR,@E130				REQUIRED PARAM MISSING
12DD	F2	01	17	3262+	JNE		SAL775				YES, BYPASS DELIMITERS, EYIT
12E0	BD	1E	00	3263+	CLI		@ZERO(,@XR),@EOS				IS IT EOS ?
12E3	F2	81	0E	3264+	JE		SAL760				YES, ERROR EVIL
12E6	78	80	9B	3265+	TBN		SALIDR(,@BR),SAL008				ENTERED AT SALPH8 ?
12E9	3C	00	03CD	3266+	MVI		\$CAERR,@E100				ALPHABETIC CHAR REQUIRED
12ED	F2	10	04	3267+	JT		SAL760				ERROR EYIT
12F0	3C	01	03CD	3268+	MVI		\$CAERR,@E101				ALPHAMERIC CHAR REQUIRED
12F4	D0	87	2E	3269+	B	SAL760	SAL350(,@BR)				ERROR EYIT
12F7	C0	87	14CA	3270+	B	SAL775	SCANIT				BYPASS DELIMITERS
				3272+*****							
				3273+*							*
				3274+*			SET OFF INDICATORS FOR POSSIBLE SALDHA RE-ENTRY				*
				3275+*							*
				3276+*****							
12FB	7C	00	9B	3277+	MVI	SAL800	SALIDR(,@BR),@ZERO				
				3279+*****							
				3280+*							*
				3281+*			END OF MODULE PROCESSING				*
				3282+*							*
				3283+*****							
				3284+*	SALND	EXIT	@BR,,RETURN				EXIT
12FE	C2	01	0000	3285+	SALND0	LA	*-*,@BR				RESTORE @BR
1302	C0	87	0000	3286+	SALND2	B	*-*				RETURN TO CALLING PROGRAM
				3287+***			END OF EXPANSION ***				
				3289+*****							
				3290+*							*
				3291+*			DATA CONSTANTS, BUFFERS, AND WORK AREAS				*
				3292+*							*
				3293+*****							

SALPHA - SYNTAX CHECKER MODULE

ERR LOC		OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00		23/05/20	PAGE	29
1306			1306	3294+	SALIDR DS	CL1	1 BYTE OF FLAGS				
1306				3295+	ORG	*-1					
1306	00		1306	3296+	DC	XL1'00'	INITIALIZED TO ZERO				
			0080	3298+	SAL008 EQU	X'80'	ENTRY POINT INDICATOR				
				3299+	*		* 0 - ENTERED AT SALPH6				
				3300+	*		* 1 - ENTERED AT SALPH8				
			0001	3301+	SALFST EQU	X'01'	FIRST CHARACTER IS ALPHA / INDR				
				3302+	*		* 0 - CHARACTER IS NOT ALPHA				
				3303+	*		* 1 - CHARACTER IS ALPHA				
1307			1307	3304+	SALCNT DS	CL1	BYTE CHARACTER COUNTER				
1307				3305+	ORG	*-1					
1307	00		1307	3306+	DC	XL1'00'	INITIALIZED TO ZERO				
1308	0001		1309	3307+	SAL001 DC	XL2'0001'	COUNTER INCREMENT				
			130A	3308+	SALPHR EQU	*					
130A			1313	3309+	DS	CL(##LUEN+2*@B1)	SYNTAX SAVE UNIT				
1314	1309		1315	3310+	SALPHS DC	AL2(SALPHR-1)	ADDR FOR MODIFYING MOVE				
			1313	3311+	SALPR7 EQU	SALPHR+##DPEN+2*@B1	ADDR IN SALPHR FOR CLANKINS				
			1312	3312+	SALPR6 EQU	SALPHR+##DPEN+@B1	* OUT THE FIELD				
			1281	3313+	SALERR EQU	SAL250+@Q	ADDR ERROR CODE FOR LOAD				
				3314+	***		END OF SALPHA				
				3315	*	\$UFFE	***				



## SUFFER - FILE SPECIFICATION CHECKER

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	23/05/20	PAGE 30
		3317+		*****			
		3318+	*	5703-XM1 COPYRIGHT IBM CORP. 1970			*
		3319+	*	REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE 120-2083			*
		3320+	*				*
		3321+		*****			*
		3322+	*	STATUS			*
		3323+	*	VERSION 1 MODIFICATION 0			*
		3324+	*				*
		3325+	*	FUNCTION			*
		3326+	*	THE FUNCTION OF SUFFER IS TO SYNTAX CHECK A FILE SPECIFICATION			*
		3327+	*	AND SCAN TO THE FIRST NON-DELIMITER FOLLOWING A VALID ONE.			*
		3328+	*	A SPECIFICATION CAN CONSIST OF ANY OF THE FOLLOWING:			*
		3329+	*	* FILENAME / PASSWORD / VOL-D			*
		3330+	*	* FILENAME / PASSWORD			*
		3331+	*	* FILENAME			*
		3332+	*	**FILENAME / VOL-ID			*
		3333+	*	**FILENAME			*
		3334+	*	*FILENAME / VOL-ID			*
		3335+	*	*FILENAME			*
		3336+	*				*
		3337+	*	ENTRY POINTS			*
		3338+	*	SUFFER - FIRST LOCATION IN PROGRAM. SUFFER EXPECTS INDEX			*
		3339+	*	REGISTER 2 (@XR) TO BE ADDRESSING THE LEFTMOST CHARACTER			*
		3340+	*	OF THE FILE SPECIFICATION. THE CALLING SEQUENCE IS:			*
		3341+	*	B SUFFER			*
		3342+	*				*
		3343+	*	INPUT			*
		3344+	*	INPUT TO SUFFER IS INDE, REGISTER 2 (@XR) ADDRESSING THE LEFTMOST			*
		3345+	*	CHARACTER OF THE FILE-SPECIFICATION TO BE SYNTAX CHECKED.			*
		3346+	*				*
		3347+	*	OUTPUT			*
		3348+	*	OUTPUT FROM SUFFER UPON NORMAL EXIT IS INDEX REGISTER 2 (@XR)			*
		3349+	*	ADDRESSING THE FIRST NON-DELIMITER FOLLOWING THE FILE SPECIFICA-			*
		3350+	*	TION. THE FILENAME WILL BE SAVED IN SMFNAM IN TSMLES. THE PASS-			*
		3351+	*	WORD IF SPECIFIED WILL BE SAVED IN SMPSWD IN TSMLES, OTHERWISE IT			*
		3352+	*	WILL BE BLANKS. (NOTE: ** OR * FILENAMES, WHEN SPECIFIED, WILL			*
		3353+	*	CAUSE THE *'S TO BE SAVED IN SMPSWD). THE VOL-ID, IF SPECIFIED,			*
		3354+	*	WILL BE SAVED IN SMVOID IN TSMLES, OTHERWISE A BLANK IS MOVED			*
		3355+	*	TO SMVOID AS AN INDICATOR.			*
		3356+	*	OUTPUT FROM SUFFER UPON ERROR EXIT IS INDEX REGISTER 2 (@XR)			*
		3357+	*	ADDRESSING THE INVALID CHARACTER (SEE EXITS,ERROR). THE PROGRAM			*
		3358+	*	STATUS REGISTER (@PSR) WILL CONTAIN A LOW CONDITION CODE.			*
		3359+	*				*
		3360+	*	EXTERNAL REFERENCES			*
		3361+	*	SALPHR - ADDR IN SALPHA - SYNTAX CHECKED PARAMETER			*
		3362+	*	SALPH6 - ENTRY TO SALPHA - SYNTAX CHECK VOL-ID			*
		3363+	*	SALPH8 - ENTRY TO SALPHA - SYNTAX CHECK PASSWORD; FILENAME			*
		3364+	*	SAL375 - SAVE AREA IN SALPHA - ERROR POINTER SAVE AREA			*
		3365+	*	SCANIT - DELIMITER SCAN MODULE			*
		3366+	*	SCAMMA - SWITCH IN SCANIT - DELIMITER SCAN TYPE INDR			*
		3367+	*	SCACOF - MASK IN SCANIT TO BYPASS BLANKS ONLY			*
		3368+	*	SCACOM - MASK IN SCANIT - BYPASS 1 COMMA			*
		3369+	*	SCACNT - COUNTER IN SCANIT - NUMBER OF SCANNED BLANKS			*
		3370+	*	TSMLES - DATA MANAGEMENT COMMUNICATIONS REGIONS			*
		3371+	*	\$CAERR - ADDR IN SYSTEM NUCLEUS-ERROR CODE SAVE AREA			*
		3372+	*				*

## SUFFER - FILE SPECIFICATION CHECKER

ERR LOC	OBJECT CODE	ADDR STMT SOURCE STATEMENT	VER 15, MOD 00 23/05/20 PAGE 31
		3373+*EXITS, NORMAL	*
		3374+* NEXT SEQUENTIAL INSTRUCTION IN CALL ROUTINE. INDEX REGISTER	*
		3375+* 2 (@XR) WILL BE ADDRESSING THE FIRST NON-DELIMITER FOLLOWING	*
		3376+* THE FILE SPECIFICATION. THE PROGRAM STATUS REGISTER (@PSR)	*
		3377+* WILL CONTAIN A NON-LOW CONDITION CODE.	*
		3378+*	*
		3379+*EXITS, ERROR	*
		3380+* NEXT SEQUENTIAL INSTRUCTION IN CALL ROUTINE. INDEX REGISTER	*
		3381+* 2 (@XR) WILL BE ADDRESSING THE LEFTMOST BYTE OF AN INVALID	*
		3382+* PARAMETER OR WILL BE ADDRESSING AN INVALID DELIMITER IN THE	*
		3383+* FILE SPECIFICATION. THE PROGRAM STATUS REGISTER (@PSR)	*
		3384+* WILL CONTAIN A LOW CONDITION CODE.	*
		3385+*	*
		3386+*TABLES/WORK AREAS	*
		3387+* SUFFER DOES NOT CONTAIN ANY TABLES OR WORK AREAS.	*
		3388+*	*
		3389+*ATTRIBUTES	*
		3390+* RELOCATABLE,REUSABLE	*
		3391+*	*
		3392+*CHARACTER CODE DEPENDENCY	*
		3393+* CHARACTER CODE DEPENDENCY CLASS - C	*
		3394+* THE OPERATION OF THIS MODULE DEPENDS UPON AN INTERNAL REPRESENTA-	*
		3395+* TION OF THE EXTERNAL CHARACTER SET WHICH IS EQUIVALENT TO THE	*
		3396+* USED AT ASSEMBLY TIME. THE CODING HAS BEEN ARRANGED SO THAT RE-	*
		3397+* DEFINITION OF CHARACTER CONSTANTS, BY REASSEMBLY, WILL RESULT IN	*
		3398+* A CORRECT MODULE FOR THE NEW DEFINITIONS. THE FOLLOWING ARE THE	*
		3399+* SPECIAL CONSIDERATIONS FOR THIS MODULE:	*
		3400+* * @ASTER - PART OF @SYSEQ	*
		3401+* * @SLASH - PART OF @SYSEQ	*
		3402+* * @COMMA - PART OF @SYSEQ	*
		3403+* * @EOS - PART OF @SYSEQ	*
		3404+* * @BLANK - PART OF @SYSEQ	*
		3405+* * CHARACTER LEFT PARENTHESIS - C'('	*
		3406+*	*
		3407+*NOTES	*
		3408+* ERROR PROCEDURES	*
		3409+* THE FOLLOWING ERROR CONDITIONS WILL CAUSE SUFFER TO RETURN A	*
		3410+* LOW CONDITION CODE TO THE CALL ROUTINE AND INDEX REGISTER 2	*
		3411+* (@XR) ADDRESSING THE ERROR:	*
		3412+* * ANY ERROR RETURNED FROM SALPHA (NOTE SALPHA ERRORS).	*
		3413+* * ANY ERROR RETURNED FROM SCANIT (NOTE SCANIT ERRORS).	*
		3414+* * ANY INVALID DELIMITER FOLLOWING THE SPECIFICATION	*
		3415+* * ANY INVALID PARAMETER WITHIN THE SPECIFICATION.	*
		3416+* NOTE MODIFICATION CONSIDERATIONS.	*
		3417+*	*
		3418+* REGISTER USAGE	*
		3419+* INDEX REGISTER 1 (@BR) IS SAVED AND RESTORED FOR THE CALL	*
		3420+* ROUTINE AND USED AS A BASE FOR ADDRESSING WITHIN THE MODULE.	*
		3421+* INDEX REGISTER 2 (@XR) IS USED AS AN INDEX TO SCAN THE FILE	*
		3422+* SPECIFICATION.	*
		3423+*	*
		3424+* SAVED/RESTORED AREAS	*
		3425+* N/A	*
		3426+*	*
		3427+* MODIFICATION CONSIDERATIONS	*
		3428+* SUFFER'S NORMAL DELIMITER SCAN UPON EXIT ALLOWS ONLY BLANKS	*



SUFFER - FILE SPECIFICATION CHECKER

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE	32
		3429+	*		AND 1 COMMA FOLLOWING THE FILE-SPECIFICATION. AN EXCEPTION				*
		3430+	*		TO THIS USE (UTILIZED BY THE MODULE KALLOC) IS THE OPTION OF				*
		3431+	*		HAVING A LEFT PARENTHESIS IE. '(' FOLLOWING THE FILE SPECI-				*
		3432+	*		FICATION INSTEAD OF A COMMA. THIS USE IS EFFECTED BY				*
		3433+	*		MODIFYING THE Q-CODE OF THE INSTRUCTION LABELED SUF625 WITH A				*
		3434+	*		BRANCH EQUAL CONDITION CODE.				*
		3435+	*						*
		3436+	*	REQUIRED MODULES					*
		3437+	*	SALPHA	- FILENAME, PASSWORD, VOL-ID ALPHAMERIC SYNTAX CHECKER				*
		3438+	*	SCANIT	- DELIMITER SCAN ROLTIME				*
		3439+	*	TSMLES	- DATA MANAGEMENT COMMUNICATION REGIONS				*
		3440+	*	@DIREQ	- SYSTEM LIBRARY DIRECTORY EQUATES				*
		3441+	*	@ERMEQ	- ERROR MESSAGE EQUATES				*
		3442+	*	@FXDEQ	- COMMON CORE LOCATIONS WITHIN THE SYSTEM NUCLEUS				*
		3443+	*	@SYSEQ	- COMMON SYSTEM SOFTWARE EQUATES				*
		3444+	*						*
		3445+	*	OTHER					*
		3446+	*	N/A					*
		3447+	*	*****					*

## SUFFER - FILE SPECIFICATION CHECKER

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 23/05/20 PAGE 33
					3449+	*****	*****	
					3450+	*		
					3451+		INITIALIZATION OF MODULE	
					3452+	*		
					3453+	*****	*****	
					3454+	*		
					3455+	*SUFFER ENTER BASE=SUFBSE,EXIT=SUFND,@BR,@ARR		
				1349	3456+	USING SUFBSE,@BR	BASE ADDRESS SPECIFICATION	
				1316	3457+	SUFFER EQU *	MODULE ENTRY POINT	
1316	34	01	13DA		3458+	ST SUFND0+@OP1,@BR	SAVE @BR	
131A	C2	01	1349		3459+	LA SUFBSE,@BR	LOAD BASE REGISTER	
131E	74	08	95		3460+	ST SUFND2+@OP1(,@BR),@ARR	SAVE RETURN ADDRESS	
					3461+	*** END OF EXPANSION ***		
					3463+	*****	*****	
					3464+	*		
					3465+		INITIALIZE FIELDS IN TSMLES	
					3466+	*		
					3467+	*****	*****	
					3468+	*		
1321	3C	40	0F0C		3469+	MVI SMPSWD,@BLANK	BLANK ALL OF PASSWORD FIELD	
1325	0C	06	0F0B 0F0C		3470+	MVC SMPSWD-@B1(##LPEN-@B1),SMPSWD		
132B	3C	40	0EFF		3471+	MVI SMVOID-@VOLID+@B1,@BLANK	BLANK FIRST BYTE OR VOL-1D	
					3473+	*****	*****	
					3474+	*		
					3475+		CHECK FOR AND PROCESS POOLED AND IBM FILENAMES	
					3476+	*		
					3477+	*****	*****	
					3478+	*		
132F	BD	5C	00		3479+	CLI @ZERO(,@XR),@ASTER	ASTERISK IN FILENAME ?	
1332	F2	01	14		3480+	JNE SUF100	NO, PROCESS FILENAME	
1335	3C	5C	0F05		3481+	MVI SMPSWD-##DPEN,@ASTER	SAVE * IN SMPSWD	
1339	E2	02	01		3482+	LA @B1(,@XR),@XR	INCREMENT XR BY ONE	
133C	BD	5C	00		3483+	CLI @ZERO(,@XR),@ASTER	ASTERISK IN FILENAME ?	
133F	F2	01	07		3484+	JNE SUF100	NO, PROCESS FILENAME	
1342	3C	5C	0F06		3485+	MVI SMPSWD-##DPEN+@B1,@ASTER	SAVE * IN SMPSWD	
1346	E2	02	01		3486+	LA @B1(,@XR),@XR	INCREMENT XR BY ONE	
					3488+	*****	*****	
					3489+	*		
					3490+		PROCESS FILENAME	
					3491+	*		
					3492+	*****	*****	
					3493+	*		
				1349	3494+	SUFBSE EQU *	BASE ADDR IN MODULE	
1349	3C	87	14E7		3495+	SUF100 MVI SCAMMA,SCACOF	PRIME SCANIT	
134D	C0	87	124B		3496+	B SALPH8	SYNTAX CHECK FILENAME	
1351	D0	82	85		3497+	BL SUF750(,@BR)	TAKE ERROR EXIT	
1354	0C	07	0F14 1311		3498+	MVC SMFNAM(##LUEN),SALPHR+##DUEN	SAVE FILENAME	
135A	BD	61	00		3499+	CLI @ZERO(,@XR),@SLASH	IS A SLASH DELIMITER PRESENT ?	
135D	F2	01	35		3500+	JNE SUF600	NO, RETURN TO USER	
1360	3D	5C	0F05		3501+	CLI SMPSWD-##DPEN,@ASTER	SHOULD A PASSWORD BE CHECKED?	
1364	F2	81	1A		3502+	JE SUF200	NO, CHECK VOL-ID	
					3504+	*****	*****	

## SUFFER - FILE SPECIFICATION CHECKER

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 23/05/20 PAGE 34
				3505+*				
				3506+*		PROCESS	PASSWORD	
				3507+*				
				3508+*****				
				3509+*				
1367	E2	02	01	3510+	LA	@B1(,@XR),@XR	INCREMENT XR BY ONE	
136A	C0	87	14CA	3511+	B	SCANIT	BYPASS BLANKS	
136E	C0	87	124B	3512+	B	SALPH8	SYNTAX CHECK PASSWORD	
1372	D0	82	85	3513+	BL	SUF750(,@BR)	TAKE ERROR EXIT	
1375	0C	07	0F0C 1311	3514+	MVC	SMPSWD(##LPEN),SALPHR+##DPEN	SAVE PASSWORD	
137B	BD	61	00	3515+	CLI	@ZERO(,@XR),@SLASH	IS SLASH DELIMITER PRESENT ?	
137E	F2	01	14	3516+	JNE	SUF600	NO, RETURN TO USER	
				3518+*****				
				3519+*				
				3520+*		PROCESS	VOL-ID	
				3521+*				
				3522+*****				
				3523+*				
1381	E2	02	01	3524+SUF200	LA	@B1(,@XR),@XR	INCREMENT XR BY ONE	
1384	C0	87	14CA	3525+	B	SCANIT	BYPASS BLANKS	
1388	C0	87	124F	3526+	B	SALPH6	SYNTAX CHECK VOL-ID	
138C	D0	82	85	3527+SUF400	BL	SUF750(,@BR)	TAKE ERROR EXIT	
138F	0C	05	0F04 130F	3528+	MVC	SMVOID(@VOLID),SALPHR+@VOLID-@B1	SAVE VALID	
1395	BD	4D	00	3529+SUF600	CLI	@ZERO(,@XR),C'('	IS THIS '(' ?	
1398	F2	80	39	3530+SUF625	JC	SUF800,@NOP	JUMP IF '(' VALID ADJACENT	
139B	3D	00	150A	3531+	CLI	SCACNT,@ZERO	ANY BLANKS SCANNED ?	
139F	F2	01	0C	3532+	JNE	SUF650	YES, CONTINUE DELIMITER SCAN	
13A2	BD	1E	00	3533+	CLI	@ZERO(,@XR),@EOS	IS IT EOS ?	
13A5	F2	81	2C	3534+	JE	SUF800	YES, RETURN	
13A8	BD	6B	00	3535+	CLI	@ZERO(,@XR),@COMMA	IS IT A COMMA ?	
13AB	F2	01	18	3536+	JNE	SUF680	NO, ERROR EXIT	
				3537+*				
13AE	34	02	129F	3538+SUF650	ST	SAL375+@OP1,@XR	SAVE ERROR POINTER	
13B2	3C	01	14E7	3539+	MVI	SCAMMA,SCACOM	MODIFY SCANIT TO BYPASS COMMA	
13B6	C0	87	14CA	3540+	B	SCANIT	BYPASS DELIMITERS	
13BA	F2	82	11	3541+	JL	SUF750	ERROR - RETURN	
				3543+*****				
				3544+*				
				3545+*		MODIFY	PSR FOR ERROR INDICATION	
				3546+*				
				3547+*****				
				3548+*				
13BD	BD	4D	00	3549+	CLI	@ZERO(,@XR),C'('	IS IT '(' ?	
13C0	F2	01	11	3550+	JNE	SUF800	NO, RETURN	
13C3	7C	18	7E	3551+	MVI	SUF680+@Q(,@BR),@@E139	INVALID DELIMITER	
13C6	3C	00	03CD	3552+SUF680	MVI	\$CAERR,*-*	ERROR CODE	
13C6				3553+	ORG	SUF680	INITIALIZE INSTRUCTION	
13C6	3C	11	03CD	3554+	MVI	\$CAERR,@@E131	INVALID PARAMETER	
				3555+*				
13CA	35	02	129F	3556+	L	SAL375+@OP1,@XR	RESTORE ERROR POINTER	
13CE	75	04	44	3557+SUF750	L	SUF400+@Q(,@BR),@PSR	LOAD CONDITION LOW INTO PSR	
13D1	F2	87	03	3558+SUF780	J	SUFND0	ERROR EXIT	

3560+\*\*\*\*\*

SUFFER - FILE SPECIFICATION CHECKER

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15,	MOD 00	23/05/20	PAGE	35
					3561+	*						
					3562+	*	END OF MODULE PROCESSING					
					3563+	*						
					3564+	*****						
					3565+	*						
13D4	75	04	89		3566+	SUF800 L	SUF780+@Q(,@BR),@PSR	LOAD	CODE	FOR	NORMAL	EXIT
					3567+	*SUFND	EXIT @BR,,RETURN					
13D7	C2	01	0000		3568+	SUFND0 LA	*-*,@BR	RESTORE	@BR			
13DB	C0	87	0000		3569+	SUFND2 B	*-*	RETURN	TO	CALLING	PROGRAM	
					3570+	***	END OF EXPANSION ***					
					3571+	***	END OF SUFFER				***	
					3572	*	\$CSTR					

## SCSTRG - PLACES SYNTACTIC UNIT &lt;CHAR STRING&gt;

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	23/05/20	PAGE 36
		3574+	*****				
		3575+	*	5703-XM1	COPYRIGHT IBM CORP. 1970		*
		3576+	*		REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083		*
		3577+	*				*
		3578+	*****				*
		3579+	*	STATUS			*
		3580+	*	VERSION 1 MODIFICATION 0			*
		3581+	*				*
		3582+	*	FUNCTION			*
		3583+	*	* SCSTRG PLACES THE SYNTACTIC UNIT <CHARACTER STRING> IN			*
		3584+	*	AN AREA DEFINED BY THE USER. THIS ROUTINE WILL ALSO PLACE A			*
		3585+	*	NUMBER OF CHARACTERS IN THE CALLING PROGRAMS AREA.			*
		3586+	*	* A COUNT OF THE NUMBER OF CHARACTERS IN THE STRING IS MAINTAINED			*
		3587+	*	BY SCSTRG.			*
		3588+	*				*
		3589+	*	ENTRY POINTS			*
		3590+	*	THE ONLY ENTRY TO SCSTRG IS THE FIRST BYTE OF			*
		3591+	*	THE ROUTINE. THE CALLING SEQUENCE IS:			*
		3592+	*	B SCSTRG			*
		3593+	*	DC AL2(AREA)			*
		3594+	*				*
		3595+	*	WHERE AREA POINTS TO THE LEFTMOST BYTE OF THE CALLING			*
		3596+	*	PROGRAMS OUTPUT AREA.			*
		3597+	*				*
		3598+	*	INPUT			*
		3599+	*	INDEX REGISTER TWO(2) SHOULD POINT TO THE LEFT QUOTE OF THE			*
		3600+	*	CHARACTER STRING. THE CALLING PROGRAM MUST ALSO SET THE			*
		3601+	*	CHARACTER COUNT IN THE ONE BYTE FIELD SCSLNG. A ZERO(0) LENGTH			*
		3602+	*	DENOTES THAT THE CALLING PROGRAM WANTS THE ENTIRE STRING.			*
		3603+	*				*
		3604+	*	OUTPUT			*
		3605+	*	THE CHARACTER STRING IS RETURNED TO THE ADDRESS GIVEN BY THE			*
		3606+	*	CALLING ROUTINE. THE FIELD SCSCNT CONTAINS THE NUMBER OF			*
		3607+	*	CHARACTERS IN THE CHARACTER STRING.			*
		3608+	*				*
		3609+	*	EXTERNAL REFERENCES			*
		3610+	*	NONE			*
		3611+	*				*
		3612+	*	EXITS, NORMAL			*
		3613+	*	NORMAL EXIT IS TO THE FIRST BYTE FOLLOWING THE THE			*
		3614+	*	POINTER TO THE USERS STRING AREA. THE BASE REGISTER			*
		3615+	*	IS RESTORED(XR1). XR2 WILL POINT TO THE CHARACTER			*
		3616+	*	FOLLOWING THE ENDING QUOTE. THE PSR WILL BE NOT LOW.			*
		3617+	*				*
		3618+	*	EXITS, ERROR			*
		3619+	*	SHOULD AN ERROR BE FOUND THE PSR IS FORCED LOW. THE XR2			*
		3620+	*	WILL POINT TO THE POSITION WHERE THE ERROR WAS FOUND.			*
		3621+	*				*
		3622+	*	TABLES/WORKAREAS			*
		3623+	*	NONE			*
		3624+	*				*
		3625+	*	ATTRIBUTES			*
		3626+	*	SCSTRG IS REUSABLE			*
		3627+	*				*
		3628+	*	CHARACTER CODE DEPENDENCY			*
		3629+	*	THIS ROUTINE ASSUMES THE EBCDIC CODE OF X'7D' FOR A			*

## SCSTRG - PLACES SYNTACTIC UNIT &lt;CHAR STRING&gt;

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE 37
					3630+*		SINGLE QUOTE.			*
					3631+*					*
					3632+*		NOTES			*
					3633+*		ERROR PROCEDURES			*
					3634+*		N/A			*
					3635+*					*
					3636+*		REGISTER USAGE			*
					3637+*		INDEX REGISTER 1 IS USED AS A POINTER TO THE CALLING PROGRAMS			*
					3638+*		STRING AREA. INDEX REGISTER 2 POINTS TO THE CHARACTER STRING			*
					3639+*		IN THE INPUT LINE. XR 1 IS SAVED AND RESTORED.			*
					3640+*					*
					3641+*		REQUIRED MODULES			*
					3642+*		@SYSEQ - SYSTEM EQUATES			*
					3643+*					*
					3644+*		MODIFICATION CONSIDERATIONS			*
					3645+*		NONE			*
					3646+*					*
					3647+*		OTHER			*
					3648+*		NONE			*
					3649+*		*****			*
				13DF	3651+	SCSTRG EQU	*			ENTRY POINT
13DF	34	01	144F		3652+	ST	SCS050+@OP1,@BR			SAVE BASE REGISTER
13E3	34	08	1453		3653+	ST	SCS051+@OP1,@ARR			SAVE RETURN ADDRESS
13E7	0E	00	1453	1457	3654+	ALC	SCS051+@OP1(@B1),SCSPL2			INCREMENT PAST PARAMETER
13ED	36	08	1456		3655+	A	SCSPL1,@ARR			POINT TO PARAMETER
13F1	34	08	1400		3656+	ST	SCS005+@OP1,@ARR			SAVE PARAMETER ADDRESS
13F5	3C	00	1454		3657+	MVI	SCSCNT,@ZERO			CLEAR COUNTER
13F9	3C	80	1426		3658+	MVI	SCS020+@Q,@NOP			SET SWITCH OFF
13FD	35	01	0000		3659+	SCS005 L	*-*,@BR			PICK UP OUTPUT ADDRESS
1401	BD	7D	00		3660+	CLI	@ZERO(,@XR),SCSQUO			CHECK QUOTES
1404	F2	01	37		3661+	JNE	SCS030			ERROR -
					3662+*					
1407	E2	02	01		3663+	SCS006 LA	@B1(,@XR),@XR			INCREMENT POINTER
140A	BD	7D	00		3664+	CLI	@ZERO(,@XR),SCSQUO			EMBEDDED QUOTES
140D	F2	01	09		3665+	JNE	SCS010			NO GO CHECK FOR EOS
1410	E2	02	01		3666+	LA	@B1(,@XR),@XR			MOVE INPUT POINTER
1413	BD	7D	00		3667+	CLI	@ZERO(,@XR),SCSQUO			DOUBLE QUOTE ?
1416	F2	01	30		3668+	JNE	SCS040			EXIT
1419	BD	1E	00		3669+	SCS010 CLI	@ZERO(,@XR),@EOS			END OF STATEMENT ?
141C	F2	81	1F		3670+	JE	SCS030			YES - ERROR
141F	0E	00	1454	1456	3671+	ALC	SCSCNT(@B1),SCSPL1			INCREMENT COUNT
					3672+*					
1425	F2	00	12		3673+	SCS020 JC	SCS029,*-*			SWITCH
1428	6C	00	00	00	3674+	MVC	@ZERO(@B1,@BR),@ZERO(,@XR)			MOVE CHARACTER
142C	D2	01	01		3675+	LA	@B1(,@BR),@BR			BUMP OUTPUT POINTER
					3676+*					
142F	3D	00	1454		3677+	SCS025 CLI	SCSCNT,*-*			CHECK CHARACTER COUNT
1433	F2	01	04		3678+	JNE	SCS029			NOT EXCEEDED CONTINUE
1436	3C	87	1426		3679+	MVI	SCS020+@Q,@UCB			SET SWITCH ON
143A	C0	87	1407		3680+	SCS029 B	SCS006			RETURN TO MAINLINE

## SCSTRG - PLACES SYNTACTIC UNIT &lt;CHAR STRING&gt;

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE	38
					3682+*						
					3683+*		ERROR SETTING				
					3684+*						
				143E	3685+SCS030	EQU	*				
143E	35	04	1459		3686+	L	SCSERR,@PSR			SET ERROR INDICATOR	
1442	3C	17	03CD		3687+	MVI	\$CAERR,@E138			INCOMPLETE CHARACTER CONSTANT	
1446	F2	87	03		3688+	J	SCS050			RETURN	
1449	BD	FF	00		3689+SCS040	CLI	0(,@XR),SCSFRC			FORCE PSR LOW	
					3690+*						
					3691+*		RETURN				
					3692+*						
144C	C2	01	0000		3693+SCS050	LA	*-*,@BR			RESTORE BASE	
1450	C0	87	0000		3694+SCS051	B	*-*			RETURN	
					3695+*						
					3696+*		CONSTANTS				
					3697+*						
				1430	3698+SCSLNG	EQU	SCS025+@Q			LENGTH REQUESTED	
				007D	3699+SCSQUO	EQU	X'7D'			QUOTE	
				00FF	3700+SCSFRC	EQU	X'FF'			FORCE PSR INDICATOR	
					3701+*						
1454				1454	3702+SCSCNT	DS	CL1			CHARACTER COUNT	
1455	0001			1456	3703+SCSPL1	DC	IL2'1'			PLUS ONE	
1457	02			1457	3704+SCSPL2	DC	IL1'2'			PLUS TWO	
1458	0084			1459	3705+SCSERR	DC	XL2'84'			PSR CODE FOR ERROR	
					3706+***			END OF SCSTRG		***	
					3707 *		\$C4BD				



## C4BIN2 - CONVERT DECIMAL TO BINARY ROUTINE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 23/05/20 PAGE 39
					3709+	*		*
					3710+		INITIALIZATION	*
					3711+			*
				145A	3712+	C4BIN2 EQU *	ENTRY POINT	
				145A	3713+	USING C4BIN2,@BR	BASE VALUE	
					3714+	*		
145A	34	01	14BC		3715+	ST C4B800+@OP1,@BR	SAVE CALLERS BASE REGISTER	
145E	C2	01	145A		3716+	LA C4BIN2,@BR	LOAD BASE VALUE	
					3717+	*		
1462	74	08	66		3718+	ST C4B850+@OP1(,@BR),@ARR	SAVE RETURN ADDRESS	
					3719+	*		
1465	74	02	6E		3720+	ST C4BSAV(,@BR),@XR	SAVE VALUE OF POINTER	
1468	3C	0C	03CD		3721+	MVI \$CAERR,@@E122	SET ERROR CODE IN CASE	
146C	5C	01	6A 6B		3722+	MVC C4BVAL(C4BLVL,@BR),C4BINI(,@BR)	INIT VALUE TO ZERO	
1470	3C	04	14C9		3723+	C4B100 MVI C4B900,4	INITLZ CHAR. COUNT	
					3724+	*		
					3725+	*** DETERMINE IF CHAR NUMERIC AND DECR CHAR COUNT		
					3726+	*		
1474	F2	80	32		3727+	C4B200 JC C4B600,@NOP	SET TO UCB IF IMBEDDED BLANKS	
					3728+	*	* ALLOWED	
1477	BD	F0	00		3729+	C4B300 CLI 0(,@XR),C4BLOW	THIS CHAR NUMERIC ?	
147A	F2	82	35		3730+	JL C4B700	NO, GOTO RETURN	
					3731+	*		
147D	5F	00	6F 4E		3732+	SLC C4B900(1,@BR),C4B590+@D1(,@BR)	DECR CHAR COUNT	
1481	F2	82	35		3733+	JL C4B800	BR TO ERROR EXIT IF TOO MANY	
					3734+	*		
					3735+	*** MULTIPLY PREVIOUS VALUE BY TEN		
					3736+	*		
1484	5E	01	6A 6A		3737+	ALC C4BVAL(C4BLVL,@BR),C4BVAL(,@BR)	DOUBLE PREVIOUS VALUE	
1488	5C	01	68 6A		3738+	MVC C4BWRK(C4BLVL,@BR),C4BVAL(,@BR)	SAVE DOUBLE VALUE	
148C	5E	01	6A 6A		3739+	ALC C4BVAL(C4BLVL,@BR),C4BVAL(,@BR)	QUADRUPLE PREVIOUS VALUE	
1490	5E	01	6A 6A		3740+	ALC C4BVAL(C4BLVL,@BR),C4BVAL(,@BR)	OCTUPLE PREVIOUS VALUE	
1494	5E	01	6A 68		3741+	ALC C4BVAL(C4BLVL,@BR),C4BWRK(,@BR)	ADD IN SAVED DOUBLE	
					3742+	*		
					3743+	*** ADD IN VALUE OF THIS CHAR AND INCR POINTER		
					3744+	*		
1498	68	03	6C 00		3745+	MNN C4BCHR(,@BR),0(,@XR)	FETCH NEMERIC VALUE OF NEW CHAR	
149C	5E	01	6A 6C		3746+	ALC C4BVAL(C4BLVL,@BR),C4BCHR(,@BR)	INCR VALU BY THIS CHAR	
					3747+	*		
14A0	E2	02	01		3748+	LA @B1(,@XR),@XR	INCR POINTER TO NEXT CHAR	
14A3	D0	87	1A		3749+	B C4B200(,@BR)	GOTO DO IT AGAIN	
					3750+	*		*
					3751+		ROUTINE TO SCAN BLANKS	*
					3752+	*		*
14A6	E2	02	01		3753+	C4B590 LA @B1(,@XR),@XR	INCR POINTER TO NEXT CHAR	
14A9	BD	40	00		3754+	C4B600 CLI 0(,@XR),@BLANK	IS THIS CHAR A BLANK ?	
14AC	D0	01	1D		3755+	BNE C4B300(,@BR)	RETURN IF NOT	
14AF	D0	87	4C		3756+	B C4B590(,@BR)	GET NEXT CHAR IF YES	



## C4BIN2 - CONVERT DECIMAL TO BINARY ROUTINE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE 40
					3758+*					
					3759+***	ENDING ROUTINE				
					3760+*					
14B2	74	02	68		3761+C4B700	ST	C4BLEN(,@BR),@XR		PLACE VALUE OF POINTER	
14B5	5F	01	68 6E		3762+	SLC	C4BLEN(2,@BR),C4BSAV(,@BR)		SUBTRACT ENTERING VALUE	
					3763+*					
14B9	C2	01	0000		3764+C4B800	LA	*-*,@BR		RESTORE CALLERS BR	
					3765+*					
14BD	C0	87	0000		3766+C4B850	B	*-*		RETURN TO CALLING ROUTINE	
					3767+*				*	
					3768+*		WORK AREA AND CONSTANT		*	
					3769+*				*	
14C1				14C2	3770+C4BWRK	DS	CL2		SAVE AREA FOR DOUBLED VALUE	
					3771+*					
				14C3	3772+C4BYT1	EQU	*		FIRST BYTE OF BINARY VALUE	
14C3				14C4	3773+C4BVAL	DS	CL2		SAVE AREA FOR BINARY VALUE	
					3774+*					
14C5	00			14C5	3775+C4BINI	DC	XL1'00'		INITIALIZE WA TO ZERO	
					3776+*					
14C6				14C6	3777+C4BCHR	DS	CL1		SAVE AREA FOR EACH NEW CHAR	
14C6					3778+	ORG	*-1		INITIALIZE	
14C6	00			14C6	3779+	DC	XL1'00'		* TO ZERO	
					3780+*					
14C7				14C8	3781+C4BSAV	DS	CL2		SAVE AREA FOR XR	
					3782+*					
14C9				14C9	3783+C4B900	DS	CL1		SAVE AREA FOR CHAR COUNTER	
					3784+*				*	
					3785+*		EQUATES FOR C4BIN2		*	
					3786+*				*	
				14C2	3787+C4BLEN	EQU	C4BWRK		ON RETURN WILL CONTAIN COUNT	
					3788+*				* @XR INCREMENTED BY	
				0004	3789+C4BCHC	EQU	4		NUMBER OF CHAR TO CONVERT	
					3790+*					
				00F0	3791+C4BLOW	EQU	C'0'		LOWEST NUMERIC CHARACTER	
					3792+*					
				0002	3793+C4BLVL	EQU	C4BVAL-C4BWRK		LENGTH OF BINARY VALUE	
					3794+*					
				1475	3795+C4BLNK	EQU	C4B200+@Q		LOCATION OF IMBEDDED BLANK IND	
					3796+*					
				0087	3797+C4BSPC	EQU	@UCB		MOVED TO C4BLNK TO ALLOW BLANKS	
					3798+*					
				1471	3799+C4BNMC	EQU	C4B100+@Q		LOCATION OF CONVERSION COUNT	
					3800+*					
				0080	3801+C4BNOP	EQU	@NOP		CHANGED IF IMBEDDED BLANK OK	
				14CA	3802+C4END	EQU	*		DEFINE END OF CODE	
					3803+***					
					3804 *	\$CANI		END OF C4BIN2	***	

## SCANIT - DELIMETER SCAN MODULE

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	23/05/20	PAGE 41
		3806+		*****			
		3807+	*	5703-XM1	COPYRIGHT IBM CORP. 1970		*
		3808+	*		REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083		*
		3809+	*				*
		3810+		*****			*
		3811+	*	STATUS			*
		3812+	*	VERSION 1 MODIFICATION 0			*
		3813+	*				*
		3814+	*	FUNCTION			*
		3815+	*	THE FUNCTION OF SCANIT IS TO SCAN PAST VALID DELIMITERS AND			*
		3816+	*	RETURN A POINTER TO THE FIRST CHARACTER THAT'S NOT A DELIMITER.			*
		3817+	*				*
		3818+	*	ENTRY POINTS			*
		3819+	*	* THE ENTRY POINT IS SCANIT.			*
		3820+	*	* THE CALLING SEQUENCE IS AS FOLLOWS:			*
		3821+	*	B	SCANIT		*
		3822+	*	WITH REGISTER 2 (@XR) POINTING TO THE FIRST CHARACTER TO BE			*
		3823+	*	EXAMINED.			*
		3824+	*				*
		3825+	*	INPUT			*
		3826+	*	NONE			*
		3827+	*				*
		3828+	*	OUTPUT			*
		3829+	*	NONE			*
		3830+	*				*
		3831+	*	EXTERNAL REFERENCES			*
		3832+	*	\$CAERR - ERROR CODE SAVE AREA			*
		3833+	*				*
		3834+	*	EXITS, NORMAL			*
		3835+	*	NORMAL EXIT FROM SCANIT IS TO THE BYTE FOLLOWING THE BRANCH TO			*
		3836+	*	SCANIT IN THE CALLING ROUTINE. THE PSR (REGISTER 4) WILL CONTAIN			*
		3837+	*	A ZERO IF NO DELIMITERS WERE FOUND OR A HIGH CONDITION IF ONE OR			*
		3838+	*	MORE DELIMITERS WERE SCANNED.			*
		3839+	*				*
		3840+	*	EXITS, ERROR			*
		3841+	*	ERROR EXIT FROM SCANIT IS TO THE BYTE FOLLOWING THE BRANCH TO			*
		3842+	*	SCANIT IN THE CALLING ROUTINE. THE PSR WILL CONTAIN A LOW			*
		3843+	*	CONDITION.			*
		3844+	*				*
		3845+	*	TABLES/WORKAREAS			*
		3846+	*	* SCACNT - AREA CONTAINING NUMBERS OF DELIMITERS SCANNED			*
		3847+	*	* SCAMMA - LOC WHERE SCACOM MAY BE MOVED IF ONE COMMA IS ALSO			*
		3848+	*	TO BE CONSIDERED A DELIMITER. MOVING SCACOF BACK INTO SCAMMA			*
		3849+	*	INDICATES THAT ONLY BLANKS SHOULD BE CONSIDERED DELIMITERS.			*
		3850+	*				*
		3851+	*	ATTRIBUTES			*
		3852+	*	RELOCATABLE AND RE-USABLE			*
		3853+	*				*
		3854+	*	CHARACTER CODE DEPENDENCY			*
		3855+	*	THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR			*
		3856+	*	INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.			*
		3857+	*				*
		3858+	*	NOTES			*
		3859+	*	ERROR PROCEDURES			*
		3860+	*	THE ONLY ERROR CONDITION DETECTED BY SCANIT IS THE CASE WHERE			*
		3861+	*	A CARRIAGE-RETURN CODE FOLLOWS A COMMA. UPON RETURN TO THE			*

## SCANIT - DELIMETER SCAN MODULE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 23/05/20 PAGE 42
				3862+	*		CALLING ROUTINE, @PSR WILL BE SET TO A LOW CONDITION, THE	*
				3863+	*		ERROR CODE IS SET IN \$CAERR, AND MG WILU BE POINTING TO THE	*
				3864+	*		CARRIAGE-RETURN CHARACTER.	*
				3865+	*			*
				3866+	*		REGISTER USAGE	*
				3867+	*		REGISTER 2 (@XR) IS USED AS A POINTER ACROSS THE AREA BEING	*
				3868+	*		SCANNED FOR DELIMITERS.	*
				3869+	*			*
				3870+	*		SAVED/RESTORED AREAS	*
				3871+	*		UPON ENTRY TO SCANIT, REGISTER 8 (@ARR) IS SAVED AND USED AS	*
				3872+	*		THE RETURN ADDRESS.	*
				3873+	*			*
				3874+	*		MODIFICATION CONSIDERATIONS	*
				3875+	*		NONE	*
				3876+	*			*
				3877+	*		REQUIRED MODULES	*
				3878+	*		* @SYSEQ - COMMON SYSTEM EQUATES	*
				3879+	*		* @FXDEQ - FIXED NUCLEUS ADDRESSES EQUATES	*
				3880+	*			*
				3881+	*		OTHER	*
				3882+	*		SCANIT IS INITIALIZED TO BYPASS BLANKS ONLY. IF SCACOM IS	*
				3883+	*		MOVED TO SCAMMA, ONE COMMA WILL BE SCANNED ALONG WITH BLANKS.	*
				3884+	*		THE INSTRUCTION TO DO THIS IS AS FOLLOWS:	*
				3885+	*		MVI SCAMMA,SCACOM	*
				3886+	*			*
				3887+	*		TO DROP THE COMMA FROM ITS DELIMITER STATUS, SCACOF SHOULD BE	*
				3888+	*		MOVED TO SCAMMA, USING THE FOLLOWING INSTRUCTION:	*
				3889+	*		MVI SCAMMA,SCACOF	*
				3890+	*			*
				3891+	*		*****	*
				3893+	*			*
				3894+	*		EQUATES USED IN THIS SUBROUTINE	*
				3895+	*			*
				0001		3896+	SCAINC EQU 1	TO INCREMENT POINTER
				0001		3897+	SCACOM EQU @BNE	SWITCH TO ALLOW SCANNING COMMA
				0087		3898+	SCACOF EQU @UCB	SWITCH TO SET OFF THE INDICATON
				3899+	*			* FOR SCANNING A COMMA
				14CA		3900+	SCANIT EQU *	ENTRY POINT TO THIS SUBROUTINE
14CA	34	08	1506	3901+		ST	SCA500+@OP1,@ARR	SAVE RETURN ADDRESS
14CE	34	02	1508	3902+		ST	SCASVE,@XR	SAVE POINTER VALUE
14D2	3C	04	03CD	3903+		MVI	\$CAERR,@E110	SET ERROR CODE
14D6	F2	87	03	3904+		J	SCA200	GO TO PROCESS
14D9	E2	02	01	3905+		SCA100	LA SCAINC(,@XR),@XR	INCREMENT POINTER TO NEXT CHAR
14DC	BD	40	00	3906+		SCA200	CLI 0(,@XR),@BLANK	IS THIS CHAR BLANK ?
14DF	C0	81	14D9	3907+		BE	SCA100	YES, FETCH NEXT ONE
14E3	BD	6B	00	3908+		CLI	0(,@XR),@COMMA	IS IT A COMMA ?
14E6	F2	87	10	3909+		SCA250	JC SCA400,@UCB	UCS TO RETURN -- OR NOP IF
				3910+	*			* SCAMMA IS ACTIVE AND CHAR
14E9	E2	02	01	3911+		SCA300	LA SCAINC(,@XR),@XR	INCREMENT POINTER TO NEXT CHAR
14EC	BD	40	00	3912+		CLI	0(,@XR),@BLANK	IS THIS CHAR A BLANK ?
14EF	C0	81	14E9	3913+		BE	SCA300	YES, FETCH NEXT ONE
14F3	BD	1F	00	3914+		CLI	0(,@XR),@EOS+1	IS THIS EOS ?
14F6	F2	82	0A	3915+		JL	SCA500	IF NOT, SKIP ERROR ROUTINE
14F9	34	02	150A	3916+		SCA400	ST SCACNT,@XR	SAVE NEW POINTER VALUE

SCANIT - DELIMETER SCAN MODULE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE	43
	14FD	0F 01 150A	1508		3917+	SLC	SCACNT(2),SCASVE				
					3918+*						
	1503	C0 87 0000			3919+SCA500	B	*-*				
				14E7	3920+SCAMMA	EQU	SCA250+@Q				
					3921+*						
					3922+*		SAVE AREA				
					3923+*						
				1507	3924+SCASV1	EQU	*				
	1507			1508	3925+SCASVE	DS	CL2				
	1509			150A	3926+SCACNT	DS	CL2				
					3927+***						
					3928 *		\$VOLI	END OF SCANIT		***	

## SVOLID - RESOLVE SPECIFIED VOLUME-ID

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	23/05/20	PAGE 44
		3930+		*****			
		3931+	*	5703-XM1 COPYRIGHT IBM CORP. 1970			*
		3932+	*	REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE 120-2083			*
		3933+	*				*
		3934+		*****			*
		3935+	*	STATUS			*
		3936+	*	VERSION 1 MODIFICATION 0			*
		3937+	*				*
		3938+	*	FUNCTION			*
		3939+	*	THE FUNCTION OF SVOLID IS TO SEARCH THE CORE RESIDENT TABLE OF			*
		3940+	*	VOLUME ID'S ON THE SYSTEM FOR A SPECIFIED VOLUME ID. IF THE			*
		3941+	*	VOLUME IS NOT FOUND, AN ERROR CODE WILL BE PUT IN \$CAERR AND AN			*
		3942+	*	EXIT TO \$VOERR IN THE CALLING ROUTINE WILL BE TAKEN. IF MORE			*
		3943+	*	THAN ONE VOLUME WITH THE SAME VOL-ID IS FOUND ON THE SYSTEM, THE			*
		3944+	*	USER OF THE SYSTEM IS REQUESTED TO INDICATE WHICH DRIVE AND DISK			*
		3945+	*	IS TO BE USED. IF THE USER IS UNABLE TO RESOLVE THE CONFLICT,			*
		3946+	*	THE COMMAND IS REJECTED. IF THE INPUT SOURCE IS NOT THE KEYBOARD,			*
		3947+	*	THE COMMAND IS REJECTED. OTHERWISE THE FILE LIBRARY ADDRESS OF			*
		3948+	*	THE RESOLVED VOLUME IS PLACED IN SMBFDA IN THE TSMLES COMMUNICA-			*
		3949+	*	TIONS REGION, AND A NORMAL RETURN IS TAKEN.			*
		3950+	*				*
		3951+	*	ENTRY POINTS			*
		3952+	*	\$VOLID - THE FIRST EXECUTABLE INSTRUCTION. IT IS ASSUMED THAT			*
		3953+	*	SMVOID IN TSMLES HAS BEEN PRIMER. ALSO, IF THE VM OPTION OF			*
		3954+	*	SVOLID HAS BEEN ASSEMBLED FOR EXECUTION TIME USAGE.			*
		3955+	*	THE FIELDS SVOIOF AND SVODSK SHOULD BE PRIMED WITH THE GET/PUT			*
		3956+	*	GET/PUT FILENAME AND DISK FILENAME, RESPETIVELY.			*
		3957+	*				*
		3958+	*	INPUT			*
		3959+	*	INPUT TO SVOLID IS THE SPECIFIED VOL-ID IN THE TSMLES REGION -			*
		3960+	*	SMVOID.			*
		3961+	*				*
		3962+	*	OUTPUT			*
		3963+	*	OUTPUT FROM SVOLID IS THE FILE LIBRARY ADDRESS OF THE RESOLVED			*
		3964+	*	SPECIFIED VOL-ID - PLACED IN SMBFDA.			*
		3965+	*				*
		3966+	*	EXTERNAL REFERENCES			*
		3967+	*	SVOBUF - TEMPORARY SECTOR BUFFER SAVE AREA - USER SUPPLIED			*
		3968+	*	SVOERR - ERROR EXIT ADDR FROM SVOLID			*
		3969+	*	TSMLES - DATA MANAGEMENT COMMUNICATIONS REGION			*
		3970+	*	\$\$ILHD - FIRST BYTE OF INPUT LINE HEADER			*
		3971+	*	\$\$XIND - EXECUTION INDR PASS AREA			*
		3972+	*	\$\$INND - LAST CHARACTER OF INPUT LINE BUFFER			*
		3973+	*	\$\$INLN - FIRST CHARACTER OF INPUT LINE BUFFER			*
		3974+	*	\$\$PRES - ENTRY TO ENABLE KEYBOARD			*
		3975+	*	\$VOLID - ADDR IN SYSTEM NUCLEUS - VOLUME ID TABLE			*
		3976+	*	\$CAERR - ADDR IN SYSTEM NUCLEUS - ERROR CODE SAVE AREA			*
		3977+	*	\$KEYCD - INDR BYTE CONTAINING KEYBOARD INDR IN SYSTEM NUCLEUS			*
		3978+	*	\$CARDI - MASK IN SKEYCD - CARD INPUT MODE			*
		3979+	*	\$SPRNT - ADDR IN SYSTEM NUCLEUS-SYSTEM PRINTER IOCR INTERFACE			*
		3980+	*	\$CIMSK - ADDR IN SYSTEM NUCLEUS-IR MASK ROUTINE INDR			*
		3981+	*	\$WAITF - ADDR IN SYSTEM NUCLEUS-DISK WAITS DPL			*
		3982+	*	\$KYBSY - MASK IN \$KEYCD - KEYBOARD BUSY			*
		3983+	*	\$TRUNK - MASK IN \$KEYCD - TRUNCATED LINE INDR			*
		3984+	*	\$UNHSK - ADDR IN SYSTEM NUCLEUS-ENTRY TO UNMASK IR			*
		3985+	*				*

## SVOLID - RESOLVE SPECIFIED VOLUME-ID

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 23/05/20 PAGE 45
			3986+	*EXITS, NORMAL	*
			3987+	* NEXT SEQUENTIAL INSTRUCTION IN CALL ROUTINE.	*
			3988+	*	*
			3989+	*EXITS, ERROR	*
			3990+	* \$VOERR - ERROR EXIT ROUTINE IN CALL ROUTINE.	*
			3991+	* (NOTE: ERROR PROCEDURES).	*
			3992+	*	*
			3993+	*TABLES/WORK AREAS	*
			3994+	* CONSTANTS, PPL'S. AND WORK AREAS WHICH ARE ADDRESSED BY THE BASE	*
			3995+	* REGISTER (@BR) ARE LOCATED TO BE REFERENCED AS SUCH. THOSE	*
			3996+	* WHICH ARE NOT ADDRESSED BY A BASE REGISTER ARE LOCATED AT THE	*
			3997+	* END OF THE MODULE.	*
			3998+	*	*
			3999+	*ATTRIBUTES	*
			4000+	* RELOCATABLE, CONDITIONALLY REUSABLE (SEE OTHER).	*
			4001+	*	*
			4002+	*CHARACTER CODE DEPENDENCY	*
			4003+	* CHARACTER CODE DEPENDENCY CLASS - C	*
			4004+	* THE OPERATION OF THIS MODULE DEPENDS UPON AN INTERNAL REPRESENTA-	*
			4005+	* TION OF THE EXTERNAL CHARACTER SET WHICH IS EQUIVALENT TO THE ONE	*
			4006+	* USED AT ASSEMBLY TIME. THE CODING HAS BEEN ARRANGED SO THAT RE	*
			4007+	* DEFINITION OF CHARACTER CONSTANTS, BY REASSEMBLY, WILL RESULT IN	*
			4008+	* A CORRECT MODULE FOR THE NEW DEFINITIONS. THE FOLLOWING ARE THE	*
			4009+	* SPECIAL CONSIDERATIONS FOR THIS MODULE:	*
			4010+	* * CHARACTER CONSTANT FOR DECIMAL L(ONE) INTERNAL EQUATE	*
			4011+	* * CHARACTER CONSTANT FOR DECIMAL 2(TWO) INTERNAL EQUATE	*
			4012+	* * @BLANK - PART OF @SYSEQ - FOR SYNTAX CHECK	*
			4013+	* * @CHARR - PART OF @SYSEQ - FOR SYNTAX CHECK	*
			4014+	* * @CHARF - PART OF @SYSEQ - FOR SYNTAX CHECK	*
			4015+	* * @EOS - PART OF @SYSEQ - FOR SYNTAX CHECK	*
			4016+	*	*
			4017+	*NOTES	*
			4018+	* ERROR PROCEDURES	*
			4019+	* THE FOLLOWING CONDITIONS WILL CAUSE AN ERROR CODE TO BE PLACED	*
			4020+	* IN SCAERR AND AN EXIT BRANCH TO BE TAKEN TO SVOERR:	*
			4021+	* * THE SPECIFIED VOLUME ID IS NOT ON THE SYSTEM.	*
			4022+	* * DUPLICATE VOLUME ID'S ARE RTLADO. AND INPUT IS NOT FROM	*
			4023+	* THE KEYBOARD.	*
			4024+	* * THE SPECIFIED PHYSICAL ID FROM THE KEYBOARD DOES NOT CONTAIN	*
			4025+	* ONE OF THE MULTIPLY DEFINED VOLUME ID'S.	*
			4026+	* * THE SPECIFIEC OR RESOLVED VOLUME DOES NOT CONTAIN A LIBRARY	*
			4027+	* AREA.	*
			4028+	*	*
			4029+	* REGISTER USAGE	*
			4030+	* INDEX REGISTER 1 (@BR) IS USED PRIMARILY AS A BASE REGISTER	*
			4031+	* AND SECONDLY AS AN INDEX IN THE VOL ID TABLE.	*
			4032+	* INDEX REGISTER 2 (@XR) IS USED PRIMARILY AS AN INDEX REGISTER	*
			4033+	* IN THE VOL-ID TABLE AND SECONDLY AS AN INDEX TO SYNTAX CHECK	*
			4034+	* KEYBOARD INPUT WHEN VOLUMES ARE MULTIPLY DEFINED.	*
			4035+	*	*
			4036+	* SAVED/RESTORED AREAS	*
			4037+	* NOBE	*
			4038+	*	*
			4039+	* MODIFICATION CONSIDERATIONS	*
			4040+	* VOLID'S SEARCH OF THE VOL-ID TABLE (SVOLID) IS TOTALLY	*
			4041+	* DEPENDENT ON THE FORMAT OF THE TABLE AS IT EXISTS; ESPECIALLY	*

SVOLID - RESOLVE SPECIFIED VOLUME-ID

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 23/05/20 PAGE 46
		4042+	*	THE NUMBER OF ENTRIES WHICH NOW EXIST (IE. FOUR).	*
		4043+	*		*
		4044+	*	REQUIRED MODULES	*
		4045+	*	@CANEQ - COMMON CORE LOCATIONS OUTSIDE SYSTEM NUCLEUS	*
		4046+	*	@DIREQ - SYSTEM LIBRARY DIRECTORY EQUATES	*
		4047+	*	@ERMEQ - ERROR MESSAGE EQUATES	*
		4048+	*	@FXDEQ - COMMON CORE LOCATIONS WITHIN THE SYSTEM NUCLEUS	*
		4049+	*	@SYSEQ - COMMON SYSTEM SOFTWARE EQUATES	*
		4050+	*	TSMLES - DATA MANAGEMENT COMMUNICATION REGIONS	*
		4051+	*		*
		4052+	*	OTHER	*
		4053+	*	SVOLID MAY BE RE-USED IF THE CALL ROUTINE WILL PRIME 'SVOCT1'	*
		4054+	*	WITH A '4', AND 'SVOCT2' WITH A '0' BEFORE EACH RE-ENTRY.	*
		4055+	*	BOTH OF THESE FIELDS ARE 1 BYTE LONG AND CONTIGUOUS, RESPEC-	*
		4056+	*	TIVELY. (IE. CAN BE INITIALIZED WITH 'MVC' OF X'0400').	*
		4057+	*	*****	*



## SVOLID - RESOLVE SPECIFIED VOLUME-ID

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT VER 15, MOD 00 23/05/20 PAGE 47

```
4059+*****
4060+*
4061+*          SVOLID MODULE EQUATES          *
4062+*
4063+*****
4064+*
0001 4065+SVOLN1 EQU 1          LENGTH CODE OF ONE
00F1 4066+SVO001 EQU X'F1'      CONSTANT OF 1 FOR COMPARE
00F2 4067+SVO002 EQU X'F2'      CONSTANT OF 2 FOR COMPARE
0100 4068+SVOINP EQU $$XIND-$$ILHD+@B1    LENGTH INPUT BUFFER
00FF 4069+SVOEND EQU $$XIND-$$ILHD        DISP TO END OF SVOBUF

4071+*****
4072+*
4073+*          INITIALIZATION OF MODULE          *
4074+*
4075+*****
4076+*
150B 4077+SVOLID EQU *          ENTRY POINT
151D 4078+      USING SVOBSE,@BR      BASE ADDRESS
150B 34 01 1557 4079+      ST      SVO274+@OP1,@BR      SAVE BASE CONTENTS
150F C2 01 151D 4080+      LA      SVOBSE,@BR      LOAD BASE ADDRESS
1513 74 02 3E 4081+      ST      SVO276+@OP1(,@BR),@XR      SAVE INDEX REGISTER
1516 74 08 46 4082+      ST      SVO290+@OP1(,@BR),@ARR      SAVE RETURN ADDR

4084+*****
4085+*
4086+*          SEARCH VOL-ID TABLE          *
4087+*
4088+*****
4089+*
1519 C2 02 03FB 4090+      LA      $VOLID+@VOLID-@B1,@XR      LOAD XR AS POINTER INTO NUCLEUS
151D 4091+SVOBSE EQU *
151D 8D 05 00 0F04 4092+SVO100 CLC @ZERO(@VOLID,@XR),SMVOID IS THIS THE VOL-ID ?
1522 D0 01 11 4093+      BNE     SVO200(,@BR)          NO, CHECK NEXT ENTRY
1525 2C 01 0F18 02 4094+      MVC     SMBFDA(@DADDR),@DADDR(,@XR) SAVE DADDR-DUPLICATE CHECK
152A 5E 00 48 49 4095+      ALC     SVOCT2(SVOLN1,@BR),SVOONE(,@BR) INCREMENT COUNT
152E E2 02 08 4096+SVO200 LA @VOLID+@DADDR(,@XR),@XR INCREMENT XR
1531 5F 00 47 49 4097+      SLC     SVOCT1(SVOLN1,@BR),SVOONE(,@BR) IS THE LAST ENTRY ?
1535 D0 01 00 4098+      BNZ     SVO100(,@BR)          NO, CHECK NEXT ONE
```

## SVOLID - RESOLVE SPECIFIED VOLUME-ID

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE	48
				4100+	*****						
				4101+	*						
				4102+		PROCESS ENTRY IF FOUND					
				4103+	*						
				4104+	*****						
				4105+	*						
1538	7D	01	48	4106+	CLI	SVOCT2(,@BR),@B1	WAS AN ID FOUND ?				
153B	3C	29	03CD	4107+	MVI	\$CAERR,@E217	ERROR - NO ID FOUND				
153F	D0	82	33	4108+	BL	SVO270(,@BR)	NO, ERROR EXIT				
1542	D0	84	4A	4109+	BH	SVO300(,@BR)	MORE THAN 1 ID				
				4111+	*****						
				4112+	*						
				4113+		CHECK DISK ADDR OF LIBRARY					
				4114+	*						
				4115+	*****						
				4116+	*						
1545	3D	00	0F17	4117+SVO260	CLI	SMBFDA-@B1,@ZERO	IS THERE A LIBRARY ?				
1549	F2	01	08	4118+	JNE	SVO274	YES, RETURN				
154C	3C	54	03CD	4119+	MVI	\$CAERR,@E351	ERROR - NO LIBRARY				
1550	3C	87	155D	4120+SVO270	MVI	SVO280+@Q,@UCB	SET ERROR EXIT				
				4122+	*****						
				4123+	*						
				4124+		END OF MODULE PROCESSING					
				4125+	*						
				4126+	*****						
				4127+	*						
1554	C2	01	0000	4128+SVO274	LA	*-*,@BR	RESTORE BASE REGISTER				
1558	C2	02	0000	4129+SVO276	LA	*-*,@XR	RESTORE INDEX REGISTER				
				4130+	*						
155C	C0	80	0DC9	4131+SVO280	BC	SVOERR,@NOP	ERROR EXIT				
1560	C0	87	0000	4132+SVO290	B	*-*	RETURN				

ERR LOC		OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 23/05/20 PAGE 49
				4134+	*****		
				4135+	*		
				4136+	DATA CONSTANTS, BUFFERS, WORK AREAS AND SAVE AREAS		*
				4137+	*		
				4138+	*****		
				4139+	*		
1564			1564	4140+	SVOCT1 DS	CL1 COUNTER - NUMBER OF DISKS - 4	
1564				4141+	ORG	SVOCT1 RESET FOR INITIALIZATION	
1564	04		1564	4142+	DC	XL1'04' INITIALIZED TO 4	
				4143+	*		
1565			1565	4144+	SVOCT2 DS	CL1 COUNTER - DUPLICATE DISK LABELS	
1565				4145+	ORG	SVOCT2 RESET FOR INITIALIZATION	
1565	00		1565	4146+	DC	XL1'00' INITIALIZED TO 0	
1566	01		1566	4147+	SVOONE DC	XL1'01' INITIALIZED TO 1 FOR COUNTER	
				4149+	*****		
				4150+	*		
				4151+	PROCESS MULTIPLE ENTRIES		*
				4152+	*		
				4153+	*****		
				4154+	*		
1567	38 01 03C3			4155+	SVO300 TBN	\$KEYCD,\$CARDI IS KEYBOARD INPUT MODE ?	
156B	3C 25 03CD			4156+	SVO310 MVI	\$CAERR,@@E212 KEYBOARD NOT INPUT MODE	
156F	D0 10 33			4157+	SVO315 BT	SVO270(,@BR) NO ERROR EXIT	

## SVOLID - RESOLVE SPECIFIED VOLUME-ID

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 23/05/20 PAGE 50
			4159+	*****	*****	
			4160+	*		*
			4161+		ASK USER FOR DRIVE CLARIFICATION	*
			4162+	*		*
			4163+	*****	*****	
			4164+	*		
1572 C0 87 0465		1572	4165+	SVO320 EQU *	PRINT MESSAGES	
1576 0C0B			4166+	B \$SPRNT	PRINT MESSAGE	
		1577	4167+	DC AL2(@M300)	ERROR MESSAGE PPL	
			4168+	*		
1578 0C 00 159B 0476			4169+	MVC SVO335+@VQ(@B1), \$CIMSK	OBTAIN CURRENT MASK STATUS	
157E C0 87 0465			4170+	B \$SPRNT	WAIT FOR PRINT	
1582 057F		1583	4171+	DC AL2(\$WAITF)	ADDR OF PPL	
			4173+	*****	*****	
			4174+	*		*
			4175+		MODIFY INPUT BUFFER FOR ACCEPTANCE OF INPUT ANSWER	*
			4176+	*		*
			4177+	*****	*****	
			4178+	*		
		1584	4179+	SVO330 EQU *	ENABLE INPUT ROUTINE	
1584 F2 80 09			4180+	SET FOR JUMP AFTER INITIAL SAVE OF INPUT BUFFER		
1587 0C FF 1BFF 06FF			4181+	JC SVO333, @NOP	SAVE SWITCH	
158D 7C 87 68			4182+	MVC SVOBUF+SVOEND(SVOINP), \$\$XIND	SAVE INPUT BUFFER	
			4183+	MVI SVO330+@Q(, @BR), @UCB	SET SWITCH TO BYPASS SAVE	
			4184+	*		
1590 3C 40 06FA			4185+	SVO333 MVI \$\$INND, @BLANK	CLEAR INPUT BUFFER	
1594 0C F2 06F9 06FA			4186+	MVC \$\$INND-@B1(\$\$INND-\$\$INLN), \$\$INND		
			4187+	*		
159A C0 01 048D			4188+	SVO335 BC \$UNMSK, @VQ	BRANCH IF UNMASKED	
159E C0 87 0890			4189+	B \$\$PRES	GET USER'S RESRONSE	
15A2 38 10 03C3			4190+	SVO350 TBN \$KEYCD, \$KYBSY	IS KEYBOARD BUSY ?	
15A6 C0 10 15A2			4191+	BT SVO350	YES, WAIT	
15AA C0 87 0465			4192+	B \$SPRNT	WAIT FOR PRINTER RETURN	
15AE 057F		15AF	4193+	DC AL2(\$WAITF)	ADDR OF PPL	

## SVOLID - RESOLVE SPECIFIED VOLUME-ID

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 23/05/20 PAGE 51
				4195+	*****			
				4196+	*			
				4197+	*			
				4198+	*			
				4199+	*****			
				4200+	*			
15B0	C2	02	0606	4201+	LA	\$\$INLN-@B1,@XR	ADDR FIRST RESPONSE BYTE	
15B4	C2	01	03FB	4202+	LA	\$VOLID+@VOLID-@B1,@BR	REFERENCE POINT FOR THE VOLID	
				4203+	*			
15B8	E2	02	01	4204+	SVO360 LA	@B1(,@XR),@XR	INDEX BY BLANK	
15BB	BD	40	00	4205+	CLI	@ZERO(,@XR),@BLANK	IS IT A BLANK ?	
15BE	C0	81	15B8	4206+	BE	SVO360	YES, CHECK NEXT BYTE	
				4207+	*			
15C2	BD	F1	01	4208+	CLI	@B1(,@XR),SVO001	IS IT DRIVE 1 ?	
15C5	F2	81	0A	4209+	JE	SVO400	YES, CHECK DISK TYPE	
				4210+	*			
15C8	BD	F2	01	4211+	CLI	@B1(,@XR),SVO002	IS IT DRIVE 2 ?	
15CB	C0	01	1572	4212+	BNE	SVO320	NO, ASK USER AGAIN	
15CF	D2	01	10	4213+	LA	2*@VOLID+2*@DADDR(,@BR),@BR	SET INDEX FOR DRIVE 2	
15D2	BD	D9	00	4214+	SVO400 CLI	@ZERO(,@XR),@CHARR	IS IT REMOVABLE ?	
15D5	F2	81	0A	4215+	JE	SVO440		
				4216+	*			
15D8	BD	C6	00	4217+	CLI	@ZERO(,@XR),@CHARF	IS IT FIXED ?	
15DB	C0	01	1572	4218+	BNE	SVO320	ASK AGAIN	
15DF	D2	01	08	4219+	LA	@VOLID+@DADDR(,@BR),@BR	SET INDEX FOR FIXED	
15E2	E2	02	01	4220+	SVO440 LA	@B1(,@XR),@XR	INCREMENT TO NEXT BYTE	
15E5	E2	02	01	4221+	SVO445 LA	@B1(,@XR),@XR	INCREMENT TO NEXT BYTE	
15E8	BD	40	00	4222+	CLI	@ZERO(,@XR),@BLANK	IS IT A BLANK ?	
15EB	C0	81	15E5	4223+	BE	SVO445	YES, CHECK NEXT BYTE	
				4224+	*			
15EF	BD	1E	00	4225+	CLI	@ZERO(,@XR),@EOS	AT EOS ?	
15F2	C0	01	1572	4226+	BNE	SVO320	ASK AGAIN	
				4227+	*			
15F6	0C	FF	06FF 1BFF	4228+	MVC	\$\$XIND(SVOINP),SVOBUF+SVOEND	RESTORE INPUT	
15FC	4D	05	00 0F04	4229+	SVO450 CLC	@ZERO(@VOLID,@BR),SMVOID	IS IT THE VOLID ?	
1601	3C	28	03CD	4230+	MVI	\$CAERR,@E216	VOLUME NOT ON THAT DRIVE	
1605	C0	01	1550	4231+	BNE	SVO270	NO, ERROR EXIT	

SVOLID - RESOLVE SPECIFIED VOLUME-ID

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE	52
				4233+			*****				
				4234+	*						*
				4235+	*		SAVE VOL-ID LIBRARY ADDR				*
				4236+	*						*
				4237+			*****				
				4238+	*						
1609	1C	01	0F18 02	4239+		MVC	SMBFDA(@DADDR),@DADDR(,@BR) SAVE LIBRARY ADDR				
160E	3B	80	03C3	4240+		SBF	\$KEYCD,\$TRUNK SET OFF RM EXCEEDED INDR				
1612	C0	87	1545	4241+		B	SVO260 NORMAL EXIT				
				4242+	***		END OF SVOLID				***
				4243	*	\$DL2P					

## DL2ICS - TWO TRACK LOGICAL IOCR

ERR LOC	OBJECT CODE	ADDR STMT	SOURCE STATEMENT	VER 15, MOD 00	23/05/20	PAGE 53
		4245+	*****			*
		4246+	* 5703-XM1 COPYRIGHT IBM CORP 1970			*
		4247+	REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE. 120-2083			*
		4248+				*
		4249+	*****			*
		4250+	*STATUS -			*
		4251+	VERSION 1 MODIFICATION 0			*
		4252+				*
		4253+	*FUNCTION			*
		4254+	* DL2ICS CONVERTS A RELATIVE DISK ADDRESS TO A PHYSICAL DISK			*
		4255+	ADDRESS AND COMBINES IT WITH A BASE ADDRESS PLACED IN DL2RAD			*
		4256+	BY THE CALLER.			*
		4257+	* THE RELATIVE DISK ADDRESS IS A TWO BYTE CYLINDER SECTOR COUNT			*
		4258+	IN THE CALLERS DISK PARAMETER LIST (DPL).			*
		4259+	* THE COUNT IS A CYLINDER SECTOR DISPLACEMENT FROM THE BASE			*
		4260+	ADDRESS PLACED IN DL2RAD			*
		4261+	* DL2ICS IS USED TO PROCESS DATA ON THE FIXED OR REMOVABLE DISK			*
		4262+	ON EITHER DRIVE AND PROVIDES THE INTERFACE TO \$DISKN.			*
		4263+	* THE PHYSICAL DISK ADDRESS IS PLACED IN A COPY OF THE USERS DPL			*
		4264+	IN DL2ICS AND A CALL IS MADE TO \$DISKN TO PERFORM THE REQUESTED			*
		4265+	OPERATION.			*
		4266+				*
		4267+	*ENTRY POINTS			*
		4268+	* THE ENTRY IS DL2ICS. THE BASE REGISTER IS SAVED AND RESTORED			*
		4269+	ON RETURN. THE INDEX REGISTER IS NOT USED.			*
		4270+	* THE FORMAT OF THE CALLING SEQUENCE IS AS FOLLOWS:			*
		4271+	B DL2ICS			*
		4272+	DC AL2(PARMLT)			*
		4273+	WHERE PARMLT IS THE ADDR OF THE PARAMETER LIST TO BE PROCESSED.			*
		4274+				*
		4275+	*INPUT			*
		4276+	* THE INPUT IS A TWO BYTE BASE DISK ADDRESS PLACED IN			*
		4277+	DL2RAD AND A SIX BYTE DPL. THE SAME FORMAT AS THE DPL FOR			*
		4278+	\$DISKN EXCEPT FOR THE DISK ADDRESS WHICH IS A RELATIVE CYLINDER			*
		4279+	AND SECTOR DISPLACEMENT FROM THE BASE ADDRESS IN DL2RAD.			*
		4280+				*
		4281+	*OUTPUT			*
		4282+	NONE.			*
		4283+				*
		4284+	*EXTERNAL REFERENCES			*
		4285+	\$DISKN - ENTRY TO PHYSICAL DISK ROUTINE IS THE SYSTEM NUCLEUS.			*
		4286+				*
		4287+	*EXITS, NORMAL			*
		4288+	NORMAL - EXIT IS TO THE FIRST INSTRUCTION FOLLOWING THE POINTER			*
		4289+	TO THE DPL. THE BASE REGISTER IS RESTORED. THE RETURN ADDRESS			*
		4290+	IS THE ADDRESS RECALL REGISTER (ARR) +2.			*
		4291+				*
		4292+	*EXITS, ERROR			*
		4293+	NONE			*
		4294+				*
		4295+	*TABLES/WORK AREAS			*
		4296+	* THE CONSTANTS AND WORK AREAS RESIDE AT THE END OF THE EXECUTABLE			*
		4297+	CODE AND ARE REFERENCED BY A DISPLACEMENT RELATIVE TO THE VALUE			*
		4298+	IN INDEX REGISTER 1 (@BR).			*
		4299+	* DL2SEC AND DL2SAD ARE EQUATED TO OPERAND LOCATIONS IN THE			*
		4300+	EXECUTABLE CODE TO ELIMINATE EXCESS WORKING STORAGE.			*



## DL2ICS - TWO TRACK LOGICAL IOCR

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 23/05/20 PAGE 54
			4301+	*		*
			4302+	*	ATTRIBUTES	*
			4303+	*	* DL2ICS IS REUSABLE	*
			4304+	*		*
			4305+	*	CHARACTER CODE DEPENDENCY	*
			4306+	*	THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR	*
			4307+	*	INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.	*
			4308+	*		*
			4309+	*	NOTES	*
			4310+	*	ERROR PROCEDURES	*
			4311+	*	NONE	*
			4312+	*		*
			4313+	*	REGISTER USAGE	*
			4314+	*	INDEX REGISTER 1 (@BR) IS SAVED AND RESTORED. THIS REGISTER IS	*
			4315+	*	USED DURING EXECUTION. REGISTER 2 (@BR) IS NOT USED.	*
			4316+	*		*
			4317+	*	SAVED/RESTORED AREAS	*
			4318+	*	NONE	*
			4319+	*		*
			4320+	*	MODIFICATION CONSIDERATIONS	*
			4321+	*	NONE	*
			4322+	*		*
			4323+	*	REQUIRED MODULES	*
			4324+	*	@SYSEQ - COMMON SYSTEM EQUATES.	*
			4325+	*	@FXDEQ - SYSTEM NUCLEUS ADDRESSES AND INDICATORS VALUES EQUATES	*
			4326+	*		*
			4327+	*	OTHER	*
			4328+	*	DL2ICS MAY BE USED TO CONVERT THE DISK ADDRESS ONLY AND NOT TO	*
			4329+	*	CALL \$DISKN IF THE USER MOVES A UCB CODE TO DL2SWH.	*
			4330+	*	THIS OPTION IS NOT STANDARD USAGE.	*
			4331+	*	*****	*
		161A	4332+		USING DL2000,@BR	ESTABLISH ADDRESSABILITY
			4333+			
		0001	4334+DL2E01	EQU	X'01'	FIELD LENGTH OF 1
		0002	4335+DL2E02	EQU	X'02'	FIELD LENGTH OF 2
		0018	4336+DL2E18	EQU	X'18'	HEX TRACK SECTOR COUNT
		0060	4337+DL2E60	EQU	X'60'	PHYSICAL SECTOR COUNT
		0083	4338+DL2TSD	EQU	X'83'	MASK OFF TRACK SPINDLE DISK
		007C	4339+DL2E7C	EQU	X'7C'	MASK OUT SECTOR COUNT
		1616	4340+DL2ICS	EQU	*	ENTRY POINT
1616	34 01 1697		4341+	ST	DL2900+@OP1,@BR	SAVE OLD BASE
		161A	4342+DL2000	EQU	*	START PROCESSING
161A	C2 01 161A		4343+	LA	DL2000,@BR	SET BASE ADDRESS
161E	76 08 8A		4344+	A	DL2C01(,@BR),@ARR	BUMP TO RIGHT BYTE OF ADDR
1621	74 08 14		4345+	ST	DL2001+@DOP2(,@BR),@ARR	ADDR OF PARAM
1624	76 08 8A		4346+	A	DL2C01(,@BR),@ARR	BUMP TO RETURN ADDR
1627	74 08 81		4347+	ST	DL2910+@OP1(,@BR),@ARR	SAVE RETURN ADDR
			4348+	*		
162A	4C 01 1D 0000		4349+DL2001	MVC	DL2002+@DOP2(@DADDR,@BR),*-*	SETUP ADDR OF DPL
162F	5E 01 1D 8C		4350+	ALC	DL2002+@DOP2(@CADDR,@BR),DL2C05(,@BR)	DUMP TO RIGHT END
1633	4C 05 92 0000		4351+DL2002	MVC	DL2DPL(@DPLNG,@BR),*-*	MOVE USER DPL TO WORK AREA
1638	5F 00 8F 86		4352+DL2005	SLC	DL2LST+@DSAD(DL2E01,@BR),DL2C48(,@BR)	ADJUST SCTR/CYL
163C	F2 82 07		4353+	JM	DL2006	GO TO RESTORE TO CONTINUE
163F	5E 00 8E 8A		4354+	ALC	DL2LST+@DCYL(DL2E01,@BR),DL2C01(,@BR)	BUMP CYLINDER COUNT
1643	D0 87 1E		4355+	B	DL2005(,@BR)	BACK FOR NEXT CYLINDER
1646	5E 00 8F 86		4356+DL2006	ALC	DL2LST+@DSAD(DL2E01,@BR),DL2C48(,@BR)	RESTORE POSITIVE

## DL2ICS - TWO TRACK LOGICAL IOCR

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER	MOD	00	23/05/20	PAGE	55
					4357+*								
					4358+*		GET THE LOGICAL SECTOR FROM THE DPL. THE NUMBER IS LEFT ADJUSTED						
					4359+*		TO COMAE IT MTN THE POINTER ESTABLISHED PRIOR TO AN ENTRY.						
164A	5C	00	1D 8F		4360+	MVC	DL2SEC(DL2E01,@BR),DL2LST+@DSAD(,@BR) GET SECTOR NUMBER						
164E	7C	00	8F		4361+	MVI	DL2LST+@DSAD(,@BR),@ZERO CLEAR SECTOR BYTE						
					4362+*								
					4363+*		MOVE THE RELATIVE START TO THE DFL						
					4364+*								
1651	5E	01	8F 94		4365+	ALC	DL2LST+@DSAD(DL2E02,@BR),DL2RAD(,@BR) DL2RAD TO DPL						
1655	7D	18	1D		4366+	CLI	DL2SEC(,@BR),DL2E18 IS COUNT OVER A TRACK						
1658	F2	82	08		4367+	JL	DL2008 NO GO CHANGE A PHYSICAL ADOR						
165B	5E	01	8F 85		4368+	ALC	DL2LST+@DSAD(DL2E02,@BR),DL2K80(,@BR) BUMP TRACK VALUE						
165F	5F	00	1D 88		4369+	SLC	DL2SEC(1,@BR),DL2K18(,@BR) DECR BY TRACK VALUE						
1663	5E	00	1D 1D		4370+DL2008	ALC	DL2SEC(1,@BR),DL2SEC(,@BR) SHIFT LEFT 1						
1667	5E	00	1D 1D		4371+	ALC	DL2SEC(1,@BR),DL2SEC(,@BR) SHIFT LEFT						
166B	5C	00	14 8F		4372+	MVC	DL2SAD(DL2E01,@BR),DL2LST+@DSAD(,@BR) GET SECTOR ADDRESS						
					4373+*								
					4374+*		ZERO OUT THE SECTOR COUNT AND LEAVE THE DISK. SPINDLE AND						
					4375+*		TRACK BITS AS IS TO BE RE INSERTED AFTER THE SECTOR HAS BEEN						
					4376+*		LOCATES.						
					4377+*								
166F	7B	7C	8F		4378+	SBF	DL2LST+@DSAD(,@BR),DL2E7C TURN OFF						
1672	7B	83	14		4379+	SBF	DL2SAD(,@BR),DL2TSD OFF TRACK SPINDLE DISK						
1675	5E	00	14 1D		4380+	ALC	DL2SAD(DL2E01,@BR),DL2SEC(,@BR) COMBINE SECTOR COUNTS						
1679	7D	60	14		4381+DL2010	CLI	DL2SAD(,@BR),DL2E60 TEST IF TRACK CROSSED						
167C	F2	82	08		4382+	JL	DL2100						
					4383+*								
					4384+*		INCREMENT TRACK BIT. OVERFLOW INTO THE CYLINDER COUNT.						
					4385+*								
167F	5E	01	8F 85		4386+	ALC	DL2LST+@DSAD(DL2E02,@BR),DL2K80(,@BR)						
1683	5F	00	14 83		4387+	SLC	DL2SAD(1,@BR),DL2K60(,@BR) DECR BY TRACK VALUE						
					4388+*								
1687	5E	00	8F 14		4389+DL2100	ALC	DL2LST+@DSAD(1,@BR),DL2SAD(,@BR) INSERT SECTOR COUNT						
					4390+*								
168B	F2	80	06		4391+DL2110	JC	DL2900,@NOP CONVERSION SWITCH						
				168C	4392+DL2SWH	EQU	DL2110+@Q ADDR OF Q CODE FOR SWITCH						
168E	C0	87	0025		4393+	B	\$DISKN GO PROCESS I/O						
1692	16A7			1693	4394+	DC	AL2(DL2LST) ADDRESS OF DPL						
1694	C2	01	0000		4395+DL2900	LA	*-*,@BR RESTORE CALLERS BASE						
1698	C0	87	0000		4396+DL2910	B	*-*						
					4397+*****								
					4398+*		CONSTANTS						
					4399+*****								
169C	0060			169D	4400+DL2K60	DC	XL2'0060' SECTOR COUNT OF 24 LEFT ADJUSTD						
169E	0080			169F	4401+DL2K80	DC	XL2'0080' BIT FOR INCREMENTING TRACK						
16A0	30			16A0	4402+DL2C48	DC	IL1'48' CYLINDER VALUE FOR 1 DISK						
16A1	0018			16A2	4403+DL2K18	DC	XL2'18' HEX SECTORS PER TRACK						
16A3	0001			16A4	4404+DL2C01	DC	IL2'1' CONSTANT FOR REGISTER MODE						
16A5	0005			16A6	4405+DL2C05	DC	IL2'5' DISP TO RIGHT END OF DPL						
					4406+*****								
					4407+*		WORK AREA						
					4408+*****								
				16A7	4409+DL2LST	EQU	* LIST HIGH END						
16A7				16AC	4410+DL2DPL	DS	CL(@DPLNG) WORKING DPL						
				16A9	4411+DL2PHY	EQU	DL2LST+@DSAD POINTER TO PHYSICAL DADDR						
				162E	4412+DL2SAD	EQU	DL2001+@DOP2 SAVE SECTOR BYTE FROM DPI						

DL2ICS - TWO TRACK LOGICAL IOCR

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 23/05/20 PAGE 56		
16AD			1637	4413+DL2SEC	EQU	DL2002+@DOP2	WORKING SECTOR ADDRESS FIELD		
			16AE	4414+DL2RAD	DS	CL(@DADDR)	USER RELATIVE STARTING ADDR.		
			16AF	4415+DL2END	EQU	*	END OF DL2ICS		
				4416+***			END OF DL2ICS ***		
			4417	*	\$TUFI				
</									

## STUFID - STORE IN USER DIRECTORY

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	23/05/20	PAGE 57
		4419+	*****				
		4420+*		5703-XM1 COPYRIGHT IBM CORP, 1970			*
		4421+*		REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083			*
		4422+*					*
		4423+*	*****				*
		4424+*		STATUS			*
		4425+*		VERSION 1 MODIFICATION 0			*
		4426+*					*
		4427+*		FUNCTION			*
		4428+*		STUFID INSERTS AN ENTRY IN A USER DIRECTORY BLOCK. IF THE			*
		4429+*		CURRENT DIRECTORY IS FULL STUFID WILL CREATE AN ADDITIONAL			*
		4430+*		DIRECTORY AND LINK IT TO THE OLD BLOCK.			*
		4431+*					*
		4432+*		ENTRY POINTS			*
		4433+*		STUFID - ENTRY TO INSERT FILENAME ENTRY IN DIRECTORY BLOCK.			*
		4434+*		THE CALLING SEQUENCE IS AS FOLLOWS:			*
		4435+*		B STUFID			*
		4436+*					*
		4437+*		INPUT			*
		4438+*	*	SMUDEN MUST CONTAIN THE ADDRESS OF THE LEFT BYTE OF THE ENTRY			*
		4439+*		TO BE INSERTED,			*
		4440+*	*	SMUDBA MUST CONTAIN THE ADDRESS OF THE USER DIRECTORY BUFFER.			*
		4441+*					*
		4442+*		OUTPUT			*
		4443+*	*	THE ENTRY IS INSERTED INTO THE DIRECTORY WHICH IS THEN WRITTEN			*
		4444+*		BACK TO THE DISK,			*
		4445+*	*	IF THE DIRECTORY IS FULL ANOTHER DIRECTORY IS CREATED. THE NEW			*
		4446+*		BLOCK IS LINKED TO THE PREVIOUS DIRECTORY WHICH IS THE WRITTEN			*
		4447+*		BACK TO DISK, THE ENTRY IS MADE IN THE NEW BLOCK AND THEN			*
		4448+*		WRITTEN BACK TO DISK,			*
		4449+*					*
		4450+*		EXTERNAL REFERENCES			*
		4451+*		SMUPEN - CONTAINS THE ADDRESS OF THE NEW ENTRY.			*
		4452+*		SMUDBA - CONTAINS THE ADDRESS OF THE USER DIRECTORY.			*
		4453+*		DL2ICS - DISK LOGICAL IOCS,			*
		4454+*		SMNSCT - LOCATION OF REQUIRED NULL SECTOR COUNT.			*
		4455+*		SURCHN - ENTRY TO SEARCH NULL DIRECTORY ROUTINE.			*
		4456+*		SMNDEA - CONTAINS RELATIVE DISK ADDRESS OF NULL AREA.			*
		4457+*		STUERR - ERROR RETURN TO USER,			*
		4458+*					*
		4459+*		EXITS, NORNAL			*
		4460+*		NORMAL RETURN IS TO THE FIRST INSTRUCTION FOLLOWING THE BRANCH			*
		4461+*		TO STUFID,			*
		4462+*					*
		4463+*		EXITS, ERROR			*
		4464+*		IF AN ADDITIONAL DIRECTORY BLOCK RUST IT CREATED NO TWO SECTORS			*
		4465+*		ARE NOT AVAILAILE, A RETURN IS MARE TO STUD, IN THE CALLERS			*
		4466+*		PROGRAM, @BR AND @XR ARE NOT RESTORED.			*
		4467+*					*
		4468+*		TABLES/WORKEARES			*
		4469+*		NONE			*
		4470+*					*
		4471+*		ATTRIBUTES			*
		4472+*		RELOCATAILE, REUSABLE			*
		4473+*					*
		4474+*		CHARACTER CODE DEPENDENCY			*

STUFID - STORE IN USER DIRECTORY

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 23/05/20 PAGE 58
		4475+	*	THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR	*
		4476+	*	INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.	*
		4477+	*		*
		4478+	*	NOTES	*
		4479+	*	ERROR PROCEDURES	*
		4480+	*	A BRANCH IS TAKEN TO STUERR IN THE CALLERS PGM IF 2 SECTORS	*
		4481+	*	ARE NOT AVAILABLE TO CREATE A NEW USER DIRECTORY BLOCK.	*
		4482+	*		*
		4483+	*	REGISTER USAGE	*
		4484+	*	* @BR AND @XR ARE SAVED AND RESTORED ON EXIT. @ARR IS STORED	*
		4485+	*	IN THE BRANCH INSTRUCTION FOR RETURN.	*
		4486+	*	* DURING EXECUTION @BR IS USED AS A BASE REGISTER AND @XR IS	*
		4487+	*	USED AS A GENERAL WORK REGISTER IN THE DIRECTORY.	*
		4488+	*		*
		4489+	*	SAVED/RESTORED AREAS	*
		4490+	*	NONE	*
		4491+	*		*
		4492+	*	MODIFICATION CONSIDERATIONS	*
		4493+	*	N/A	*
		4494+	*		*
		4495+	*	REQUIRED MODULES	*
		4496+	*	@SYSEQ - SYSTEM SOFTWARE EQUATES	*
		4497+	*	@DIREQ - LIBRARY DIRECTORY EQUATES	*
		4498+	*	TSMLES - DATA MANAGEMENT COMMUNICATIONS AREA	*
		4499+	*	DL2ICS - DISK IOCS ROUTINE	*
		4500+	*	SURCHN - SEARCH NULL DIRECTORY ROUTINE	*
		4501+	*		*
		4502+	*	OTHER	*
		4503+	*	N/A	*
		4504+	*	*****	*

## STUFID - STORE IN USER DIRECTORY

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 23/05/20 PAGE 59
				16AF	4506+	STUFID	EQU *	ENTRY TO STUFID
				0001	4507+	STUE01	EQU 1	VALUE TO INITIALIZE COUNTER
				0002	4508+	STUE02	EQU 2	VALUE FOR Q CODE
16AF	34	01	1741		4509+		ST STU900+@OP1,@BR	SAVE BASE REGISTER
				16B3	4510+		USING STU000,@BR	
16B3	C2	01	16B3		4511+	STU000	LA STU000,@BR	SET UP BASE REGISTER
16B7	74	08	96		4512+		ST STU920+@OP1(,@BR),@ARR	SAVE RETURN ADDR
16BA	74	02	92		4513+		ST STU910+@OP1(,@BR),@XR	SAVE INDEX REGISTER
					4514+*			
16BD	35	02	0F24		4515+		L SMUPEN,@XR	GET CADDR OF NEW ENTRY
16C1	E2	02	31		4516+		LA ##DUE1(,@XR),@XR	BUMP TO RIGHT END
16C4	74	02	43		4517+		ST STU020+@DOP2(,@BR),@XR	SET IN MOVE TO DIRCTY
16C7	74	02	79		4518+		ST STU060+@DOP2(,@BR),@XR	SET IN MOVE TO NEW DIRCTY
16CA	35	02	0F1A		4519+		L SMUDBA,@XR	ACTIVE BUFFER ADDR
16CE	74	02	9C		4520+		ST STULST+@DBFR2(,@BR),@XR	ACTIVE BUFFER ADDR
16D1	6C	01	99 01		4521+		MVC STULST+@DSAD(@DADDR,@BR),##DUHA(,@XR) DADDR OF BLOCK	
16D5	BD	0A	04		4522+		CLI ##DUHC(,@XR),##MUHM	TEST FOR MAX COUNT
16D8	F2	02	2C		4523+		JNL STU040	GO SEARCH FOR NEW BLOCK
					4524+*			
16DB	6C	00	A6 04		4525+		MVC STUCNT(1,@BR),##DUHC(,@XR) PICK UP COUNT FOR WORK	
					4526+*			
16DF	E2	02	0C		4527+		LA ##DUE1(,@XR),@XR	BUMP PAST HEADER
					4528+*			
16E2	7D	00	A6		4529+	STU010	CLI STUCNT(,@BR),@ZERO	TEST IF COUNT EXHAUSTED
16E5	F2	81	0A		4530+		JE STU020	ZERO IS END OF DIRCTY
16E8	5F	00	A6 E4		4531+		SLC STUCNT(1,@BR),STUC01(,@BR)	DECR ENTRY COUNT
16EC	E2	02	32		4532+		LA ##LUE(,@XR),@XR	NEXT ENTRY
16EF	D0	87	2F		4533+		B STU010(,@BR)	BACK TO BUMP TO NEXT ENTRY
					4534+*			
16F2	8C	31	31 0000		4535+	STU020	MVC ##LUE-1(##LUE,@XR),*-*	MOVE NEW ENTRY INTO DIRCTY
16F7	75	02	9C		4536+		L STULST+@DBFR2(,@BR),@XR	RESTORE ACTIVE BUFFER POINTER
16FA	9E	00	04 E4		4537+		ALC ##DUHC(1,@XR),STUC01(,@BR)	BUMP DIRCTY ENTRY COUNT
					4538+*			
16FE	C0	87	1616		4539+		B DL2ICS	REPLACE DIRCTY ON DISK
1702	174A			1703	4540+		DC AL2(STULST)	ADDR OF DPL
					4541+*			
1704	F2	87	37		4542+		J STU900	GO TO RETURN
					4543+*			
					4544+*			OLD BLOCK IS FULL, GO LOOK FOR 2 SECTORS TO BUILD A NEW
					4545+*			USER DIRECTORY.
					4546+*			
1707	1C	01	0F20 A5		4547+	STU040	MVC SMNSCT,STUCLU(STUE02,@BR)	REQUIRED SECTOR COUNT
170C	C0	87	1824		4548+		B SURCHN	SEARCH NULL DIRCTY FOR A SPACE
1710	1D	01	0F1E A4		4549+		CLC SMNDEA(@DADDR),STUC00(,@BR)	TEST IF SPACE FOUND
1715	C0	81	0E26		4550+		BE STUERR	GO TAKE ERROR RETURN
					4551+*			
1719	8C	01	03 0F1E		4552+	STU050	MVC ##DUHB(,@XR),SMNDEA(@DADDR)	SET LINK IN OLD BLK HEADER
					4553+*			
171E	C0	87	1616		4554+		B DL2ICS	WRITE OLD BLOCK BACK TO DISK
1722	174A			1723	4555+		DC AL2(STULST)	POINTER TO OLD DPL
					4556+*			
1724	5F	0B	B1 B1		4557+		SLC STUNHD(,@BR),STUNHD(,@BR)	CLEAR HEADER AREA
1728	4C	31	E3 0000		4558+	STU060	MVC STUNNT(##LUE,@BR),*-*	MOVE NEW ENTRY NEXT TO NEW HDR
					4559+*			
					4560+*			NOW IN ENTRIES TO FORM NEN DIRCTY BLOCK HEADER
					4561+*			

STUFID - STORE IN USER DIRECTORY

ERR LOC		OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00		23/05/20	PAGE	60
172D	7C	01 AA		4562+	MVI	STUHDR+##DUHC(,@BR),STUE01	INITIAL COUNT				
1730	6C	01 A7 03		4563+	MVC	STUHDR+##DUHA(@DADDR,@BR),##DUHB(,@XR)	NEW BLK ADDR				
1734	6C	01 9F 03		4564+	MVC	STUDPL+@DSAD(@DADDR,@BR),##DUHB(,@XR)	NEW BLK ADDR				
1738	C0	87 1616		4565+	B	DL2ICS	WRITE THE NEW BLOCK				
173C	1750		173D	4566+	DC	AL2(STUDPL)	POINTER TO DPL				
				4567+*							
173E	C2	01 0000		4568+STU900	LA	*-*,@BR	RESTORE BASE				
1742	C2	02 0000		4569+STU910	LA	*-*,@XR	RESTORE INDEX				
1746	C0	87 0000		4570+STU920	B	*-*	RETURN				



## STUFID - STORE IN USER DIRECTORY

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE 61
				4572+*					
				4573+*		CONSTANTS AND WORKAREA			
				4574+*					
				4575+*					
174A	02		174A	4576+STULST	DC	AL1(@DPUT)			START OF DPL FOR OLD BLOCK
174B			174C	4577+	DS	CL(@DADDR)			READ OP CODE
174D	02		174D	4578+	DC	AL1(##LU)			DISK ADDR SPACE
174E			174F	4579+	DS	CL(@CADDR)			SECTOR COUNT OF DIRCTY
1750	02		1750	4580+STUDPL	DC	AL1(@DPUT)			BUFFER ADDR
1751			1752	4581+	DS	CL(@DADDR)			START OF DPL FOR NEW BLOCK
1753	02		1753	4582+	DC	AL1(##LU)			NEW DISK ADDR
1754	1759		1755	4583+	DC	AL2(STUHDR)			SECTOR COUNT OF DIRCTY
1756	0000		1757	4584+STUC00	DC	IL2'0'			NEW BLOCK HEADER ADDR
1758	02		1758	4585+STUCLU	DC	AL1(##LU)			TEST VALUE FOR SPACE FOUND
				4586+*					SECTOR COUNT FOR USER DIRCTY
				4587+*					
				4588+*		FOLLOWING IS THE NEW HEADER TO BE WRITTEN IF A NEW USER			
				4589+*		DIRECTRY BLOCK IS CREATED.			
1759			1759	4590+STUHDR	EQU	*			START OF HEADER
			1764	4591+STUNHD	DS	IL(##LUH)			SAVE AREA FOR NEW ENTRY
			1759	4592+STUCNT	EQU	STUHDR			WORK AREA FOR COUNTER
1765			1796	4593+STUNNT	DS	IL(##LUE)			SAVE AREA FOR NEW ENTRY
				4594+*					
1797	01		1797	4595+STUC01	DC	IL1'1'			CONSTANT 1 TO DECR ENTRY COUNT
				4596+***			END OF STUFID		***
				4597 *		\$GETD			

## SGETDB - GET USER DIRECTORY BLOCK ROUTINE

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 23/05/20 PAGE 62
4599+				*****	*
4600+	*			5703-XM1 COPYRIGHT IBM CORP. 1970	*
4601+	*			REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083	*
4602+	*				*
4603+	*			*****	*
4604+	*			STATUS	*
4605+	*			VERSION 1 MODIFICATION 0	*
4606+	*				*
4607+	*			FUNCTION	*
4608+	*			* SGETDB PROVIDES TWO PRIMARY FUNCTIONS. IT WILL SEARCH THE	*
4609+	*			PASSWORD DIRECTORY FOR A SPECIFIED PASSWORD ONLY, OR IF	*
4610+	*			INDICATED WILL GO AND READ IN THE FIRST USER BLOCK ASSOCIATED	*
4611+	*			WITH THAT PASSWORD.	*
4612+	*			* IF THE PASSWORD SEARCH ONLY IS REQUESTED A SWITCH IS SET TO	*
4613+	*			INHIBIT READING THE DIRECTORY ON SUBSEQUENT ENTRIES.	*
4614+	*			* THE ERROR CODE FOR PASSWORD NOT FOUND IS ALWAYS SET IN \$CAERR.	*
4615+	*			IF THE PASSWORD IS OR IS NOT FOUND THE INDICATOR IN SMIND1 IS	*
4616+	*			SET APPROPRIATELY.	*
4617+	*				*
4618+	*			ENTRY POINTS	*
4619+	*			SGETDB - ENTRY TO SEARCH PASSWORD DIRECTORY AND GET	*
4620+	*			ASSOCIATED USER DIRECTORY. THE CALLING SEQUENCE IS	*
4621+	*			AS FOLLOWS:	*
4622+	*			B SGETDB	*
4623+	*				*
4624+	*			INPUT	*
4625+	*			* THE BASE ADDRESS OF THE LIBRARY MUST BE IN SM1FDA IN TSMLES.	*
4626+	*			* THE PASSWORD MUST BE IN SMPSWD.	*
4627+	*			* IF THE PASSWORD DIRECTORY IS TO BE SEARCHED ONLY, THEN SM1PDS	*
4628+	*			IN SMIND1 MUST BE SET TO 1. IF THE FIRST USER DIRECTORY BLOCK	*
4629+	*			ASSOCIATED WITH THE SPECIFIED PASSWORD IS TO BE READ IN THEN	*
4630+	*			THEN SM1PDS MUST BE SET TO 0.	*
4631+	*				*
4632+	*			OUTPUT	*
4633+	*			* IF THE SPECIFIED PASSWORD IS FOUND THE ADDRESS OF THE LEFT BYTE	*
4634+	*			OF THE ENTRY IS PLACED IN SMPEAD, SM1PNF IN SMIND1 IS SET TO 0.	*
4635+	*			AND THE USER DIRECTORY RDADDR IS PLACED IN SMFUDA.	*
4636+	*			* IF THE USER DIRECTORY WAS REQUESTED, THE READ OPERATION IS	*
4637+	*			STARTED BUT NO WAIT IS PERFORMED. THE USER DIRECTORIES OVERLAY	*
4638+	*			THE PASSWORD DIRECTORIES IN CORE.	*
4639+	*			* IF THE SPECIFIED PASSWORD WAS NOT FOUND SM1PNF, IS SET TO 1 AND	*
4640+	*			THE ADDRESS FOR THE NEXT AVAILABLE ENTRY IS IN SMPEAD.	*
4641+	*				*
4642+	*			EXTERNAL REFERENCES	*
4643+	*			\$CAERR - LOCATION FOR SYSTEM ERROR CODE	*
4644+	*			SMIND1 - DATA MANAGEMENT INDICATOR	*
4645+	*			DL2RAD - LOCATION OF FILE PHYSICAL BASE ADDRESS	*
4646+	*			SMBFDA - LOCATION OF LIBRARY BASE ADDRESS	*
4647+	*			DL2ICS - ENTRY TO DISK I/O ROUTINE	*
4648+	*			\$DISKN - ENTRY TO SYSTEM DISK IOCS	*
4649+	*			\$WAITF - LOCATION OF COMMON I/O WAIT FUNCTION	*
4650+	*			SMPSWD - LOCATION PASSWORD ARGUMENT	*
4651+	*			SMPEAD - LOCATION OF PASSWORD ENTRY ADDRESS	*
4652+	*			SMFUDA - LOCATION OF USER DIRECTORY RDADDR	*
4653+	*				*
4654+	*			EXITS, NORMAL	*

## SGETDB - GET USER DIRECTORY BLOCK ROUTINE

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 23/05/20 PAGE 63
			4655+*	NORMAL EXIT IS TO THE FIRST INSTRUCTION FOLLOWING THE BRANCH	*
			4656+*	TO SGETDB	*
			4657+*		*
			4658+*	EXITS, ERROR	*
			4659+*	NONE	*
			4660+*		*
			4661+*	TABLES/WORKAREAS	*
			4662+*	NONE	*
			4663+*		*
			4664+*	ATTRIBUTES	*
			4665+*	RELOCATABLE	*
			4666+*	REUSABLE	*
			4667+*		*
			4668+*	CHARACTER CODE DEPENDENCY	*
			4669+*	THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR	*
			4670+*	INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.	*
			4671+*		*
			4672+*	NOTES	*
			4673+*	ERROR PROCEDURES	*
			4674+*	THE ERROR CODE FOR PASSWORD NOT FOUND IS ALWAYS SET BUT SGETDB	*
			4675+*	DETECTS NO PARTICULAR ERROR. THE CONDITION AS TO IF THE	*
			4676+*	PASSWORD WAS OR WAS NOT FOUND IS INDICATED HOWEVER.	*
			4677+*		*
			4678+*	REGISTER USAGE	*
			4679+*	@BR AND @XR1 ARS SAVED AND RESTORED. @BR IS USED AS A BASE	*
			4680+*	REGISTER AND @XR IS USED AS AN INDEX TO THE PASSWORD DIRCTY.	*
			4681+*	@ARR IS USED TO PROVIDE THE RETURN ADDRESS.	*
			4682+*		*
			4683+*	SAVED/RESTORED AREAS	*
			4684+*	NONE	*
			4685+*		*
			4686+*	MODIFICATION CONSIDERATIONS	*
			4687+*	IN USING SGETDB THE USER MUST TAKE INTO CONSIDERATION THAT	*
			4688+*	SGETDB DOES NOT WAIT FOR THE USER DIRECTORY BLOCK TO BE IN	*
			4689+*	CORE BEFORE RETURNING.	*
			4690+*		*
			4691+*	REQUIRED MODULES	*
			4692+*	@SYSEQ - SYSTEM SOFTWARE EQUATES	*
			4693+*	@FXDEQ - NUCLEUS EQUATES	*
			4694+*	@DIREQ - LIBRARY DIRECTORY EQUATES	*
			4695+*	DL2ICS - DISK IOCS	*
			4696+*	TSMLES - DATA MANAGEMENT COMMUNICATIONS AREA	*
			4697+*		*
			4698+*	OTHER	*
			4699+*	NONE	*
			4700+*	*****	*
			4701+*	SGETDB ENTER BASE, SGETDB, EXIT, SGE90, @BR, @XR, @ARR	*
		1798	4702+*	USING SGETDB, @BR	BASE ADDRESS SPECIFICATION
		1798	4703+*	SGETDB EQU *	MODULE ENTRY POINT
1798 34 01 1810			4704+*	ST SGE900+@OP1, @BR	SAVE @BR
179C C2 01 1798			4705+*	LA SGETDB, @BR	LOAD BASE REGISTER
17A0 74 02 7C			4706+*	ST SGE901+@OP1(, @BR), @XR	SAVE @XR
17A3 74 08 80			4707+*	ST SGE902+@OP1(, @BR), @ARR	SAVE RETURN ADDRESS
			4708+***	END OF EXPANSION ***	

17A6 3C 23 03CD

4710+ MVI \$CAERR, @@E210

PASSWORD NOT ON DISK

## SGETDB - GET USER DIRECTORY BLOCK ROUTINE

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT VER 15, MOD 00 23/05/20 PAGE 64

17AA	3B	08	0EFE		4711+	SBF	SMIND1,SM1PNF	INITIALIZE INDICATOR TO FOUND
17AE	F2	80	15		4712+SGE050	JC	SGE055,@NOP	SET SWITCH FOR 2ND ENTRY
17B1	7C	87	17		4713+	MVI	SGE050+@Q(,@BR),@UCB	TURN SWITCH ON FOR NEXT ENTRY
17B4	0C	01	16AE 0F18		4714+	MVC	DL2RAD,SMBFDA	STUFF IN THE BASE ADDR
17BA	C0	87	1616		4715+	B	DL2ICS	CALL DISK I/O ROUTINE
17BE	1819			17BF	4716+	DC	AL2(SGEDPL)	POINTER TO PARAMETER LIST
17C0	C0	87	0025		4717+	B	\$DISKN	WAIT FOR DIRCTY TO LOAD
17C4	057F			17C5	4718+	DC	AL2(\$WAITF)	WAIT FOR DIRCTY
17C6	75	02	86		4720+SGE055	L	SGEDPL+@DBFR2(,@BR),@XR	PASSWORD BUFFER CADDR
17C9	6C	00	89 00		4721+	MVC	SGECNT(1,@BR),##DPHC(,@XR)	ENTRY COUNT TO WORK
17CD	E2	02	04		4722+	LA	##DPE1(,@XR),@XR	BUMP TO FIRST PASSWORD
					4723+*			
17D0	2D	07	0F0C 07		4724+SGE060	CLC	SMPSWD(##LPEN),##DPEN(,@XR)	LOOK AT PSWD ENTRY
17D5	F2	81	0E		4725+	JE	SGE070	FOUND THE PSWD
17D8	E2	02	0C		4726+	LA	##LPE(,@XR),@XR	BUMP TO LOOK AT NEXT ENTRY
17DB	5F	00	89 8B		4727+	SLC	SGECNT(1,@BR),SGEC01(,@BR)	DECR ENTRY COUNT
17DF	D0	01	38		4728+	BNE	SGE060(,@BR)	BACK FOR LOOK AT ENTRY
17E2	3A	08	0EFE		4729+	SBN	SMIND1,SM1PNF	NOT FOUND INDICATOR
					4730+*			
					4731+*			
					4732+*		THE PASSWORD OR THE END OF THE DIRCTY HAS BEEN FOUND,	
					4733+*		SAVE THE POINTERS.	
17E6	34	02	0F26		4734+SGE070	ST	SMPEAD,@XR	SAVE ENTRY ADDRESS
17EA	2C	01	0F28 09		4735+	MVC	SMFUDA(@DADDR),##DPEA(,@XR)	POSSIBLE USER DADDR OF BLK
17EF	38	10	0EFE		4736+	TBN	SMIND1,SM1PDS	TEST SEARCH BIT ONLY ON
17F3	F2	10	17		4737+	JT	SGE900	SEARCH ONLY SO EXIT
17F6	7D	00	89		4738+	CLI	SGECNT(,@BR),@ZERO	TEST COUNT IF ENTRY FOUND
17F9	F2	81	11		4739+	JE	SGE900	JUMP IF NOT FOUND
17FC	6C	01	83 09		4740+SGE080	MVC	SGEDPL+@DSAD(@DADDR,@BR),##DPEA(,@XR)	BLK ADDR TO DPL
1800	C0	87	1616		4741+	B	DL2ICS	CALL TO READ USER DIRCTY
1804	1819			1805	4742+	DC	AL2(SGEDPL)	POINTER TO PARAMETER LIST
					4743+*			
1806	7C	80	17		4744+	MVI	SGE050+@Q(,@BR),@NOP	TURN OFF SKIP INSTR
1809	5C	01	83 88		4745+	MVC	SGEDPL+@DSAD(@DADDR,@BR),SGERAD(,@BR)	RESTORE DSAD PSWD
					4746+*			
					4747+*SGE900	EXIT	@BR,@XR,,RETURN	
180D	C2	01	0000		4748+SGE900	LA	*-*,@BR	RESTORE OBR
1811	C2	02	0000		4749+SGE901	LA	*-*,@XR	RESTORE OXR
1815	C0	87	0000		4750+SGE902	B	*-*	RETURN TO CALLING PROGRAM
					4751+***		END OF EXPANSION ***	
					4752+*			
					4753+*		DPL TO READ IN THE PASSWORD DIRCTY	
					4754+*			
					4755+*SGEDPL \$DPL		FUNC-@DGET,DADDR-##RP,CNT-##LP,CADDR-SMPDB1	
				1819	4756+SGEDPL	EQU	*	DISK PARAMETER
1819	01			1819	4757+	DC	AL1(@DGET)	REQUESTED FUNCTION
181A	0001			181B	4758+	DC	AL2(##RP)	DISK ADDRESS
181C	04			181C	4759+	DC	AL1(##LP)	SECTOR COUNT
181D	0F2D			181E	4760+	DC	AL2(SMPDB1)	BUFFER ADDRESS
					4761+***		END OF EXPANSION ***	
181F	0001			1820	4763+SGERAD	DC	AL2(##RP)	RELATIVE DADDR OF DIRCTY
1821				1821	4764+SGECNT	DS	CL1	SAVE AREA FOR ENTRY COUNT
1822	0001			1823	4765+SGEC01	DC	IL2'1'	CONSTANT 1 FOR ADDR MODIFCATION

[illegible]

1824	4767+SGEEND	EQU	*
	4768+***		
	4769 *	\$URCH	

1824	4767+SGEEND EQU *	END ADDR OF SGETDB
	4768+***	END OF SGETDB
4769	* \$URCH	

1824	4767+SGEEND EQU *	END ADDR OF SGETDB	
	4768+***	END OF SGETDB	***
	4769 *	\$URCH	

## SURCHN - SEARCH THE NULL DIRECTORY

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	23/05/20	PAGE 66
		4771+		*****			*
		4772+	*	5703-XM1 COPYRIGHT IBM CORP. 1970			*
		4773+	*	REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083			*
		4774+	*				*
		4775+		*****			*
		4776+	*	STATUS			*
		4777+	*	VERSION 1 MODIFICATION 0			*
		4778+	*				*
		4779+	*	FUNCTION			*
		4780+	*	* SURCHN WILL SEARCH THE NULL DIRECTORY FOR AN ENTRY OF AT LEAST			*
		4781+	*	N SECTORS WHERE N IS THE NUMBER OF SECTORS REQUIRED. IF THE			*
		4782+	*	SPACE IS FOUND THE STARTING ADDRESS IS PLACED IN SMNDEA. IF IT			*
		4783+	*	IS NOT FOUND SMNDEA IS SET TO ZERO, AND SMNULT CONTAINS THE			*
		4784+	*	TOTAL OF ALL NULL SECTORS IN THE LIBRARY.			*
		4785+	*				*
		4786+	*	ENTRY POINTS			*
		4787+	*	SURCHN - ENTRY TO SEARCH FOR NULL SPACE. THE CALLING			*
		4788+	*	SEQUENCE IS AS FOLLOWS:			*
		4789+	*	B SURCHN			*
		4790+	*				*
		4791+	*	INPUT			*
		4792+	*	* THE INPUT TO SURCHN IS VIA TSMLES. SMNSCT MUST CONTAIN THE			*
		4793+	*	NUMBER OF SECTORS REQUIRED. SMNDBA MUST CONTAIN THE ADDRESS OF			*
		4794+	*	THE NULL DIRECTORY IN CORE.			*
		4795+	*				*
		4796+	*	OUTPUT			*
		4797+	*	* SMNDEA WILL CONTAIN THE RELATIVE DISK ADDRESS OF THE NULL AREA			*
		4798+	*	SMNDEA WILL BE ZERO IF THE SPACE IS NOT FOUND.			*
		4799+	*	* IF THE SPACE REQUIRED IS NOT FOUND SMNULT WILL CONTAIN THE			*
		4800+	*	TOTAL OF NULL SECTORS IN THE LIBRARY.			*
		4801+	*				*
		4802+	*	EXTERNAL REFERENCES			*
		4803+	*	\$CAERR - LOCATION OF SYSTEM ERROR CODE INDICATOR			*
		4804+	*	SMNDBA - LOCATION OF NULL DIRECTORY BUFFER ADDRESS			*
		4805+	*	SMNULT - LOCATION OF NULL TOTAL COUNT			*
		4806+	*	SMNSCT - LOCATION OF REQUIRED SECTOR COUNT			*
		4807+	*	SMNDEA - LOCATION OF THE NULL DIRCTY ENTRY ADDRESS.			*
		4808+	*				*
		4809+	*	EXITS, NORMAL			*
		4810+	*	NORMAL RETURN IS TO THE FIRST INSTRUCTION FOLLOWING THE BRANCH			*
		4811+	*	TO SURCHN.			*
		4812+	*				*
		4813+	*	EXITS, ERROR			*
		4814+	*	N/A			*
		4815+	*				*
		4816+	*	TABLES/WORKAREAS			*
		4817+	*	NONE			*
		4818+	*				*
		4819+	*	ATTRIBUTES			*
		4820+	*	RELOCATABLE			*
		4821+	*	REUSEABLE			*
		4822+	*				*
		4823+	*	CHARACTER CODE DEPENDENCY			*
		4824+	*	THE OPERATION OF THIS MODULE DOES NOT DEPEND ON A PARTICULAR			*
		4825+	*	INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.			*
		4826+	*				*

SURCHN - SEARCH THE NULL DIRECTORY

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	23/05/20	PAGE 67	
		4827+	*	NOTES				*
		4828+	*	ERROR PROCEDURES				*
		4829+	*	N/A				*
		4830+	*					*
		4831+	*	REGISTER USAGE				*
		4832+	*	@BR AND @XR ARE SAVED AND RESTORED ON EXIT. @BR IS USED AS A				*
		4833+	*	BASE REGISTER AND @XR IS USED TO POINT TO THE NULL DIRECTORY.				*
		4834+	*					*
		4835+	*	SAVED/RESTORED AREAS				*
		4836+	*	NONE				*
		4837+	*					*
		4838+	*	MODIFICATION CONSIDERATIONS				*
		4839+	*	NONE				*
		4840+	*					*
		4841+	*	REQUIRED MODULES				*
		4842+	*	@SYSEQ - SYSTEM SOFTWARE EQUATES.				*
		4843+	*	@DIREQ - LIBRARY DIRECTORY EQUATES				*
		4844+	*	@FXDEQ - SYSTEM NUCLEUS EQUATES				*
		4845+	*					*
		4846+	*	OTHER				*
		4847+	*	NONE				*
		4848+	*	*****				*



SURCHN - SEARCH THE NULL DIRECTORY

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 23/05/20 PAGE 68
					4850+	*****	*****	
					4851+	*	SURCHN WILL SEARCH THE NULL DIRECTORY FOR THE NUMBER OF SECTORS	*
					4852+	*	SPECIFIED IN SMNSCT. THE ADDR OF THE SPACE FOUND WILL BE PLACED	*
					4853+	*	IN SMNDEA. IF NO SPACE IS FOUND SMNDEA IS SET TO ZERO.	*
					4854+	*****	*****	
				1824	4855+	SURCHN EQU *	ENTRY TO SURCHN	
				0001	4856+	SURE01 EQU 1	VALUE TO TEST COUNTERS	
				1828	4857+	USING SUR000,@BR	SPECIFY BASE REGISTER	
1824	34	01	1887		4858+	ST SUR900+@OP1,@BR	SAVE BASE OF CALLER	
1828	C2	01	1828		4859+	SUR000 LA SUR000,@BR	ESTABLISH BASE ADDR	
182C	74	02	63		4860+	ST SUR910+@OP1(,@BR),@XR	SAVE INDEX	
182F	74	08	67		4861+	ST SUR920+@OP1(,@BR),@ARR	SET RETURN ADDR	
1832	3C	43	03CD		4862+	MVI \$CAERR,@E300	LIBRARY SPACE NOT AVAILABLE	
					4863+	*		
1836	35	02	0F2A		4864+	L SMNDBA,@XR	GET ADDR TO NULL DIRCTY	
183A	1C	01	0F1C 9A		4865+	MVC SMNULT(SURE02),SURC00(,@BR)	CLEAR TOTAL FIELD	
					4866+	*		
183F	6C	00	1F 00		4867+	MVC SURCNT(SURE01,@BR),##DNHC(,@XR)	ENTRY COUNT FROM HEADER	
1843	E2	02	04		4868+	LA ##DNE1(,@XR),@XR	BUMP POINTER TO FIRST ENTRY	
1846	7D	00	9A		4869+	SUR010 CLI SURC00(,@BR),*-*		
				1847	4870+	SURCNT EQU SUR010+@Q		
1849	F2	81	44		4871+	JE SUR0G2	NO ENTRIES	
					4872+	*		
					4873+	*	SEARCH ENTRIES FOR ONE WITH ENOUGH SPACE	
					4874+	*		
184C	8D	01	03 0F20		4875+	CLC ##DNEF(##LNEF,@XR),SMNSCT	LOOK FOR LARGE ENOUGH COUNT	
1851	F2	02	0F		4876+	JNL SUR0A2	ENTRY GREATER OR EQUAL	
					4877+	*		
					4878+	*	ENTRY IS LESS THAN SPECIFIED COUNT. ADD ENTRY COUNT TO	
					4879+	*	SMNULT AND TOTAL AVAILABLE SPACE.	
					4880+	*		
1854	2E	01	0F1C 03		4881+	ALC SMNULT,##DNEF(##LNEF,@XR)	ADD COUNT TO NULL TOTAL	
1859	E2	02	06		4882+	LA ##LNE(,@XR),@XR	BUMP TO NEXT ENTRY	
185C	5F	00	1F 9B		4883+	SLC SURCNT(SURE01,@BR),SURC01(,@BR)	DECR WORKING COUNT	
1860	D0	87	1E		4884+	B SUR010(,@BR)	GO LOOK AT NEXT ENTRY	
					4885+	*		
					4886+	*	LARGE ENOUGH SPACE HAS BEEN FOUND. TAKE THE REQUIRED	
					4887+	*	NUMBER OF SECTORS AND MODIFY OR DELETE THE ENTRY. SAVE	
					4888+	*	DIRECTORY ENTRY ADDR.	
					4889+	*		
1863	2C	01	0F1E 01		4890+	SUR0A2 MVC SMNDEA,##DNEA(@DADDR,@XR)	SAVE DADDR OF SPACE FOUND	
					4891+	*		
					4892+	*	TEST IF ENTRY IS OF EQUAL SIZE OF REQUIRED SPACE.	
					4893+	*		
1868	F2	01	2D		4894+	JNE SUR0A3	ENTRY NOT THE SAME SIZE JUMPS	
					4895+	*		
					4896+	*	ENTRY IS OF EQUAL SIZE SO DELETE IT FROM THE DIRECTORY.	
					4897+	*		
					4898+	*	MOVE EACH ENTRY OF DIRECTORY UP ONE POSITION	
					4899+	*		
186B	AC	05	05 0B		4900+	SUR020 MVC ##DNER(,@XR),##DNER+##LNE(##LNE,@XR)	MOVE ENTRY	
186F	5F	00	1F 9B		4901+	SLC SURCNT(SURE01,@BR),SURC01(,@BR)	DECR ENTRY COUNT	
1873	F2	81	06		4902+	JE SUR024	ZERO COUNT JUMP	
					4903+	*		
1876	E2	02	06		4904+	LA ##LNE(,@XR),@XR	BUMP POINTER TO NEXT *TRY	
1879	D0	87	43		4905+	B SUR020(,@BR)	BACK TO MOVE NEXT ENTRY	

## SURCHN - SEARCH THE NULL DIRECTORY

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE 69
187C	35	02	0F2A		4907+	SUR024 L	SMNDBA,@XR			RESTORE POINTER TO START OF BUF
1880	9F	01	00 9B		4908+	SLC	##DNHC(SURE02,@XR),SURC01(,@BR)			DECR HEADER COUNT
					4909+*					
					4910+*		RETURN ACTION			
					4911+*					
1884	C2	01	0000		4912+	SUR900 LA	*-*,@BR			RESTORE BASE
1888	C2	02	0000		4913+	SUR910 LA	*-*,@XR			RESTORE INDEX
188C	C0	87	0000		4914+	SUR920 B	*-*			RETURN ADDR
					4915+*					
					4916+*		NO ENTRY FOUND. CLEAR SMNDEA AND RETURN			
					4917+*					
1890	1C	01	0F1E 9A		4918+	SUR0G2 MVC	SMNDEA(@CADDR),SURC00(,@BR)			CLEAR DADDR POINTER
1895	D0	87	5C		4919+	B	SUR900(,@BR)			
					4920+*					
					4921+*		REDUCE ENTRY BY REQUIRED SECTORS. MODIFY THE RELATIVE			
					4922+*		ADDRESS OF ENTRY TO NEW STARTING LOCATION OF THE NULL			
					4923+*		AREA WHICH IS THE REQUIRED SPACE+1.			
					4924+*					
1898	8F	01	03 0F20		4925+	SUR0A3 SLC	##DNEF(##LNEF,@XR),SMNSCT			DECR ENTRY BY REQUIRED COUNT
189D	6C	00	94 00		4926+	MVC	SURSWK(1,@BR),##DNEA-1(,@XR)			GET CYL COUNT
18A1	BC	00	00		4927+	MVI	##DNEA-1(,@XR),@ZERO			CLEAR CYL IN ENTRY
18A4	8E	01	01 0F20		4928+	ALC	##DNEA(SURE02,@XR),SMNSCT			BUMP SECTOR BY SPACE USED
18A9	9F	01	01 9D		4929+	SUR034 SLC	##DNEA(SURE02,@XR),SURC48(,@BR)			DECR BY 1 CYL VALUE
18AD	F2	82	07		4930+	JL	SUR033			JUMP LEIS THAN A SECTOR
18B0	5E	00	94 9B		4931+	ALC	SURSWK(1,@BR),SURC01(,@BR)			BUMP CYL COUNT
18B4	D0	87	81		4932+	B	SUR034(,@BR)			BACK FOR NEXT CYL
18B7	9E	01	01 9D		4933+	SUR033 ALC	##DNEA(SURE02,@XR),SURC48(,@BR)			RESTORE REMAINDER
18BB	BC	00	00		4934+	SUR03C MVI	##DNEA-1(,@XR),*-*			PLUG CYLINDER BACK INTO DADDR
				18BC	4935+	SURSWK EQU	SUR03C+@Q			ADDR OF CYL IN INSTR
18BE	D0	87	5C		4936+	B	SUR900(,@BR)			GO TO RETURN
					4937+*					
					4938+*		CONSTANTS AND WORK AREA			
					4939+*					
				0002	4940+	SURE02 EQU	2			VALUE FOR MOVES
18C1	0000			18C2	4941+	SURC00 DC	IL2'0'			ZERO FOR COUNT TEST
18C3	01			18C3	4942+	SURC01 DC	IL1'1'			VALUE TO INCR COUNTS
18C4	0030			18C5	4943+	SURC48 DC	IL2'48'			CYL VALUE
					4944+***					
					4945 *	\$RCHF		END OF SURCHN		***

## SRCHFN - SEARCH FOR FILE NAME IN USER DIRECTORY

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	23/05/20	PAGE 70
4947+				*****			
4948+	*			5703-XM1 COPYRIGHT IBM CORP. 1970			*
4949+	*			REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083			*
4950+	*						*
4951+				*****			*
4952+	*			STATUS			*
4953+	*			VERSION 1 MODIFICATION 0			*
4954+	*						*
4955+	*			FUNCTION			*
4956+	*			* SRCHFN SEARCHES A USER DIRECTORY FOR A SPECIFIED FILENAME. IT			*
4957+	*			IS ASSUMED THAT THE DIRECTORY TO BE SEARCHED HAS BEEN READ INTO			*
4958+	*			CORE AT SMUDBI IN TSMLES. IF THE DIRECTORY IS LINKED TO AN			*
4959+	*			ADDITIONAL BLOCK IT IS READ IN TO THE SECONDARY BUFFER WHILE			*
4960+	*			THE PRIMARY BLOCK IS SEARCHED.			*
4961+	*			* THE ADDRESS OF THE ENTRY OR THE ADDRESS FOR A NEW ENTRY IS			*
4962+	*			PLACED IN SMUDEA. THE ADDRESS OF THE ACTIVE DIRECTORY IS PLACED			*
4963+	*			IN SMUDBA. IF THE NAME WAS NOT FOUND SMIFNE IS SET TO 1 IN			*
4964+	*			SMIND1. IF THE NAME WAS FOUND THE INDICATOR IS SET TO 0.			*
4965+	*						*
4966+	*			ENTRY POINTS			*
4967+	*			SRCHFN - ENTRY TO SEARCH FOR A FILENAME. THE CALLING SEQUENCE			*
4968+	*			IS AS FOLLOWS:			*
4969+	*			B SRCHFN			*
4970+	*						*
4971+	*			INPUT			*
4972+	*			THE USER DIRECTORY BLOCK MUST BE READ INTO SMUDB1 IN TSMLES.			*
4973+	*			THE NAME OF THE ENTRY TO SEARCH FOR MUST BE IN SMFNAM IN TSMLES			*
4974+	*						*
4975+	*			OUTPUT			*
4976+	*			* IF THE FILE NAME IS FOUND THE ADDRESS OF THE ENTRY IS SET IN			*
4977+	*			SMUDEA. THE ADDRESS OF THE BUFFER CONTAINING THE ENTRY IS IN			*
4978+	*			SMUDBA, AND THE INDICATOR BIT SMIFNE IN SMIND1 IS SET TO 0.			*
4979+	*			* IF THE FILE NAME WAS NOT FOUND SMUDEA CONTAINS THE ADDRESS OF			*
4980+	*			WHERE THE NEXT ENTRY MAY BE MADE IN THE DIRECTORY. SMUDBA			*
4981+	*			CONTAINS THE ADDRESS OF THE BUFFER CONTAINING THE LAST BLOCK,			*
4982+	*			AND SMIFNE IS SET TO 1 IN SMIND1.			*
4983+	*			* SMUDEA CONTAINS THE ADDRESS OF THE LEFTMOST BYTE OF THE FIELD,			*
4984+	*			* THE ERROR CODE FOR FILE NOT FOUND IS ALWAYS MOVED TO \$CAERR,			*
4985+	*						*
4986+	*			EXTERNAL REFERENCES			*
4987+	*			\$CAERR - LOCATION OF ERROR CODE INDICATOR.			*
4988+	*			\$DISKN - ENTRY TO DISK IOCS.			*
4989+	*			\$WAITF - ADDRESS OF COMMON I/O WAIT FUNCTION.			*
4990+	*			DL2ICS - ENTRY TO DISK LOGICAL IOCS.			*
4991+	*			SMFNAM - ADDRESS OF FILENAME SAVE AREA			*
4992+	*			SMUDEA - ADDRESS OF USER DIRECTORY ENTRY ADDRESS.			*
4993+	*			SMUDBA - ADDRESS OF USER DIRECTORY BUFFER ADDRESS.			*
4994+	*			SMDAAD - LOCATION OF RELATIVE DISK ADDRESS OF ACTIVE BUFFER.			*
4995+	*			SMIFNE - VALUE OF NOT FOUND INDICATOR.			*
4996+	*			SMIND1 - LOCATION INDICATOR 1.			*
4997+	*			SMUDB1 - ADDRESS OF DIRECTORY BLOCK BUFFER.			*
4998+	*			SMUDB2 - ADDRESS OF DIRECTORY BLOCK BUFFER.			*
4999+	*						*
5000+	*			EXITS, NORMAL			*
5001+	*			THE REGISTER @BR @XR ARE RESTORED AND THE EXIT IS TO THE			*
5002+	*			ADDRESS SAVED FROM THE @ARR REGISTER.			*

## SRCHFVN - SEARCH FOR FILE NAME IN USER DIRECTORY

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	23/05/20	PAGE 71
		5003+	*				*
		5004+	*	EXITS, ERROR			*
		5005+	*	NONE.			*
		5006+	*				*
		5007+	*	TABLES/WORKAREAS			*
		5008+	*	NONE			*
		5009+	*				*
		5010+	*	ATTRIBUTES			*
		5011+	*	RELOCATABLE			*
		5012+	*				*
		5013+	*	CHARACTER CODE DEPENDENCY			*
		5014+	*	CHARACTER CODE DEPENDENCY CLASS - C			*
		5015+	*	THE OPERATION OF THIS MODULE DEPENDS UPON AN INTERNAL REPRESENTA-			*
		5016+	*	TION OF THE EXTERNAL CHARACTER SET WHICH IS EQUIVALENT TO THE ONE			*
		5017+	*	USED AT ASSEMBLY TIME. THE CODING HAS BEEN ARRANGED SO THAT RE-			*
		5018+	*	DEFINITION OF CHARACTER CONSTANTS, BY REASSEMBLY, WILL RESULT IN			*
		5019+	*	A CORRECT MODULE FOR THE NEW DEFINITIONS.			*
		5020+	*				*
		5021+	*	NOTES			*
		5022+	*	ERROR PROCEDURES			*
		5023+	*	NONE			*
		5024+	*				*
		5025+	*	REGISTER USAGE			*
		5026+	*	@BR AND @XR ARE SAVED ON ENTRY AND RESTORED AT EXIT.			*
		5027+	*	@ARR IS USED AS THE RETURN ADDRESS.			*
		5028+	*				*
		5029+	*	SAVED/RESTORED AREAS			*
		5030+	*	NONE			*
		5031+	*				*
		5032+	*	MODIFICATION CONSIDERATIONS			*
		5033+	*	NONE			*
		5034+	*				*
		5035+	*	REQUIRED MODULES			*
		5036+	*	@SYSEQ - SYSTEM SOFTWARE EQUATES.			*
		5037+	*	@DIREQ - LIBRARY DIRECTORY EQUATES.			*
		5038+	*	@FXDEQ - SYSTEM NUCLEUS EQUATES.			*
		5039+	*	DL2ICS - LOGICAL DISK IOCS.			*
		5040+	*	TSMLES - DATA MANAGEMENT COMMUNICATIONS AREA.			*
		5041+	*				*
		5042+	*	OTHER			*
		5043+	*	NONE			*
		5044+	*	*****			*

## SRCHFN - SEARCH FOR FILE NAME IN USER DIRECTORY

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18C6	34	01	1950	18C6	5046+SRCHFN	EQU	*	ENTRY TO SEARCH FILENAME
					5047+	ST	SRC900+@OP1,@BR	SAVE BASE REGISTER
				18CA	5048+	USING	SRC010,@BR	
18CA	C2	01	18CA		5049+SRC010	LA	SRC010,@BR	SET BASE ADDR
18CE	74	02	8A		5050+	ST	SRC910+@OP1(,@BR),@XR	SAVE INDEX REG
18D1	74	08	8E		5051+	ST	SRC920+@OP1(,@BR),@ARR	SAVE RETURN ADDR
18D4	3C	24	03CD		5052+	MVI	\$CAERR,@E211	FILE NOT FOUND
18D8	5C	01	9B A1		5053+	MVC	SRCBF1(@CADDR,@BR),SRCBA1(,@BR)	INITIALIZE OLF POINTER
18DC	5C	01	9D A3		5054+	MVC	SRCBF2(@CADDR,@BR),SRCBA2(,@BR)	ALTERNATE BUFFER
18E0	5C	01	9F 9B		5055+	MVC	SRCACT(@CADDR,@BR),SRCBF1(,@BR)	SET ACTIVE BUFFER
18E4	C0	87	0025		5057+SRC020	B	\$DISKN	WAIT FOR USER BLOCK
18E8	057F			18E9	5058+	DC	AL2(\$WAITF)	WAIT OP DPL
					5059+*			
18EA	7C	87	5E		5060+	MVI	SRC055+@Q(,@BR),@UCB	RESET NOP FOR LINKED DIRCTY
18ED	75	02	9F		5061+	L	SRCACT(,@BR),@XR	PICKUP POINTER TO ACTIVE BUFFER
					5062+*			
					5063+*			BLOCK LINK SHOULD ALWAYS BE GREATER THAN 1 IF IT IS
					5064+*			PRESENT. IF NOT THE LINK BYTE SHOULD BE ZERO.
					5065+*			
18F0	9D	01	03 A6		5066+	CLC	##DUHB(@DADDR,@XR),SRCC01(,@BR)	TEST LIVE FIELD
18F4	F2	82	11		5067+	JL	SRC030	JUMP NOT LINKED
18F7	5C	01	AC 9D		5068+	MVC	SRCBFR(@DADDR,@BR),SRCBF2(,@BR)	GET ALTERNATE BUFFER ADDR
18FB	6C	01	A9 03		5069+	MVC	SRCADAD(@DADDR,@BR),##DUHB(,@XR)	SET LINK TO MEXT BLOCK
18FF	C0	87	1616		5070+	B	DL2ICS	READ NEXT BLOCK
1903	1971			1904	5071+	DC	AL2(SRCDPL)	POINTER TO DPL
					5072+*			
1905	7C	80	5E		5073+	MVI	SRC055+@Q(,@BR),@NOP	SET SWITCH FOR LINKED BLOCK
1908	6C	00	A4 04		5074+SRC030	MVC	SRCCNT(1,@BR),##DUHC(,@XR)	GET ENTRY COUNT
190C	E2	02	0C		5075+	LA	##DUEI(,@XR),@XR	BUMP TO FIRST ENTRY
190F	7D	00	A4		5076+	CLI	SRCCNT(,@BR),@ZERO	IS STARTING COUNT ZERO ?
1912	D0	81	5D		5077+	BE	SRC055(,@BR)	YES, RETURN NOT FOUND
1915	8D	07	07 0F14		5078+SRC035	CLC	##DUEN(##LUEN,@XR),SMFNAM	LOOK AT ENTRY
191A	F2	81	1C		5079+	JE	SRC040	JUMP IF THE NAME IS FOUND
191D	E2	02	32		5080+	LA	##LUE(,@XR),@XR	BUMP THE POINTER FOR NEXT ENTRY
1920	5F	00	A4 A6		5081+	SLC	SRCCNT(1,@BR),SRCC01(,@BR)	DECR ENTRY COUNTER
1924	D0	01	4B		5082+	BNE	SRC035(,@BR)	BACK TO TEXT NEXT ENTRY
1927	F2	00	2F		5083+SRC055	JC	SRC060,*-*	LINK SWITCH
192A	5C	01	9B 9D		5084+	MVC	SRCBF1(@CADDR,@BR),SRCBF2(,@BR)	SWITCH BUFFERS
192E	5C	01	9D 9F		5085+	MVC	SRCBF2(@CADDR,@BR),SRCACT(,@BR)	*
1932	5C	01	9F 9B		5086+	MVC	SRCACT(@CADDR,@BR),SRCBF1(,@BR)	SET ACTIVE BUFFER
1936	D0	87	1A		5087+	B	SRC020(,@BR)	GO BACK TO NEXT BUFFER
					5088+*			
					5089+*			FILENAME HAS BEEN FOUND.
					5090+*			
1939	34	02	0F16		5091+SRC040	ST	SMUDEA,@XR	SAVE ENTRY ADDR
193D	3B	80	0EFE		5092+	SBF	SMIND1,SM1FNE	TURN OFF NOT FOUND INDICATOR
1941	75	02	9F		5093+SRC050	L	SRCACT(,@BR),@XR	GET CADDR OF ACTIVE BUFFER
1944	34	02	0F1A		5094+	ST	SMUDBA,@XR	SAVE CADDR IN SMALES
1948	2C	01	0F2C 01		5095+	MVC	SMDAAD,##DUHA(@DADDR,@XR)	SAVE RDADDR OF ACTIVE DIRCTY
194D	C2	01	0000		5096+SRC900	LA	*-*,@BR	RESTORE CALLERS BASE
1951	C2	02	0000		5097+SRC910	LA	*-*,@XR	RESTORE INDEX
1955	C0	87	0000		5098+SRC920	B	*-*	RETURN

5100+\*

5101+\*

FILENAME WAS NOT FOUND. SAVE ADDR FOR NEXT ENTRY AND



SRCHFN - SEARCH FOR FILE NAME IN USER DIRECTORY

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE 74
			5108+*					
			5109+*		CONSTANTS AND WORK AREA			
			5110+*					
1964		1965	5111+SRCBF1	DS	CL(@CADDR)			WORK AREA PRIMARY BUFFER ADDR
1966		1967	5112+SRCBF2	DS	CL(@CADDR)			WORK AREA SECONDARY BUFFER ADDR
1968		1969	5113+SRCACT	DS	CL(@CADDR)			SAVE AREA FOR ACTIVE BUFFER
196A 0F2D		196B	5114+SRCBA1	DC	AL2(SMUDB1)			ADDRESS OF USED DIRCTY BLUFFER 1
196C 112D		196D	5115+SRCBA2	DC	AL2(SMUDB2)			ADDRESS OF DIRCTY BUFFER 2
196E		196E	5116+SRCCNT	DS	CL1			WORK AREA FOR ENTRY COUNT
196F 0001		1970	5117+SRCC01	DC	IL2'1'			CONSTANT TO DECR ENTRY COUNT
		1971	5118+SRCDPL	EQU	*			DEFINE LEFT END OF DPL
1971 01		1971	5119+SRCGET	DC	AL1(@DGET)			READ OP CODE
1972		1973	5120+SRCDAD	DS	CL(@DADDR)			RELATIVE ADDR OF BLOCK
1974 02		1974	5121+SRC SCT	DC	AL1(##LU)			SECTOR COUNT FOR BLOCK
1975		1976	5122+SRCBFR	DS	CL(@CADDR)			BUFFER ADDR OF BLOCK
			5123+***			END OF SRCHFN		***
			5124 *		\$FIND			



## SFINDF - FILE SEARCH CONTROL MODULE

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	23/05/20	PAGE 75
		5126+	*****				
		5127+*	5703-XM1	COPYRIGHT IBM CORP. 1970			*
		5128+*		REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083			*
		5129+*					*
		5130+*****					*
		5131+*	STATUS				*
		5132+*	VERSION 1	MODIFICATION 0			*
		5133+*					*
		5134+*	FUNCTION				*
		5135+*	*	SFINDF IS A CONTROL MODULE USED TO LOCATE A SPECIFIED PASSWORD			*
		5136+*		AND/OR FILENAME.			*
		5137+*	*	IF THE FILENAME, PASSWORD, AND VOLUME-ID ARE ALL EXPLICITLY			*
		5138+*		SPECIFIED. A CALL IS ISSUED TO SVOLID, SGETDB AND SRCHFN TO			*
		5139+*		SEARCH FOR THE REQUIRED FILE IN THE FILE LIBRARY SPECIFIED.			*
		5140+*		IF THE PASSWORD OR VOLUME-ID IS NOT EXPLICITLY DEFINED, SFINDF			*
		5141+*		WILL DEFAULT TO THE CURRENT USER SPECIFICATIONS, IF THEY EXIST,			*
		5142+*		FOR THE MISSING PARAMETERS AND THEN ISSUE THE REQUIRED CALLS			*
		5143+*		TO SGETDS AND/OR SRCHFN TO LOCATE THE FILE.			*
		5144+*	*	IF A ONE OR TWO-STAR FILENAME IS SPECIFIED, THE SPECIFIED DISK,			*
		5145+*		OR ALL DISKS ON THE SYSTEM WILL BE SEARCHED IN AN ATTEMPT TO			*
		5146+*		LOCATE THE FILE. THE CALLER MAY SET AN INDICATOR TO TERMINATE			*
		5147+*		THE SEARCH AFTER A GIVEN NUMBER OF DISKS HAVE BEEN SEARCHED.			*
		5148+*					*
		5149+*	ENTRY POINTS				*
		5150+*		THE ENTRY POINT IS SFINDF.			*
		5151+*		THE CALLING SEQUENCE IS AS FOLLOWS:			*
		5152+*	B	SFINDF			*
		5153+*					*
		5154+*	INPUT				*
		5155+*	*	THE FOLLOWING INFORMATION MUST BE SET UP IN TSMLES BEFORE			*
		5156+*		CALLING SFINDF.			*
		5157+*	*	SMPSWD MUST CONTAIN SPECIFIED PASSWORD			*
		5158+*	*	SMVOID MUST CONTAIN SPECIFIED VOLUME			*
		5159+*	*	SMFNAM MUST CONTAIN SPECIFIED FILENAME			*
		5160+*	*	THE FOLLOWING SWITCHES ARE PROVIDED TO HANDLE ONE OR TWO-STAR			*
		5161+*		FILES:			*
		5162+*	*	SFIVOL - IF @NOP IS SET SVOLID WILL NOT BE CALLED. SVOLID			*
		5163+*		IS NOT REUSABLE AND THIS SWITCH MUST BE SET BEFORE*			*
		5164+*		SFINDF IS CALLED A SECOND TIME.			*
		5165+*	*	SFISTR - IF @NOP IS SET ONLY 1 DISK WILL BE SEARCHED			*
		5166+*	*	SFIFND - IF @NOP SET WITH SFIVOL ONLY THE NUMBER OF DISKS			*
		5167+*		SPECIFIED IN SFINTR WILL BE SEARCHED.			*
		5168+*					*
		5169+*	OUTPUT				*
		5170+*	*	THE OUTPUT FROM SFINDF IS SET IN TSMLES, THE POINTERS AND USER			*
		5171+*		DIRECTORIES REQUIRED ARE INITIALIZED.			*
		5172+*					*
		5173+*	EXTERNAL REFERENCES				*
		5174+*		TSMLES - (SMALES) DATA MANAGEMENT SAVE AREAS AND BUFFERS.			*
		5175+*		\$VOLID - CORE RESIDENT VOLID TABLE.			*
		5176+*		\$USRDR - DISPLACEMENT TO CURRENT USER DIRECTORY.			*
		5177+*		\$FILIB - CURRENT USER FILE LIBRARY DISK ADDRESS.			*
		5178+*		DL2ICS - TWO TRACK LOGICAL IOCS.			*
		5179+*		SRCHFN - SEARCH USER DIRCTY BLOCK.			*
		5180+*		SGETDB - SEARCH PASSWORD DIRCTY.			*
		5181+*		SVOLID - SEARCH VOL-ID TABLE.			*

## SFINDF - FILE SEARCH CONTROL MODULE

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```
5182+*          $CAERR - SAVE AREA FOR SYSTEM ERROR MESSAGT CODE.      *
5183+*                                                    *
5184+*EXITS, NORMAL                                                    *
5185+*  * NORMAL RETURN IS TO THE CALLER FOLLOWING THE BRANCH TO SFINDF. *
5186+*                                                    *
5187+*EXITS, ERROR                                                    *
5188+*  * THE ERROR RETURN IS TO SFIERR WHICH MUST BE DEFINED BY THE    *
5189+*    CALLER.                                                        *
5190+*                                                    *
5191+*TABLES/WORKAREAS                                                *
5192+*  * N/A                                                            *
5193+*                                                    *
5194+*ATTRIBUTES                                                        *
5195+*  * RELOCATABLE                                                    *
5196+*  * RE-USABLE                                                      *
5197+*                                                    *
5198+*CHARACTER CODE DEPENDENCY                                        *
5199+*  * THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR *
5200+*    INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.          *
5201+*                                                    *
5202+*NOTES                                                            *
5203+*  ERROR PROCEDURES                                                  *
5204+*    IF A FILE-SPEC WAS NOT ENTERED AND A CURRENT USER IS NOT IN      *
5205+*    AFFECT.  THE ERROR EXIT TO SFIERR IS TAKEN.                      *
5206+*                                                    *
5207+*  REGISTER USAGE                                                    *
5208+*    @BR AND @XR ARE SAVED AND RESTORED. DURING EXECUTION @BR IS      *
5209+*    USED AS A BASE REGISTER AND @XR IS USED TO POINT TO $NUCBS.      *
5210+*                                                    *
5211+*  SAVED/RESTORED AREAS                                              *
5212+*    NONE                                                            *
5213+*                                                    *
5214+*  MODIFICATION CONSIDERATIONS                                        *
5215+*    NONE                                                            *
5216+*                                                    *
5217+*  REQUIRED MODULES                                                    *
5218+*    @SYSEQ - SYSTEM SOFTWARE EQUATES.                                *
5219+*    @FXDEQ - SYSTEM NUCLEUS ADDRESSES AND INDICATOR VALUES.          *
5220+*    TSMLES - DATA MANAGEMENT SAVE AREAS AND BUFFERS.                *
5221+*    $VOLID - SEARCH VOLUME-ID SUBROUTINE.                            *
5222+*    SRCHFN - SEARCH FOR FILENAME SUBROUTINES.                        *
5223+*    SGETDB - SEARCH PASSWORD DIRECTORY SUBROUTINE.                    *
5224+*    DL2ICS - TWO TRACK DISK LOGICAL IOCS.                            *
5225+*                                                    *
5226+*  OTHER                                                            *
5227+*    NONE                                                            *
5228+******
```

```
5230+*
5231+*          EQUATES USED IN THIS SUBROUTINE
5232+*
1977 5233+SFINDF EQU  *          START OF MODULE
1977 34 01 1A84 5234+  ST    SFISBR,@BR      SAVE @BR
197B C2 01 19B5 5235+  LA    SFIBSE,@BR      SET LOCAL BASE
19B5 5236+  USING SFIBSE,@BR      *
```

## SFINDF - FILE SEARCH CONTROL MODULE

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197F	74	08	D3		5237+	ST	SFEXT(, @BR), @ARR	SAVE RETURN ADDR
1982	74	02	CB		5238+	ST	SFISXR(, @BR), @XR	SAVE @XR
1985	C2	02	03C0		5239+	LA	\$NUCBS, @XR	SET NUCLEUS BASE
				03C0	5240+	USING	\$NUCBS, @XR	*
1989	3D	40	0F05		5241+	CLI	SMPSWD-##LPEN+@B1, @BLANK	WAS A PASSWD SPECIFIED ?
198D	F2	81	98		5242+	JE	SFI500	NO, GO CHECK LOGON STATUS
1990	3D	40	0B0F		5243+	CLI	SMVOID-\$VOLID+@B1, @BLANK	WAS A VOL-ID SPECIFIED ?
1994	F2	81	07		5244+	JE	SFI100	NO, GO CHECK LOGON STATUS
1997	C0	87	150B		5245+SFI050	B	SVOLID	RESOLVE SPECIFIED VOL-ID
				1998	5246+SFI050	EQU	SFI050+@Q	SET TO A NOP FOR SUCCESSIVE USE
199B	F2	87	75		5247+	J	SFI350	GO TO GET DIRECTORY
					5248+*			
					5249+*			
					5250+*			PASSWORD WAS SPECIFIED, BUT VOL-ID WAS NOT
199E	3D	5C	0F05		5251+SFI100	CLI	SMPSWD-##LPEN+@B1, SFI100	IS PASSWORD AN '*' ?
19A2	F2	01	63		5252+	JNE	SFI320	NO, GO CHK FOR FILE LIBR DADDR
19A5	7C	00	D4		5253+	MVI	SFICTR(, @BR), @ZERO	YES, INITLZ LOOP CTR TO ZERO
19A8	7C	00	DB		5254+	MVI	SFITTC(, @BR), @ZERO	INITLZ THIS TIME COUNTER
19AB	BD	00	19		5255+	CLI	\$FILIB-@B1(, @XR), @ZERO	CURRENT USER IN FORCE ?
19AE	F2	01	5D		5256+	JNE	SFI340	YES, GO TRY THAT FIRST
19B1	3A	08	0EFE		5257+	SBN	SMIND1, SM1PNF	SET PASSWORD NOT FOUND INDR.
					5258+*			
					5259+*			
					5260+*			THE FOLLOWING ROUTINE WILL SEARCH ALL DISKS ON THE
					5261+*			SYSTEM FOR THE SPECIFIED ONE OR TWO STAR FILE
19B5	7D	01	D4		5262+SFI200	CLI	SFICTR(, @BR), @B1	CHECK THE DISK POINTER
19B8	F2	82	1A		5263+	JL	SFI220	GO CHECK F1
19BB	F2	81	28		5264+	JE	SFI230	GO CHECK F2
19BE	7D	03	D4		5265+	CLI	SFICTR(, @BR), SFIE03	
19C1	F2	82	33		5266+	JL	SFI240	GO CHECK R1
					5267+*			
19C4	BD	00	4C		5268+SFI210	CLI	\$VOLR2+SFIE06(, @XR), @ZERO	DOES R2 CONTAIN A FILE LIBR
19C7	F2	81	AC		5269+	JE	SFI545	NO, NO MORE TO CHK, GO RETURN
19CA	2C	01	0F18	4D	5270+	MVC	SMBFDA(@DADDR), \$VOLR2+SFIE07(, @XR)	SET LIBR DADDR FOR
19CF	7C	FE	D4		5271+	MVI	SFICTR(, @BR), SFIEFE	* SEARCH AND INCR DISK POINTER
19D2	F2	87	3E		5272+	J	SFI350	GO TO SEARCH
					5273+*			
19D5	BD	00	44		5274+SFI220	CLI	\$VOLF1+SFIE06(, @XR), @ZERO	DOES F1 CONTAIN A FILE LIBR
19D8	F2	81	0B		5275+	JE	SFI230	NO, GO CHECK F2
19DB	2C	01	0F18	45	5276+	MVC	SMBFDA, \$VOLF1+SFIE07(@DADDR, @XR)	SET LIBR DADDR FOR SEWN
19E0	7C	01	D4		5277+	MVI	SFICTR(, @BR), @B1	INCR DISK POINTER
19E3	F2	87	2D		5278+	J	SFI350	SO TO SEARCH
					5279+*			
19E6	BD	00	54		5280+SFI230	CLI	\$VOLF2+SFIE06(, @XR), @ZERO	DOES F2 CONTAIN A FILE LIBR
19E9	F2	81	0B		5281+	JE	SFI240	NO, SO CHECK R1
19EC	2C	01	0F18	55	5282+	MVC	SMBFDA, \$VOLF2+SFIE07(@DADDR, @XR)	SET LIBR DADDR FOR SEACH
19F1	7C	02	D4		5283+	MVI	SFICTR(, @BR), SFIE02	INCR DISK POINTER
19F4	F2	87	1C		5284+	J	SFI350	GO TO SEARCH
					5285+*			
19F7	BD	00	3C		5286+SFI240	CLI	\$VOLR1+SFIE06(, @XR), @ZERO	DOES R1 CONTAIN A FILE LIBR
19FA	D0	81	0F		5287+	BE	SFI210(, @BR)	NO, GO CHECK R2
19FD	2C	01	0F18	3D	5288+	MVC	SMBFDA, \$VOLR1+SFIE07(@DADDR, @XR)	SET LIB DADDR FOR SEARCH
1A02	7C	03	D4		5289+	MVI	SFICTR(, @BR), SFIE03	INCR DISK POINTER
1A05	F2	87	0B		5290+	J	SFI350	GO TO SEARCH
					5291+*			
					5292+*			PASSWORD SPECIFIED, BUT VOLUME ID WAS NOT.

## SFINDF - FILE SEARCH CONTROL MODULE

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00 23/05/20 PAGE 78
				5293+*			CHECK FOR CURRENT USER	
				5294+*				
1A08	BD	00	19	5295+	SFI320	CLI	\$FILIB-@B1(,@XR),@ZERO	CURRENT USER SPEC IN FORCE
1A0B	F2	81	20	5296+		JE	SFI505	NO, GO TO ERR ROUTINE
1A0E	2C	01	0F18 1A	5297+	SFI340	MVC	SMBFDA(@DADDR),\$FILIB(,@XR)	YES, SET TO USER LIBR
				5298+*				
				5299+*			SO SEARCH FOR SPECIFIED PASSWORD	
				5300+*				
1A13	C0	87	1798	5301+	SFI350	B	SGETDB	SEARCH FOR PASSWORD
1A17	38	08	0EFE	5302+		TBN	SMIND1,SM1PNF	WAS PASSWORD FOUND
1A1B	F2	10	3B	5303+		JT	SFI540	NO, GO TEST STAR COUNTER
1A1E	38	10	0EFE	5304+		TBN	SMIND1,SM1PDS	PASSWORD DIRCTY ONLY REQ' SED
1A22	F2	10	58	5305+		JT	SFI550	YES, GO RETURN TO USER
1A25	F2	87	26	5306+		J	SFI520	NO, GO SEARCH FOR FILENAME
				5307+*				
				5308+*			ONLY FILENAME SPECIFIED, CHECK FOR CURRENT USER	
				5309+*				
1A28	BD	00	19	5310+	SFI500	CLI	\$FILIB-@B1(,@XR),@ZERO	CURRENT USER SPEC IN FORCE
1A2B	F2	01	07	5311+		JNE	SFI510	YES, BYPASS ERROR MESSAGE
1A2E	BC	21	0D	5312+	SFI505	MVI	\$CAERR(,@XR),@@E200	SET NO CURRENT USER ERROR CODE
1A31	C0	87	0DC9	5313+		B	SFIERR	GO TO ERROR RETURN
				5314+*				
				5315+*			GET FIRST USER DIRECTORY BLOCK	
				5316+*				
1A35	2C	01	16AE 1A	5317+	SFI510	MVC	DL2RAD,\$FILIB(@DADDR,@XR)	SET DL2ICS BASE DADDR
1A3A	2C	01	0F18 1A	5318+		MVC	SMBFDA,\$FILIB(@DADDR,@XR)	SET LIBR DADDR TO COMMON AREA
1A3F	6C	01	D7 1C	5319+		MVC	SFIRDA(,@BR),\$USRDR(@DADDR,@XR)	SET DL2ICS RELATIVE DADDR
1A43	C0	87	1616	5320+		B	DL2ICS	GO READ USER DIRECTORY BLOCK
1A47	1A8A			5321+		DC	AL2(SFIDPL)	* CADDR OF DPL
1A49	2C	01	0F28 1C	5322+		MVC	SMFUDA,\$USRDR(@DADDR,@XR)	PRESERVE 1ST BLOCK REL. DADDR
				5323+*				
				5324+*			SEARCH USER DIRECTORY BLOCK FOR FILENAME	
				5325+*				
1A4E	C0	87	18C6	5326+	SFI520	B	SRCHFND	GO TO SEARCH ROUTINE
1A52	38	80	0EFE	5327+		TBN	SMIND1,SM1FNE	WAS NAME FOUND
1A56	F2	10	24	5328+		JT	SFI550	YES, SO RETURN
				5329+*				
				5330+*			PASSWORD OR FILENAME NOT FOUND	
				5331+*				
1A59	7D	FE	D4	5332+	SFI540	CLI	SFICTR(,@BR),SFIEFE	ONE OR TWO STAR FILE WITH MORE
1A5C	F2	84	1E	5333+		JH	SFI550	* DISKS TO SEARCH ? NO, GET OUT
1A5F	D0	82	00	5334+	SFI542	BC	SFI200(,@BR),@BL	* YES, GO SEARCH
				5335+	SFISTR	EQU	SFI542+@Q	* NOP FOR 1ST * OR ** SEARCHED
1A62	F2	87	11	5336+	SFI543	JC	SFI545,@UCB	BYPASS TRY CONTROL UNLESS
				5337+	SFIFND	EQU	SFI543+@Q	* Q-CODE CHANGED TO A NOP
1A65	7D	06	DC	5338+		CLI	SFINTR(,@BR),SFIETD	IS TRY COUNTER AT MAX ?
1A68	F2	02	0B	5339+		JNL	SFI545	YES, SO SET ERROR CODE
1A6B	5E	00	DB DD	5340+		ALC	SFITTC(,@BR),SFIONE(,@BR)	INCR THIS TRY COUNTER
1A6F	5D	00	DB DC	5341+		CLC	SFITTC(,@BR),SFINTR(1,@BR)	THIS TRY = TRYS REQUIRED ?
1A73	D0	01	00	5342+		BNE	SFI200(,@BR)	NO, GO TRY THE NEXT DISK
1A76	BC	26	0D	5343+	SFI545	MVI	\$CAERR(,@XR),@@E213	SET * OR ** NOT FOUND CODE
1A79	3A	80	0EFE	5344+		SBN	SMIND1,SM1FNE	SET ON FILE NOT FOUND INDR.
				5345+*				
				5346+*			RETURN TO USER	
				5347+*				
1A7D	C2	02	0000	5348+	SFI550	LA	*-*,@XR	RELOAD @XR

## SFINDF - FILE SEARCH CONTROL MODULE

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE 79
1A81	C2 01 0000	1A80	5349+	SFISXR EQU	SFI550+@OP1	*		
			5350+	SFI560 LA	*-*,@BR	RELOAD @BR		
		1A84	5351+	SFISBR EQU	SFI560+@OP1	*		
1A85	C0 87 0000		5352+	SFI570 B	*-*	RETURN TO THE USER		
		1A88	5353+	SFIEXT EQU	SFI570+@OP1	*		
			5354+*					
			5355+*					
			5356+*					
					CONSTANTS AND SAVE AREAS			
1A89		1A89	5357+	SFICTR DS	XL1	COUNTER USED TO CONTROL THE		
1A89			5358+	ORG	*-1	* SEARCH FOR A STAR FILE		
1A89	FF	1A89	5359+	DC	AL1(SFIEFF)	INITLZ'D FOR NO SEARCH		
1A8A	01	1A8A	5360+	SFIDPL DC	AL1(@DGET)	DPL TO READ USER DIRCTY BLOCK 1		
1A8B		1A8C	5361+	SFIRDA DS	XL2	* RELATIVE DISK ADDRESS		
1A8D	02	1A8D	5362+	DC	XL1'02'	* SECTOR COUNT		
1A8E	0F2D	1A8F	5363+	DC	AL2(SMUDB1)	* CORE BUFFER ADDRESS		
1A90		1A90	5364+	SFITTC DS	CL1	THIS TRY COUNTER		
1A91		1A91	5365+	SFINTR DS	CL1	NUMBER OF TRYS REQUIRED COUNTER		
1A91			5366+	ORG	SFINTR	INITLZ NUMBER CF TRYS REQUIRED		
1A91	00	1A91	5367+	DC	XL1'0'	* COUNTER TO ZERO		
1A92	01	1A92	5368+	SFIONE DC	XL1'1'	COUNTER INCREMENT		
			5369+*					
			5370+*					
			5371+*					
		0DC9	5372+	SVOERR EQU	SFIERR	SVOLID ERROR RETURN ADDRESS		
		005C	5373+	SFIAST EQU	C'*'	STAR LIBR TEST CHARACTER		
		0002	5374+	SFIE02 EQU	X'02'	STAR COUNTER TEST R1 CODE		
		0003	5375+	SFIE03 EQU	X'03'	STAR COUNTER TEST R2 CODE		
		00FE	5376+	SFIEFE EQU	X'FE'	STAR COUNTER COMPLETE CODE		
		00FF	5377+	SFIEFF EQU	X'FF'	NOT A * OR ** FILE COUNTER CODE		
		0006	5378+	SFIE06 EQU	X'06'	DISP TO LIBR DADDR BYTE 0		
		0007	5379+	SFIE07 EQU	X'07'	DISP TO LIBR DADDR BYTE 1		
		19B5	5380+	SFIBSE EQU	SFI200	LOCAL BASE ADDRESS		
		1A92	5381+	SFIEND EQU	*-1	LAST BYTE OF SFINDF		
		0006	5382+	SFIETD EQU	6	MAX TRY REQUIRED COUNTER VALUE		
		0001	5383+	DROP	@BR			
		0002	5384+	DROP	@XR			
			5385+***					
					END OF SFINDF	***		

SFINDF - FILE SEARCH CONTROL MODULE

ERR LOC		OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	VER 15, MOD 00	23/05/20	PAGE 80
				5387		*****			
				5388	*	PATCH AREA 1			*
				5389		*****			
				5390	*				
				5391	*	CALCULATE AREA LEFT IN THIS SECTOR			
				5392	*				
1B00			1A93	5393	\$\$\$\$L1	EQU *			START OF PATCH AREA 1
				5394		ORG *,256,0			SET LOC CNTR TO NEXT SECTOR
			1B00	5395	\$\$\$\$T1	EQU *			DEFINE ADDR OF SCTR BNDRY
1A93				5396		ORG \$\$\$\$L1			SET LOC CNTR TO START OF
				5397	*				* PATCH AREA
1A93			1AFF	5398	\$\$\$\$\$1	DS CL(\$\$\$\$T1-\$\$\$\$L1)			PATCH AREA
				5399		*****			
			1B00	5401	KALNUL	EQU *			NULL DIRECTORY BUFFER
			1B00	5402	SVOBUF	EQU *			INPUT BUFFER SAVE AREA
0EFE			1C00	5403	KALIOR	EQU KALNUL+256			I/O RECORD AREA
				5404		ORG KAL500			
				5405	*	\$MALE			



## TSMLES - (SMALES) DATAMANAGEMENT COMMON AREAS

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00	23/05/20	PAGE 81
			5407+	*****				
			5408+	*	5703-XM1 COPYRIGHT IBM CORP. 1970			*
			5409+	*	REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083			*
			5410+	*				*
			5411+	*****				*
			5412+	*	STATUS			*
			5413+	*	VERSION 1 MODIFICATION 0			*
			5414+	*				*
			5415+	*	FUNCTION			*
			5416+	*	* TSMLES PROVIDES A COMMON SET OF BUFFERS AND WORK AREAS FOR DATA			*
			5417+	*	MANAGEMENT KEYWORDS AND THERE ASSOCIATED SUBROUTINES. THE WORK			*
			5418+	*	AREAS PROVIDE A COMMON COMMUNICATION BETWEEN SUBROUTINES THAT			*
			5419+	*	PERFORM A VARIETY OF FUNCTIONS WITH THE LIBRARY.			*
			5420+	*	THIS ELIMINATES A LARGE AMOUNT OF CUMBERSOME PARAMETER PASSING.			*
			5421+	*				*
			5422+	*	ENTRY POINTS			*
			5423+	*	N/A			*
			5424+	*				*
			5425+	*	INPUT			*
			5426+	*	N/A			*
			5427+	*				*
			5428+	*	OUTPUT			*
			5429+	*	N/A			*
			5430+	*				*
			5431+	*	EXTERNAL REFERENCES			*
			5432+	*	N/A			*
			5433+	*				*
			5434+	*	EXITS, NORMAL			*
			5435+	*	N/A			*
			5436+	*				*
			5437+	*	EXITS, ERROR			*
			5438+	*	N/A			*
			5439+	*				*
			5440+	*	TABLES/WORKAREAS			*
			5441+	*	N/A			*
			5442+	*				*
			5443+	*	ATTRIBUTES			*
			5444+	*	N/A			*
			5445+	*				*
			5446+	*	CHARACTER CODE DEPENDENCY			*
			5447+	*	N/A			*
			5448+	*				*
			5449+	*	NOTES			*
			5450+	*	ERROR PROCEDURES			*
			5451+	*	N/A			*
			5452+	*	REGISTER USAGE			*
			5453+	*	N/A			*
			5454+	*	SAVED/RESTORED AREAS			*
			5455+	*	N/A			*
			5456+	*	MODIFICATION CONSIDERATIONS			*
			5457+	*	N/A			*
			5458+	*	REQUIRED MODULES			*
			5459+	*	N/A			*
			5460+	*	OTHER			*
			5461+	*	N/A			*
			5462+	*****				*



## TSMLES - (SMALES) DATAMANAGEMENT COMMON AREAS

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	VER 15, MOD 00 23/05/20 PAGE 82
			5464+	*****	
			5465+*	SMALES- SYSTEM DATA MANAGEMENT COMMON SAVE AREAS AND EQUATES	*
			5466+*	USED TO PROVIDE COMMUNICATION BETWEEN SUBROUTINES USED	*
			5467+*	BY THE VARIOUS KEYWORDS INVOLVED WITH FILE MANIPULATION	*
			5468+	*****	
			5469+*		
	0EFE	5470+	SMALES EQU	*	START OF MANAGEMENT AREA
	0EFE	5471+	SMIND1 EQU	SMALES	INDICATOR BYTE 1
	0F04	5472+	SMVOID EQU	SMIND1+6	SPECIFIED VOLUME ID SAVE AREA
	0F0C	5473+	SMPSWD EQU	SMVOID+8	SPECIFIED PASSWORD SAVE AREA
	0F14	5474+	SMFNAM EQU	SMPSWD+8	SPECIFIED FILENAME SAVE AREA
	0F16	5475+	SMUDEA EQU	SMFNAM+2	FILENAME DIRCTY ENTRY ADDR
	0F18	5476+	SMBFDA EQU	SMUDEA+2	DADDR OF FILE LIBRARY
	0F1A	5477+	SMUDBA EQU	SMBFDA+2	CADDR OF ACTIVE BUFFER ADDR
	0F1C	5478+	SMNULT EQU	SMUDBA+2	TOTAL OF NULL SECTORS AVAILABLE
	0F1E	5479+	SMNDEA EQU	SMNULT+2	NULL DIRCTY ENTRY ERROR
	0F20	5480+	SMNSCT EQU	SMNDEA+2	COUNT OF NULL SECTORS REQUIRED
	0F22	5481+	SMNETD EQU	SMNSCT+2	CADDR NEW ENTRY TO NULL DIRCTY
	0F24	5482+	SMUPEN EQU	SMNETD+2	CADDR NEW USER DIRCTY ENTRY
	0F26	5483+	SMPEAD EQU	SMUPEN+2	CADDR PASSWORD ENTRY
	0F28	5484+	SMFUDA EQU	SMPEAD+2	REL DADDR 1ST USER DIRCTY BLOCK
	0F2A	5485+	SMNDBA EQU	SMFUDA+2	NULL DIRCTY BUFFER CORE ADDR
	0F2C	5486+	SMDAAD EQU	SMNDBA+2	DADDR OF ACTIVE DIRCTY
	0080	5487+	SM1FNE EQU	X'80'	SRCHFN INDR NAME NOT FOUND
	0040	5488+	SM1NPD EQU	X'40'	PACK INDR NULL DIRCTY FULL
	0020	5489+	SM1STN EQU	X'20'	STORIN PACK INDICATOR BIT
	0010	5490+	SM1PDS EQU	X'10'	SGETDB SEARCH ONLY FLAG
	0008	5491+	SM1PNF EQU	X'08'	SGETDB PASSWORD NOT FOUND
	0F2D	5492+	SMPDB1 EQU	SMDAAD+1	PASSWORD DIRCTY BUFFER
	0F2D	5493+	SMPIBS EQU	SMPDB1	SVOLID TEMP SAVE INPUT BUFFER
	0F2D	5494+	SMUDB1 EQU	SMPDB1	USER DIRCTY BLOCK 1 BUFFER
	112D	5495+	SMUDB2 EQU	SMUDB1+512	USER DIRCTY BLOCK 2 BUFFER
	132D	5496+	SMAEND EQU	SMUDB2+512	END OF SMALES AREA
			5497+***	END OF SMALES	***
			5498	PRINT ON	
	FFFF	5499		END	

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY = 0

## CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$\$\$\$\$	001	0C00	2174	
\$\$\$\$\$1	109	1AFF	5398	
\$\$\$\$L1	001	1A93	5393	5396 5398
\$\$\$\$T1	001	1B00	5395	5398
\$\$\$CMD	001	0020	1746	
\$\$\$DAT	001	0040	1745	
\$\$\$EPL	001	0091	1742	
\$\$\$ERN	001	0080	1796	
\$\$\$FUN	001	0010	1747	
\$\$\$NLN	001	00A0	1792	
\$\$\$STD	001	0081	1741	
\$\$\$001	015	0C54	2308	
\$\$BNLN	001	0605	1722	1724
\$\$CDBS	001	08C0	1772	
\$\$CDND	001	0666	1731	
\$\$CDRD	001	0890	1770	1772
\$\$CKEY	001	0603	1720	
\$\$CKFF	001	0B3D	1752	
\$\$COFF	001	0B44	1751	
\$\$CSNS	001	209C	1781	
\$\$DATB	001	0BBF	1753	
\$\$EOSA	001	0AFE	1750	
\$\$ERSK	001	1C00	1791	
\$\$FITS	001	1D00	1799	
\$\$FLIB	001	06FF	1798	2530*
\$\$ILEN	001	0601	1716	1718 1722
\$\$ILHD	001	0600	1714	1716 4068 4069
\$\$INLN	001	0607	1729	1731 1733 4186 4201
\$\$INND	001	06FA	1733	4185* 4186 4186 4186*
\$\$KBDT	001	09E1	1740	1744
\$\$KBSN	001	09E2	1744	1749
\$\$KLD1	001	0600	1804	
\$\$KLD2	001	0700	1806	
\$\$KLD3	001	0C00	1808	
\$\$LPOS	001	09EB	1749	
\$\$PCNT	001	07E9	1765	
\$\$PLYN	001	2004	1779	
\$\$PRES	001	0890	1738	1740 1750 1751 1752 1753 1770 4189
\$\$PRFL	001	2143	1783	
\$\$PRNT	001	0707	1759	1760 1764 1765
\$\$PRTN	001	0782	1760	
\$\$PSIO	001	07CE	1764	
\$\$PYCD	001	2200	1785	
\$\$PYMP	001	2000	1777	1779 1781 1783 1785
\$\$SLIB	001	1C00	1794	
\$\$TPCD	001	0606	1724	1729
\$\$UPAR	001	0602	1718	1720
\$\$WSPB	001	1E00	1797	
\$\$XIND	001	06FF	1795	1798 4068 4069 4182 4228*
\$\$ZERO	001	0000	1310	1311 1313 1314 1315 1319 1777
\$#TALT	001	0075	2138	
\$#TBIS	001	00FC	2150	
\$#TCET	001	0069	2137	
\$#TCYL	001	005C	2136	
\$#THAD	001	00F2	2142	
\$#THEL	001	0004	2162	

## CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$#THVT	001	00F0	2141	
\$#TIDR	001	00FF	2152	
\$#TLAD	001	00FE	2151	
\$#TLBL	001	0008	2133	
\$#TLIB	001	00F8	2147	
\$#TLIF	001	0010	2160	
\$#TLSZ	001	00F7	2146	
\$#TOID	001	005B	2135	
\$#TPAD	001	00F6	2145	
\$#TPFL	001	0008	2161	
\$#TPSZ	001	00F4	2144	
\$#TPTF	001	00F3	2143	
\$#TRES	001	00D7	2154	
\$#TSUS	001	00EF	2140	
\$#TSYM	001	0080	2157	
\$#TSYS	001	00FA	2149	
\$#TUSE	001	00A8	2139	
\$#TVOL	001	0002	2132	
\$#TVTC	001	000A	2134	
\$#TWAL	001	00D7	2153	
\$#TWF1	001	0020	2159	
\$#TWRK	001	00F9	2148	
\$#TWR1	001	0040	2158	
\$ABORT	001	0010	1423	
\$BASIC	001	0080	1481	
\$BIGCD	001	0080	1557	
\$BLDPL	001	0579	1690	1692
\$BLNOE	001	0569	1680	
\$BLOAD	001	0522	1671	1673 1676 1689 1690
\$BLRTN	001	0550	1679	1680
\$BRSAV	001	03C5	1368	1369
\$BSADR	001	0587	1695	1697
\$BUFPT	001	03E3	1576	1577
\$CABLD	001	04B4	1649	1650
\$CAERK	001	0469	1626	1629 2360 2415 2433 2453 2457 2492 2855 2869 2874
\$CAERR	001	03CD	1374	1376 2330* 2341* 2359* 2411* 2414* 2432* 2456* 2491* 2639* 2644* 2676* 2725* 2730* 2770* 2774* 2816* 2821* 2842* 2847* 2850* 2865* 2873* 3223* 3240* 3244* 3261* 3266* 3268* 3552* 3554* 3687* 3721* 3903* 4107* 4119* 4156* 4230* 4710* 4862* 5052* 5312* 5343*
\$CAIPL	001	049D	1645	1647
\$CALLI	001	0008	1566	
\$CARDI	001	0001	1337	4155
\$CARPL	001	04A1	1647	1649 2396
\$CIENT	001	0483	1636	1637
\$CIEXT	001	0480	1635	1636
\$CIMSK	001	0476	1632	1635 2484* 4169
\$CISUS	001	0496	1640	1645
\$CLBFR	001	0010	1524	
\$CMDKY	001	0008	1436	
\$CMODE	001	0002	1486	
\$CONFIG	001	03DD	1549	1559
\$CRPOS	001	03E2	1575	1576
\$CRTAD	001	044D	1614	1615
\$CRTAV	001	0002	1430	
\$CRTDN	001	0002	1454	
\$CRTIN	001	03D3	1451	1458

CROSS REFERENCE													
SYMBOL	LEN	VALUE	DEFN	REFERENCES	VER 15, MOD 00 23/05/20 PAGE 85								
\$CRTNO	001	0004	1433										
\$CRTPU	001	0004	1455										
\$CRTSP	001	0008	1456										
\$CRTUP	001	0001	1453										
\$CRUSH	001	0080	1562										
\$CSDPL	001	050E	1661	1662									
\$C0001	001	0464	1618	1624									
\$DATE	001	043A	1599	1600	2498								
\$DBGUF	001	03E0	1561	1570	2389*								
\$DBLOK	001	0001	1511										
\$DFDET	001	03E8	1582	1583									
\$DISKN	001	0025	1313	2392	2478	2633	2881	4393	4717	5057			
\$DKERR	001	0008	1492										
\$DKSIZ	001	03D7	1536	1544	1585								
\$DK100	001	0001	1538										
\$DK200	001	0002	1539										
\$DK400	001	0004	1540										
\$DK600	001	0008	1541										
\$DK800	001	0010	1542										
\$DPLSV	001	0449	1610	1612	2531*								
\$DTNMB	001	0040	1357										
\$DTRDR	001	0040	1445										
\$ENDNU	001	0600	1704	1714	1738	1759	1795	1804	1806	1808			
\$ERDPL	001	046F	1629	1631									
\$ERFIL	001	0040	1384										
\$ERHRD	001	0004	1516										
\$ERKEY	001	0080	1388										
\$ERLOG	001	0345	1318										
\$ERMAD	001	0472	1631	1632									
\$ERPND	001	0004	1489										
\$ERRCT	001	03CF	1390										
\$ERRPG	001	03CE	1378										
\$ERSFL	001	0035	1383										
\$ERSTK	001	0030	1381										
\$ER050	001	0363	1319										
\$ER1N2	001	0050	1386										
\$EXADR	001	0517	1664	1666									
\$EXCMD	001	0001	1418										
\$EXFTR	001	043B	1600	1605									
\$FCIND	001	0010	1496										
\$FDIND	001	0040	1503										
\$FEARR	001	0004	1311										
\$FEMAP	001	0588	1697	1698									
\$FILIB	001	03DA	1547	1548	2409	2423	2443	5255	5295	5297	5310	5317	5318
\$FITIN	001	0010	1472										
\$FUIND	001	0020	1501										
\$GUFIO	001	0583	1694	1695									
\$GUFIR	001	0008	1346										
\$HISTE	001	042E	1597	1598									
\$HIST1	001	0435	1598	1599									
\$HRDER	001	0020	1442										
\$INDR1	001	03D4	1458	1484									
\$INDR2	001	03D5	1484	1509									
\$INDR3	001	03D6	1509	1536									

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$IOIND	001	03D2	1425	1451
\$IOPGS	001	0010	1565	2389
\$IOYES	001	0002	1340	
\$IPLDV	001	05FF	1701	1704
\$IRKEY	001	0020	1564	
\$KEYBD	001	03E1	1570	1575
\$KEYCD	001	03C3	1334	1368 4155 4190 4240*
\$KEYDT	001	0040	1478	
\$KE090	001	00DE	1314	
\$KE130	001	01D5	1315	
\$KYBSY	001	0010	1351	4190
\$LDRTN	001	0571	1689	
\$LEVEL	001	03DF	1559	1561
\$LIST	001	0002	1513	
\$LMRGN	001	03C1	1329	1331
\$LNPTR	001	0080	1448	
\$LOADB	001	054A	1673	
\$LOADR	001	051A	1666	1669
\$LPRIO	001	03EA	1583	
\$LPROS	001	03E5	1578	1580
\$LPRP3	001	03E4	1577	1578
\$MOUNT	001	0020	1527	
\$MPDWN	001	0001	1427	
\$NEXTB	001	03E6	1580	1581
\$NEXTL	001	03E7	1581	1582
\$NOENB	001	0008	1519	
\$NOLST	001	0004	1343	
\$NUCBS	001	03C0	1326	1327 5239 5240
\$NWRKF	001	0080	1532	
\$NWRKR	001	0040	1529	
\$PASWD	001	042D	1596	1597 2417
\$PAUSD	001	04BA	1650	1652
\$PAUSE	001	0002	1420	
\$PGMDT	001	0020	1475	
\$PGMST	001	0010	1439	
\$PKERT	001	0419	1594	1596
\$PLST1	001	0454	1615	1616
\$PLST2	001	045B	1616	1617
\$PLST3	001	0462	1617	1618
\$PRDEV	001	044B	1612	1614
\$PRESN	001	0002	1463	
\$PROCI	001	0001	1460	
\$PRPOS	001	03C2	1331	1334
\$PSDBR	001	04FA	1655	
\$PSDXR	001	04F2	1654	1655
\$PSTEP	001	0004	1421	
\$PSTMT	001	0008	1422	
\$PTCH1	001	03F5	1585	1589
\$READY	001	0080	1505	
\$REORD	001	0040	1563	
\$RLOAD	001	051E	1669	1671 2535
\$RMRGN	001	03C0	1327	1329
\$RSTR	001	04D6	1652	1654 1656 1661
\$RUNIT	001	0001	1399	
\$SFAID	001	050D	1657	
\$SPRNT	001	0465	1624	1626 4166 4170 4192

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$SRTRN	001	04FE	1656	1657
\$STEPT	001	0002	1400	
\$SWPCR	001	0511	1662	1664
\$TABLN	001	03CB	1371	1374
\$TFLOW	001	0008	1406	
\$TRACE	001	0004	1401	
\$TRALL	001	0010	1407	
\$TROVR	001	054E	1676	1679
\$TRUNK	001	0080	1359	4240
\$TRVAR	001	0020	1408	
\$UNMSK	001	048D	1637	1640 4188
\$USRDR	001	03DC	1548	1549 5319 5322
\$VMDEF	001	0080	1412	
\$VOLF1	001	03FE	1591	1592 5274 5276
\$VOLF2	001	040E	1593	5280 5282
\$VOLID	001	03F6	1589	1590 1594 2422 4090 4202 5243
\$VOLR1	001	03F6	1590	1591 5286 5288
\$VOLR2	001	0406	1592	1593 5268 5270
\$WAITF	001	057F	1692	1694 2479 2882 4171 4193 4718 5058
\$WFDEF	001	0040	1606	
\$WFLOK	001	0008	1469	
\$WFNME	001	0443	1605	1610
\$WSIND	001	0004	1466	
\$XIND1	001	03D0	1397	1416
\$XIND2	001	03D1	1416	1425
\$XIND3	001	03D8	1544	1547
\$XPREC	001	0040	1409	
\$XRSAB	001	03C7	1369	1371 2637
\$ZTRAD	001	05A2	1698	
\$12K	001	0004	1553	
\$16CKY	001	0008	1555	
\$16K	001	0002	1552	
\$22IMP	001	0001	1550	
###BL	001	0000	1162	
###CK	001	0000	1290	
###CN	001	0000	1258	
###CO	001	0000	1050	
###CS	001	0000	1110	
###DR	001	0000	0854	
###ER	001	0000	1054	
###FS	001	0000	1150	
###IN	001	0000	1294	
###PW	001	0000	1298	
###RS	001	0000	1130	
###SA	001	0000	1118	
###SS	001	0000	1114	
###VU	001	0600	1074	
###0T	001	0700	0846	
###1T	001	0000	0850	
###BCO	001	0600	0862	
###BOV	001	0800	1134	
###DPR	001	0700	0870	
###DRE	001	0889	0886	
###DSP	001	2800	0906	
###ECM	001	0C00	1166	
###EFK	001	0C00	1186	

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###ERR 001 0C00 1158  
###EXM 001 0C00 1046  
###FIL 001 0E00 1126  
###FIS 001 0E00 1122  
###FML 001 0200 1254  
###FMS 001 0200 1094  
###GRA 001 0889 1018  
###GUF 001 0C00 1154  
###INL 001 0600 1234  
###INS 001 0600 0858  
###KAL 001 0C00 1022  
###KCA 001 0C00 1238  
###KCH 001 0C00 0990  
###KCN 001 0C00 1106  
###KCT 001 0C00 0958  
###KDE 001 0C00 0954  
###KDI 001 0D00 1034  
###KDN 001 0C00 0942  
###KDO 001 0E00 1038  
###KED 001 0C00 0878  
###KEN 001 0C00 0882  
###KEX 001 0C00 0902  
###KGO 001 0C00 0874  
###KHE 001 0C00 1058  
###KKE 001 0C00 1286  
###KLI 001 0C00 0962  
###KLL 001 0920 1262  
###KLO 001 0C00 0966  
###KME 001 0D00 0946  
###KMO 001 0C00 0890  
###KNA 001 0C00 1002  
###KOV 001 0E00 0922  
###KPA 001 0C00 0898  
###KPO 001 0C00 0986  
###KPR 001 0C00 1010  
###KRE 001 0C00 0930  
###KRL 001 0700 1026  
###KRM 001 0C00 0894  
###KRN 001 0700 0914  
###KRO 001 0D00 0918  
###KRS 001 0C00 1242  
###KRU 001 0C00 0938  
###KRV 001 0800 1030  
###KSA 001 0C00 0974  
###KSE 001 0E00 1014  
###KSO 001 0C20 1066  
###KSS 001 0C00 0998  
###KSV 001 0980 0994  
###KSY 001 0C00 1006  
###KWI 001 0C00 0934  
###KWR 001 0C00 0926  
###LOA 001 0600 0866  
###MIP 001 0C00 1062  
###SDS 001 0C00 1174  
###SFF 001 0E00 1178  
###SFL 001 0F00 1170

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####SFO	001	1500	1142	
####SFS	001	0C00	1138	
####SPA	001	0C00	0978	2625
####SPO	001	0806	0982	
####SPS	001	0C00	0970	
####STR	001	1600	1146	
####TDC	001	1000	0950	
####TSY	001	1000	0910	
####TVK	001	0FC0	1086	
####UAL	001	0C00	1102	
####UAT	001	0900	1198	
####UCD	001	0900	1206	
####UCN	001	0C00	1190	
####UCP	001	0700	1194	
####UDE	001	0C00	1210	
####UDI	001	0C00	1214	
####UEX	001	0C00	1098	
####UIN	001	0C00	1202	
####UPA	001	0C00	1182	
####UPO	001	0C00	1250	
####UPT	001	0C00	1246	
####VCR	001	2000	1042	
####VLO	001	0600	1078	
####VOD	001	0600	1082	
####VVM	001	0000	1090	
####VXI	001	0600	1070	
####ZDU	001	1100	1222	
####ZLB	001	1100	1266	
####ZLO	001	1100	1226	
####ZLV	001	0F00	1282	
####ZL1	001	0F00	1270	
####ZL2	001	0F00	1274	
####ZL3	001	0C00	1278	
####ZTR	001	1000	1218	
####ZUT	001	0C00	1230	
##BLN	001	18D4	1161	
##CKT	001	2118	1289	
##CNF	001	2000	1257	
##COR	001	0800	1049	
##CSA	001	1000	1109	
##DRT	001	0000	0853	
##ERM	001	0928	1053	
##FSP	001	1880	1149	
##INV	001	212C	1293	
##PWR	001	2300	1297	
##RSP	001	1780	1129	
##SAV	001	1180	1117	
##SSA	001	1128	1113	
##VUF	001	0B08	1073	
##0TR	001	0000	0845	
##1TR	001	0080	0849	
##@BL	001	0001	1163	
##@CK	001	0004	1291	
##@CN	001	0001	1259	
##@CO	001	003A	1051	
##@CS	001	003A	1111	

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SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 23/05/20 PAGE 90

##\$@#DR 001 0008 0855  
##\$@#ER 001 0032 1055  
##\$@#FS 001 0030 1151  
##\$@#IN 001 003A 1295  
##\$@#PW 001 00C0 1299  
##\$@#RS 001 0030 1131  
##\$@#SA 001 0108 1119  
##\$@#SS 001 0001 1115  
##\$@#VU 001 0002 1075  
##\$@#0T 001 0018 0847  
##\$@#1T 001 0018 0851  
##\$@BCO 001 0018 0863  
##\$@BOV 001 0018 1135  
##\$@DPR 001 0005 0871  
##\$@DRE 001 0001 0887  
##\$@DSP 001 0004 0907  
##\$@ECM 001 0006 1167  
##\$@EFK 001 0002 1187  
##\$@ERR 001 0003 1159  
##\$@EXM 001 0003 1047  
##\$@FIL 001 0009 1127  
##\$@FIS 001 0009 1123  
##\$@FML 001 0052 1255  
##\$@FMS 001 0052 1095  
##\$@GRA 001 0003 1019  
##\$@GUF 001 0010 1155  
##\$@INL 001 0010 1235  
##\$@INS 001 0010 0859  
##\$@KAL 001 000F 1023  
##\$@KCA 001 000C 1239  
##\$@KCH 001 000C 0991  
##\$@KCN 001 0010 1107  
##\$@KCT 001 0009 0959  
##\$@KDE 001 0010 0955  
##\$@KDI 001 0005 1035  
##\$@KDN 001 0010 0943  
##\$@KDO 001 000C 1039  
##\$@KED 001 000E 0879  
##\$@KEN 001 0006 0883  
##\$@KEX 001 0003 0903  
##\$@KGO 001 0002 0875  
##\$@KHE 001 000C 1059  
##\$@KKE 001 0006 1287  
##\$@KLI 001 0011 0963  
##\$@KLL 001 0001 1263  
##\$@KLO 001 0008 0967  
##\$@KME 001 0003 0947  
##\$@KMO 001 0004 0891  
##\$@KNA 001 0008 1003  
##\$@KOV 001 0009 0923  
##\$@KPA 001 0005 0899  
##\$@KPO 001 000D 0987  
##\$@KPR 001 0009 1011  
##\$@KRE 001 0002 0931  
##\$@KRL 001 0004 1027  
##\$@KRM 001 0003 0895

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## CROSS REFERENCE

SYMBOL LEN VALUE DEFN REFERENCES VER 15, MOD 00 23/05/20 PAGE 91

##\$@KRN 001 0003 0915  
##\$@KRO 001 000A 0919  
##\$@KRS 001 000A 1243  
##\$@KRU 001 0003 0939  
##\$@KRV 001 000D 1031  
##\$@KSA 001 0011 0975  
##\$@KSE 001 0004 1015  
##\$@KSO 001 0005 1067  
##\$@KSS 001 000B 0999  
##\$@KSV 001 0002 0995  
##\$@KSY 001 000F 1007  
##\$@KWI 001 0002 0935  
##\$@KWR 001 0002 0927  
##\$@LOA 001 0013 0867  
##\$@MIP 001 000D 1063  
##\$@SDS 001 0004 1175  
##\$@SFF 001 0008 1179  
##\$@SFL 001 0005 1171  
##\$@SFO 001 0003 1143  
##\$@SFS 001 0011 1139  
##\$@SPA 001 0004 0979 2624  
##\$@SPO 001 0003 0983  
##\$@SPS 001 0001 0971  
##\$@STR 001 0002 1147  
##\$@TDC 001 0003 0951  
##\$@TSY 001 0003 0911  
##\$@TVK 001 0001 1087  
##\$@UAL 001 0011 1103  
##\$@UAT 001 000C 1199  
##\$@UCD 001 000B 1207  
##\$@UCN 001 0009 1191  
##\$@UCP 001 000F 1195  
##\$@UDE 001 000E 1211  
##\$@UDI 001 0008 1215  
##\$@UEX 001 000E 1099  
##\$@UIN 001 000F 1203  
##\$@UPA 001 0004 1183  
##\$@UPO 001 0005 1251  
##\$@UPT 001 0012 1247  
##\$@VCR 001 0008 1043  
##\$@VLO 001 0002 1079  
##\$@VOD 001 0016 1083  
##\$@VVM 001 0030 1091  
##\$@VXI 001 0002 1071  
##\$@ZDU 001 0008 1223  
##\$@ZLB 001 0002 1267  
##\$@ZLO 001 000C 1227  
##\$@ZLV 001 0006 1283  
##\$@ZL1 001 0007 1271  
##\$@ZL2 001 000D 1275  
##\$@ZL3 001 000A 1279  
##\$@ZTR 001 0001 1219  
##\$@ZUT 001 0014 1231  
##\$BCOM 001 0080 0861  
##\$BOLV 001 1780 1133  
##\$DPRI 001 014C 0869

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#\$DREA 001 0200 0885  
#\$DSPL 001 0240 0905  
#\$ECMA 001 1900 1165  
#\$EFKE 001 1990 1185  
#\$ERRP 001 18C0 1157  
#\$EXMS 001 07D4 1045  
#\$FILN 001 1724 1125  
#\$FIST 001 1700 1121  
#\$FMLN 001 1E00 1253  
#\$FMST 001 0D00 1093  
#\$GRAP 001 0690 1017  
#\$GUFU 001 1880 1153  
#\$INLN 001 1C84 1233  
#\$INST 001 0020 0857  
#\$KALL 001 06A4 1021 2615  
#\$KCAL 001 1CC4 1237  
#\$KCHA 001 053C 0989  
#\$KCND 001 0F80 1105  
#\$KCTL 001 03BC 0957  
#\$KDEL 001 035C 0953  
#\$KDIS 001 0744 1033  
#\$KDNT 001 0300 0941  
#\$KDOV 001 0780 1037  
#\$KEDI 001 0188 0877  
#\$KENA 001 01C4 0881  
#\$KEXT 001 0234 0901  
#\$KGOS 001 0180 0873  
#\$KHEL 001 0A30 1057  
#\$KKEY 001 2100 1285  
#\$KLIS 001 0400 0961  
#\$KLLA 001 2004 1261  
#\$KLOG 001 0444 0965  
#\$KMER 001 030C 0945  
#\$KMOU 001 0204 0889  
#\$KNAM 001 05C0 1001  
#\$KOVN 001 0290 0921  
#\$KPAS 001 0220 0897  
#\$KPOO 001 0508 0985  
#\$KPRT 001 063C 1009  
#\$KREA 001 02BC 0929  
#\$KRLA 001 0700 1025  
#\$KRMO 001 0214 0893  
#\$KRNU 001 0280 0913  
#\$KROV 001 028C 0917  
#\$KRSU 001 1D24 1241  
#\$KRUN 001 02CC 0937  
#\$KRVL 001 0710 1029  
#\$KSAV 001 0488 0973  
#\$KSET 001 0680 1013  
#\$KSOV 001 0AC8 1065  
#\$KSSP 001 0594 0997  
#\$KSVL 001 058C 0993  
#\$KSYM 001 0600 1005  
#\$KWID 001 02C4 0933  
#\$KWRI 001 02B4 0925  
#\$LOAD 001 0100 0865

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
#\$MIPP	001	0A80	1061	
#\$SDSY	001	192C	1173	
#\$SFFI	001	193C	1177	
#\$SFLO	001	1918	1169	
#\$SFOV	001	1844	1141	
#\$SFSY	001	1800	1137	
#\$SPAC	001	04CC	0977	2623
#\$SPOV	001	04DC	0981	
#\$SPSY	001	0484	0969	
#\$STRO	001	1850	1145	
#\$TDCK	001	0350	0949	
#\$TSYK	001	0250	0909	
#\$TVKB	001	0BAC	1085	
#\$UALL	001	0F00	1101	
#\$UATR	001	1A38	1197	
#\$UCDI	001	1AD8	1205	
#\$UCNF	001	19B8	1189	
#\$UCPL	001	19DC	1193	
#\$UDEL	001	1B24	1209	
#\$UDIS	001	1B5C	1213	
#\$UEXL	001	0EA8	1097	
#\$UINI	001	1A88	1201	
#\$UPAC	001	1980	1181	
#\$UPOV	001	1D24	1249	
#\$UPTF	001	1D5C	1245	
#\$VCRT	001	07B4	1041	
#\$VLOA	001	0B80	1077	
#\$VODK	001	0B88	1081	
#\$VVMR	001	0C00	1089	
#\$VXIT	001	0B00	1069	
#\$ZDUM	001	1BA4	1221	
#\$ZLBM	001	2008	1265	
#\$ZLOA	001	1BC4	1225	
#\$ZLVR	001	20B0	1281	
#\$ZL1M	001	2010	1269	
#\$ZL2M	001	2030	1273	
#\$ZL3M	001	2088	1277	
#\$ZTRA	001	1B9C	1217	
#\$ZUTM	001	1C14	1229	
##DNEA	001	0001	1933	4890 4926 4927* 4928* 4929* 4933* 4934*
##DNEF	001	0003	1934	4875 4881 4925*
##DNER	001	0005	1935	4900 4900*
##DNE1	001	0004	1932	4868
##DNHC	001	0000	1929	4867 4908*
##DNHR	001	0003	1931	
##DNHY	001	0001	1930	
##DPEA	001	0009	1907	4735 4740
##DPEN	001	0007	1906	3311 3312 3481* 3485* 3501 3514 4724
##DPER	001	000B	1908	
##DPE1	001	0004	1905	4722
##DPHC	001	0000	1903	4721
##DPHR	001	0003	1904	
##DUEA	001	0009	1918	
##DUED	001	0012	1923	
##DUEF	001	000B	1919	
##DUEH	001	002B	1924	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
##DUEI	001	000C	1920	5075
##DUEL	001	000F	1922	
##DUEN	001	0007	1917	3498 5078
##DUER	001	0031	1925	4516
##DUES	001	000D	1921	
##DUE1	001	000C	1916	4527
##DUHA	001	0001	1912	4521 4563* 5095
##DUHB	001	0003	1913	4552* 4563 4564 5066 5069
##DUHC	001	0004	1914	4522 4525 4537* 4562* 5074
##DUHR	001	000B	1915	
##LAAA	001	0002	1944	2499 2510 2544
##LAHC	001	0001	1943	
##LN	001	0001	1972	
##LNE	001	0006	1978	4882 4900 4900 4904
##LNEF	001	0002	1976	4875 4881 4925
##LNEZ	001	0002	1977	
##LNH	001	0004	1975	
##LNHY	001	0001	1973	
##LNHZ	001	0002	1974	
##LP	001	0004	1948	4759
##LPE	001	000C	1953	4726
##LPEN	001	0008	1950	3197 3239 3470 3514 4724 5241 5251
##LPEZ	001	0002	1951	
##LPH	001	0004	1952	
##LPHZ	001	0003	1949	
##LU	001	0002	1957	4578 4582 4585 5121
##LUE	001	0032	1968	4532 4535 4535* 4558 4593 5080
##LUED	001	0003	1965	2498 2552
##LUEF	001	0002	1961	2546
##LUEH	001	0019	1966	2554 2556 2825
##LUEI	001	0001	1962	2549
##LUEL	001	0002	1964	2551
##LUEN	001	0008	1960	2497 2543 3165 3309 3498 5078
##LUES	001	0001	1963	2550
##LUEZ	001	0006	1967	
##LUH	001	000C	1959	4591
##LUHZ	001	0007	1958	
##MNHM	001	002A	2001	
##MPHM	001	0055	1986	
##MUEG	001	0020	1993	2550
##MUEK	001	0040	1992	
##MUEO	001	0004	1996	
##MUEP	001	0080	1991	
##MUER	001	0008	1995	
##MUEV	001	0002	1997	2502
##MUEX	001	0010	1994	
##MUHM	001	000A	1990	4522
##RN	001	0000	1892	
##RP	001	0001	1893	4758 4763
##R1	001	0007	1895	
##R2	001	0005	1894	
##BAD	001	0455	1836	
##IO1	001	0459	1844	2589
##IO2	001	045D	1845	
##TAT	001	0941	1872	
##TBA	001	09A1	1876	

## CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
#@#TFS	001	0941	1870	
#@#TSY	001	0941	1874	
#@#VFP	001	0700	1862	
#@#VLP	001	093D	1865	
#@#WDB	001	050C	1857	
#@#WFT	001	0500	1855	
@@#BA	001	0001	1837	
@@#IO	001	0001	1849	2386
@@#SC	001	0002	1846	2590
@@#TA	001	0010	1873	
@@#TB	001	0010	1877	
@@#TS	001	0005	1875	
@@#TW	001	0020	1871	
@@#VM	001	0100	1866	
@@#WD	001	00BD	1858	
@@#WF	001	0003	1856	
@@#04	001	0004	1848	2328
@@#08	001	0008	1847	2355 2893
@@BOV	001	0018	1825	
@@ECM	001	0006	1839	
@@ERR	001	0003	1833	
@@GUF	001	0010	1829	
@@LDS	001	0002	1835	
@@SDS	001	0004	1831	
@@SFF	001	0008	1843	
@@SFL	001	0005	1841	
@@SFO	001	0005	1851	
@@SFS	001	0011	1827	
@@VSF	001	0010	1879	
@@VSL	001	000F	1880	
@@VTR	001	0001	1864	
#@BOVL	001	0400	1824	
#@ECMA	001	0481	1838	
#@ERRP	001	0441	1832	
#@GUFU	001	0401	1828	
#@LDSV	001	044D	1834	
#@SDSY	001	04AD	1830	
#@SFFI	001	04BD	1842	
#@SFLO	001	0499	1840	
#@SFOV	001	04C4	1850	
#@SFSY	001	0480	1826	
#@VSFI	001	09A1	1878	
#@VTRL	001	0708	1863	
#@WAF1	001	0401	1823	
#@WAR1	001	0400	1822	
#KALL	001	0C07	2177	
#KALLO	001	0000	0001	
@\$D1BF	001	0008	2034	2336 2346* 2357 2377*
@\$D1DC	001	0000	2033	2376*
@\$D1DF	001	001E	2038	2521*
@\$D1DP	001	0016	2037	
@\$D1DV	001	000E	2036	
@\$D1E1	001	0000	2027	
@\$D1FS	001	000A	2035	2400*
@\$D1SW	001	001F	2040	2383* 2888 2889
@\$D2AS	001	0002	2045	



CROSS REFERENCE																
SYMBOL	LEN	VALUE	DEFN	REFERENCES									VER 15, MOD 00	23/05/20	PAGE	96
@SD2BS	001	0003	2052													
@SD2CB	001	0005	2055													
@SD2CF	001	0001	2044													
@SD2CP	001	0005	2053													
@SD2CS	001	0004	2054													
@SD2CY	001	0006	2056													
@SD2DA	001	0007	2057													
@SD2DC	001	0000	2049													
@SD2DD	001	0009	2058													
@SD2EE	001	000F	2061													
@SD2E1	001	0040	2048													
@SD2FS	001	000B	2059													
@SD2IO	001	0001	2050													
@SD2LC	001	000D	2060													
@SD2PN	001	000A	2046													
@SD2SF	001	000B	2047													
@SD2VB	001	0002	2051													
@SL1BF	001	0008	2067	2336	2357	2377	2574	2576	2667	2667						
@SL1DC	001	0001	2066	2376	2577	2579	2728									
@SL1DF	001	0008	2069	2521												
@SL1DP	001	0008	2070	2417	2521											
@SL1DV	001	0006	2071	2521												
@SL1E	001	0020	2065	2319	2338	2361										
@SL1FS	001	0002	2068	2400	2474	2487	2583	2799	2802	2809	2829	2870				
@SL2AS	001	0001	2077													
@SL2BS	001	0001	2084													
@SL2CB	001	0001	2087													
@SL2CF	001	0002	2076													
@SL2CP	001	0002	2085													
@SL2CS	001	0001	2086													
@SL2DA	001	0002	2088													
@SL2DC	001	0001	2081													
@SL2DD	001	0002	2089													
@SL2E	001	0010	2080													
@SL2FS	001	0002	2090													
@SL2HD	001	0040	2075													
@SL2IO	001	0001	2082													
@SL2LC	001	0002	2091													
@SL2PN	001	0008	2079													
@SL2SF	001	0002	2078													
@SL2VB	001	0001	2083													
@\$MBCD	001	0020	2105	2914												
@\$MBCR	001	0008	2107	2910												
@\$MBEN	001	000C	2095	2327	2353	2567	2891									
@\$MBND	001	0000	2102													
@\$MBPD	001	0080	2103	2405												
@\$MBPT	001	0010	2106	2918												
@\$MBPU	001	0001	2098													
@\$MBSD	001	0040	2104	2399	2401											
@\$M2CI	001	0008	2122													
@\$M2CO	001	0004	2123													
@\$M2EF	001	0002	2097													
@\$M2FI	001	0080	2111													
@\$M2FO	001	0040	2112													

## CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@\$M2NS	001	00FF	2096	
@@E001	001	0000	0749	0751
@@E003	001	0001	0751	0753
@@E004	001	0002	0753	0755
@@E005	001	0003	0755	0757
@@E006	001	0004	0757	0759
@@E007	001	0005	0759	0761
@@E008	001	0006	0761	0763
@@E009	001	0007	0763	0765
@@E010	001	0008	0765	0767
@@E011	001	0009	0767	0769
@@E012	001	000A	0769	0771
@@E013	001	000B	0771	0773
@@E014	001	000C	0773	0775
@@E015	001	000D	0775	0777
@@E016	001	000E	0777	0779
@@E017	001	000F	0779	0781
@@E018	001	0010	0781	0783
@@E019	001	0011	0783	0785
@@E020	001	0012	0785	0787
@@E021	001	0013	0787	0789
@@E023	001	0014	0789	0791
@@E024	001	0015	0791	0793
@@E025	001	0016	0793	0795
@@E026	001	0017	0795	0797
@@E027	001	0018	0797	0799
@@E028	001	0019	0799	0801
@@E029	001	001A	0801	0803
@@E030	001	001B	0803	0805
@@E031	001	001C	0805	0807
@@E032	001	001D	0807	0809
@@E035	001	001E	0809	0811
@@E036	001	001F	0811	0813
@@E037	001	0020	0813	0815
@@E038	001	0021	0815	0817
@@E039	001	0022	0817	0819
@@E040	001	0023	0819	0821
@@E041	001	0024	0821	0823
@@E042	001	0025	0823	0825
@@E043	001	0026	0825	0827
@@E044	001	0027	0827	0829
@@E045	001	0028	0829	0831
@@E046	001	0029	0831	0833
@@E060	001	002A	0833	0835
@@E080	001	002B	0835	
@@E100	001	0000	0221	0223 3223 3266
@@E101	001	0001	0223	0225 3268
@@E102	001	0002	0225	0227 3240
@@E103	001	0003	0227	0229 3244
@@E110	001	0004	0229	0231 3903
@@E112	001	0005	0231	0233
@@E113	001	0006	0233	0235
@@E114	001	0007	0235	0237
@@E115	001	0008	0237	0239
@@E116	001	0009	0239	0241
@@E117	001	000A	0241	0243

## CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E120	001	000B	0243	0245
@@E122	001	000C	0245	0247 3721
@@E123	001	000D	0247	0249
@@E124	001	000E	0249	0251
@@E129	001	000F	0251	0253
@@E130	001	0010	0253	0255 2644 3261
@@E131	001	0011	0255	0257 2676 2842 2847 3554
@@E133	001	0012	0257	0259 2850
@@E134	001	0013	0259	0261 2725 2770 2821
@@E135	001	0014	0261	0263 2432
@@E136	001	0015	0263	0265 2730 2774 2816 2865
@@E137	001	0016	0265	0267
@@E138	001	0017	0267	0269 3687
@@E139	001	0018	0269	0271 2639 3551
@@E142	001	0019	0271	0273
@@E143	001	001A	0273	0275
@@E150	001	001B	0275	0277
@@E151	001	001C	0277	0279
@@E160	001	001D	0279	0281
@@E162	001	001E	0281	0283
@@E163	001	001F	0283	0285
@@E164	001	0020	0285	0287
@@E200	001	0021	0287	0289 2411 5312
@@E205	001	0022	0289	0291
@@E210	001	0023	0291	0293 4710
@@E211	001	0024	0293	0295 5052
@@E212	001	0025	0295	0297 4156
@@E213	001	0026	0297	0299 5343
@@E215	001	0027	0299	0301
@@E216	001	0028	0301	0303 4230
@@E217	001	0029	0303	0305 4107
@@E220	001	002A	0305	0307
@@E221	001	002B	0307	0309
@@E222	001	002C	0309	0311
@@E223	001	002D	0311	0313
@@E225	001	002E	0313	0315
@@E226	001	002F	0315	0317
@@E227	001	0030	0317	0319
@@E228	001	0031	0319	0321
@@E229	001	0032	0321	0323
@@E230	001	0033	0323	0325
@@E232	001	0034	0325	0327
@@E234	001	0035	0327	0329
@@E237	001	0036	0329	0331
@@E240	001	0037	0331	0333
@@E241	001	0038	0333	0335
@@E242	001	0039	0335	0337
@@E248	001	003A	0337	0339
@@E249	001	003B	0339	0341
@@E250	001	003C	0341	0343
@@E251	001	003D	0343	0345
@@E252	001	003E	0345	0347
@@E253	001	003F	0347	0349
@@E254	001	0040	0349	0351
@@E255	001	0041	0351	0353
@@E256	001	0042	0353	0355

## CROSS REFERENCE

SYMBOL   LEN   VALUE   DEFN   REFERENCES   VER 15, MOD 00   23/05/20   PAGE   99

@@E300	001	0043	0355	0357   2491   4862
@@E301	001	0044	0357	0359   2341
@@E302	001	0045	0359	0361   2359
@@E303	001	0046	0361	0363   2330
@@E304	001	0047	0363	0365   2456
@@E305	001	0048	0365	0367   2873
@@E308	001	0049	0367	0369
@@E310	001	004A	0369	0371
@@E315	001	004B	0371	0373
@@E316	001	004C	0373	0375
@@E320	001	004D	0375	0377
@@E325	001	004E	0377	0379
@@E330	001	004F	0379	0381
@@E335	001	0050	0381	0383
@@E338	001	0051	0383	0385   2414
@@E340	001	0052	0385	0387
@@E350	001	0053	0387	0389
@@E351	001	0054	0389	0391   4119
@@E352	001	0055	0391	0393
@@E360	001	0056	0393	0395
@@E361	001	0057	0395	0397
@@E362	001	0058	0397	0399
@@E371	001	0059	0399	0401
@@E380	001	005A	0401	0403
@@E390	001	005B	0403	0405
@@E400	001	005C	0405	0407
@@E410	001	005D	0407	0409
@@E415	001	005E	0409	0411
@@E417	001	005F	0411	0413
@@E420	001	0060	0413	0415
@@E430	001	0061	0415	0417
@@E432	001	0062	0417	0419
@@E433	001	0063	0419	0421
@@E450	001	0064	0421	0423
@@E451	001	0065	0423	0425
@@E460	001	0066	0425	0427
@@E461	001	0067	0427	0429
@@E464	001	0068	0429	0431
@@E465	001	0069	0431	0433
@@E466	001	006A	0433	0435
@@E467	001	006B	0435	0437
@@E469	001	006C	0437	0439
@@E470	001	006D	0439	0441
@@E471	001	006E	0441	0443
@@E473	001	006F	0443	0445
@@E474	001	0070	0445	0447
@@E475	001	0071	0447	0449
@@E476	001	0072	0449	0451
@@E477	001	0073	0451	0453
@@E478	001	0074	0453	0455
@@E479	001	0075	0455	0457
@@E480	001	0076	0457	0459
@@E481	001	0077	0459	0461
@@E482	001	0078	0461	0463
@@E483	001	0079	0463	0465
@@E484	001	007A	0465	0467

## CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E485	001	007B	0467	0469
@@E486	001	007C	0469	0471
@@E487	001	007D	0471	0473
@@E488	001	007E	0473	0475
@@E489	001	007F	0475	0477
@@E490	001	0080	0477	0479
@@E491	001	0081	0479	0481
@@E492	001	0082	0481	0483
@@E493	001	0083	0483	0485
@@E494	001	0084	0485	0487
@@E495	001	0085	0487	0489
@@E496	001	0086	0489	0491
@@E497	001	0087	0491	0493
@@E498	001	0088	0493	0495
@@E500	001	0089	0495	0497
@@E501	001	008A	0497	0499
@@E530	001	008B	0499	0501
@@E531	001	008C	0501	0503
@@E535	001	008D	0503	0505
@@E540	001	008E	0505	0507
@@E541	001	008F	0507	0509
@@E542	001	0090	0509	0511
@@E543	001	0091	0511	0513
@@E544	001	0092	0513	0515
@@E545	001	0093	0515	0517
@@E546	001	0094	0517	0519
@@E547	001	0095	0519	0521
@@E548	001	FFFF	0725	
@@E549	001	0096	0521	0523
@@E550	001	0097	0523	0525
@@E551	001	0098	0525	0527
@@E552	001	0099	0527	0529
@@E553	001	009A	0529	0531
@@E554	001	009B	0531	0533
@@E555	001	009C	0533	0535
@@E556	001	009D	0535	0537
@@E558	001	009E	0537	0539
@@E570	001	009F	0539	0541
@@E571	001	00A0	0541	0543
@@E572	001	00A1	0543	0545
@@E573	001	00A2	0545	0547
@@E574	001	00A3	0547	0549
@@E575	001	FFFF	0727	
@@E578	001	00A4	0549	0551
@@E579	001	FFFF	0729	
@@E580	001	FFFF	0731	
@@E585	001	00A5	0551	0553
@@E595	001	FFFF	0733	
@@E597	001	FFFF	0735	
@@E598	001	FFFF	0737	
@@E600	001	00A6	0553	0555
@@E601	001	00A7	0555	0557
@@E602	001	00A8	0557	0559
@@E603	001	00A9	0559	0561
@@E604	001	00AA	0561	0563
@@E606	001	00AB	0563	0565

## CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E607	001	00AC	0565	0567
@@E608	001	00AD	0567	0569
@@E609	001	00AE	0569	0571
@@E610	001	00AF	0571	0573
@@E611	001	00B0	0573	0575
@@E612	001	00B1	0575	0577
@@E613	001	00B2	0577	0579
@@E614	001	00B3	0579	0581
@@E700	001	00B4	0581	0583
@@E701	001	00B5	0583	0585
@@E710	001	00B6	0585	0587
@@E712	001	00B7	0587	0589
@@E713	001	00B8	0589	0591
@@E714	001	00B9	0591	0593
@@E715	001	00BA	0593	0595
@@E716	001	00BB	0595	0597
@@E717	001	00BC	0597	0599
@@E718	001	00BD	0599	0601
@@E720	001	00BE	0601	0603
@@E721	001	00BF	0603	0605
@@E723	001	00C0	0605	0607
@@E724	001	00C1	0607	0609
@@E725	001	00C2	0609	0611
@@E726	001	00C3	0611	0613
@@E727	001	00C4	0613	0615
@@E728	001	00C5	0615	0617
@@E729	001	00C6	0617	0619
@@E730	001	00C7	0619	0621
@@E732	001	00C8	0621	0623
@@E752	001	00C9	0623	0625
@@E753	001	00CA	0625	0627
@@E754	001	00CB	0627	0629
@@E755	001	00CC	0629	0631
@@E756	001	00CD	0631	0633
@@E757	001	00CE	0633	0635
@@E758	001	00CF	0635	0637
@@E759	001	00D0	0637	0639
@@E760	001	00D1	0639	0641
@@E761	001	00D2	0641	0643
@@E762	001	00D3	0643	0645
@@E763	001	00D4	0645	0647
@@E764	001	00D5	0647	0649
@@E765	001	00D6	0649	0651
@@E766	001	00D7	0651	0653
@@E767	001	00D8	0653	0655
@@E768	001	00D9	0655	0657
@@E769	001	00DA	0657	0659
@@E770	001	00DB	0659	0661
@@E771	001	00DC	0661	0663
@@E772	001	00DD	0663	0665
@@E773	001	00DE	0665	0667
@@E774	001	00DF	0667	0669
@@E775	001	00E0	0669	0671
@@E776	001	00E1	0671	0673
@@E777	001	00E2	0673	0675
@@E778	001	00E3	0675	0677

## CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E779	001	00E4	0677	0679
@@E780	001	00E5	0679	0681
@@E781	001	00E6	0681	0683
@@E782	001	00E7	0683	0685
@@E783	001	00E8	0685	0687
@@E784	001	00E9	0687	0689
@@E785	001	00EA	0689	0691
@@E786	001	00EB	0691	0693
@@E790	001	00EC	0693	0695
@@E791	001	00ED	0695	0697
@@E792	001	00EE	0697	0699
@@E793	001	00EF	0699	0701
@@E794	001	00F0	0701	0703
@@E795	001	00F1	0703	0705
@@E796	001	00F2	0705	0707
@@E797	001	00F3	0707	0709
@@E798	001	00F4	0709	0711
@@E800	001	FFFF	0739	
@@E801	001	FFFF	0741	
@@E802	001	FFFF	0743	
@@E803	001	FFFF	0745	
@@E804	001	FFFF	0747	
@@E900	001	00F5	0711	0713
@@E901	001	00F6	0713	0715
@@E902	001	00F7	0715	0717
@@E903	001	00F8	0717	0719
@@E905	001	00F9	0719	0721
@@E906	001	00FA	0721	0723
@@E910	001	00FB	0723	
@M300	001	0C0B	2299	4167
@T300	001	0C0F	2302	2301
@ARR	001	0008	0016	2835 2836 3186 3460 3653 3655* 3656 3718 3901 4082 4344* 4345 4346* 4347 4512 4707 4861 5051 5237
@ASIGN	001	007C	0071	3212
@ASTER	001	005C	0069	2441 3479 3481 3483 3485 3501
@BCRDL	001	0050	0088	
@BE	001	0081	0043	2652
@BF	001	0090	0052	
@BH	001	0084	0041	
@BL	001	0082	0042	5334
@BLANK	001	0040	0065	2407 2436 2459 2489 2763 3196 3469 3471 3754 3906 3912 4185 4205 4222 5241 5243
@BM	001	0082	0054	
@BNE	001	0001	0046	3897
@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	2704* 2706 2708 2709 2710 2712 2714 2714* 2715 2715* 2720 2723 2723* 2724 2724* 2726 2728 2729 2739* 2742 2744 2745 2746 2748



## CROSS REFERENCE

SYMBOL   LEN   VALUE   DEFN   REFERENCES   VER 15, MOD 00   23/05/20   PAGE 103

				2750	2750*	2752	2752*	2757	2759	2759*	2760	2760*	2761	2771	2773
				2777	2778	3182	3184	3185*	3186	3189	3196	3197	3197	3198	3199
				3199	3219	3222	3225	3234	3236	3236	3237	3238	3239	3241	3243
				3245	3250	3250	3253	3260	3265	3269	3277	3285*	3456	3458	3459*
				3460	3497	3513	3527	3551	3557	3566	3568*	3652	3659*	3674	3675
				3675*	3693*	3713	3715	3716*	3718	3720	3722	3722	3732	3732	3737
				3737	3738	3738	3739	3739	3740	3740	3741	3741	3745	3746	3746
				3749	3755	3756	3761	3762	3762	3764*	4078	4079	4080*	4081	4082
				4093	4095	4095	4097	4097	4098	4106	4108	4109	4128*	4157	4183
				4202*	4213	4213*	4219	4219*	4229	4239	4332	4341	4343*	4344	4345
				4346	4347	4349	4350	4350	4351	4352	4352	4354	4354	4355	4356
				4356	4360	4360	4361	4365	4365	4366	4368	4368	4369	4369	4370
				4370	4371	4371	4372	4372	4378	4379	4380	4380	4381	4386	4386
				4387	4387	4389	4389	4395*	4509	4510	4511*	4512	4513	4517	4518
				4520	4521	4525	4529	4531	4531	4533	4536	4537	4547	4549	4557
				4557	4558	4562	4563	4564	4568*	4702	4704	4705*	4706	4707	4713
				4720	4721	4727	4727	4728	4738	4740	4744	4745	4745	4748*	4857
				4858	4859*	4860	4861	4865	4867	4869	4883	4883	4884	4901	4901
				4905	4908	4912*	4918	4919	4926	4929	4931	4931	4932	4933	4936
				5047	5048	5049*	5050	5051	5053	5053	5054	5054	5055	5055	5060
				5061	5066	5068	5068	5069	5073	5074	5076	5077	5081	5081	5082
				5084	5084	5085	5085	5086	5086	5087	5093	5096*	5106	5234	5235*
				5236	5237	5238	5253	5254	5262	5265	5271	5277	5283	5287	5289
				5319	5332	5334	5338	5340	5340	5341	5341	5342	5350*	5383	
@BT	001	0010	0051												
@BZ	001	0081	0055												
@B1	001	0001	0063	2467	2662	2691	2721	2758	2794	2806	3197	3252	3309	3311	3312
				3470	3470*	3471*	3482	3485*	3486	3510	3524	3528	3654	3663	3666
				3671	3674	3675	3748	3753	4068	4090	4106	4117	4169	4186*	4201
				4202	4204	4208	4211	4220	4221	5241	5243	5251	5255	5262	5277
				5295	5310										
@CADDR	001	0002	0142	2301	2423	2482	2496	2580	2677	4350	4579	4918	5053	5054	5055
				5084	5085	5086	5111	5112	5113	5122					
@CARDL	001	0060	0087	1731											
@CHARA	001	00C1	0072	3215											
@CHARF	001	00C6	0073	4217											
@CHARR	001	00D9	0074	4214											
@CHARZ	001	00E9	0075	3217											
@CLOFF	001	0010	0094												
@CLON	001	0011	0093												
@COMMA	001	006B	0066	2672	3535	3908									
@CPLUS	001	004E	0079												
@DADDR	001	0002	0140	2485	2510*	2530	4094	4094	4096	4213	4219	4239	4239	4349	4414
				4521	4549	4552	4563	4564	4577	4581	4735	4740	4745	4890	5066
				5068	5069	5095	5120	5270	5276	5282	5288	5297	5317	5318	5319
				5322											
@DBFR1	001	0004	0129												
@DBFR2	001	0005	0130	2482	2531	4520*	4536	4720							
@DCALK	001	0001	0081												
@DCBCY	001	0009	0115												
@DCBT1	001	0050	0117												
@DCNT	001	0003	0128	2386*											
@DCST1	001	0040	0116												
@DCTRL	001	0000	0125	2378*	2504*										
@DCYL	001	0001	0126	4354*											
@DD2	001	0003	0030	2710*	2711*	2746*	2747*								

## CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
@DGET	001	0001	0134	2588 2596 2614 2622 4757 5119 5360
@DOLAR	001	005B	0068	3208
@DOP2	001	0004	0028	4345* 4349* 4350* 4412 4413 4517* 4518*
@DPLNG	001	0006	0132	2531 4351 4410
@DPOS	001	0000	0133	
@DPUT	001	0002	0135	2378 2504 2605 4576 4580
@DSAD	001	0002	0127	4352* 4356* 4360 4361* 4365* 4368* 4372 4378* 4386* 4389* 4411 4521* 4564* 4740* 4745*
@DSBCY	001	0004	0106	
@DSCS1	001	0000	0107	
@DSIVF	001	0003	0138	
@DSPIN	001	0002	0131	
@DTRSZ	001	0018	0085	
@DVBCY	001	0007	0108	
@DVRFY	001	0031	0136	
@DWAIT	001	00FF	0137	
@DWBCY	001	0005	0103	
@DWSIZ	001	00C0	0105	
@DWTB1	001	0003	0104	
@DZERO	001	00F0	0064	
@D1	001	0002	0026	2708* 2744* 3732
@EOF	001	001C	0077	2585
@EOFTC	001	0075	0162	
@EOS	001	001E	0076	2645 2701 2840 3263 3533 3669 3914 4225
@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	1759
@IAR	001	0010	0017	
@INDEX	001	0001	0156	0157
@INST3	001	0003	0032	
@INST4	001	0004	0033	
@INST5	001	0005	0034	
@INST6	001	0006	0035	
@I1IAR	001	00C0	0020	
@LINSZ	001	00F4	0084	1733
@MAPEN	001	0005	0089	
@MINCR	001	2000	0083	
@MINUS	001	0060	0080	2640
@NOP	001	0080	0040	2461 2462 2484 2669 2731 2822 3530 3658 3727 3801 4131 4181 4391 4712 4744 5073
@NUMBR	001	007B	0070	3210
@OPD2	001	0004	0029	
@OP1	001	0003	0027	2520 2533 2677 2835* 2836* 2853 2864 3184* 3186* 3189* 3199* 3250*

## CROSS REFERENCE

SYMBOL	LEN	VALUE	DEFN	REFERENCES	VER 15, MOD 00	23/05/20	PAGE 105
				3458* 3460* 3538* 3556 3652* 3653* 3654* 3656* 3715* 3718* 3901* 4079* 4081* 4082* 4341* 4347* 4509* 4512* 4513* 4704* 4706* 4707* 4858* 4860* 4861* 5047* 5050* 5051* 5349 5351 5353			
@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	2299			
@PRINT	001	0040	0152	0154			
@PSR	001	0004	0015	3225* 3557* 3566* 3686*			
@PWAIT	001	00FF	0158				
@P1IAR	001	0020	0018				
@P2IAR	001	0040	0019				
@Q	001	0001	0024	2652* 2675 2709* 2732 2745* 2780 2783 2823* 3313 3551* 3557 3566 3658* 3679* 3698 3795 3799 3920 4120* 4183* 4392 4713* 4744* 4870 4935 5060* 5073* 5246 5335 5337			
@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	3499 3515			
@SLAST	001	0002	0183				
@SMIDL	001	0003	0182				
@SNULL	001	0080	0173				
@SONLY	001	0000	0180				
@STEXT	001	0007	0172				
@STYPE	001	0006	0171				
@TBCNT	001	0000	0160				
@TBLEF	001	0010	0155	0157			
@TBLIX	001	0011	0157				
@UCB	001	0087	0039	2657 2674 2733 2740 2823 3679 3797 3898 3909 4120 4183 4713 5060 5336			
@UPARW	001	005A	0078				
@VADDR	001	0002	0141				
@VENTA	001	0056	0113				
@VMDDV	001	00FE	0114				
@VMFD1	001	0000	0109				
@VMFD2	001	0001	0110				
@VMRS3	001	0002	0112				
@VMTRL	001	0001	0111				
@VOLID	001	0006	0091	3167 3243 3471* 3528 3528 4090 4092 4096 4202 4213 4219 4229			
@VQ	001	0001	0025	2712 2748 2779 2782 4169* 4188			
@WSFIT	001	0500	0101				
@WSTBL	001	0503	0102				

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SYMBOL	LEN	VALUE	DEFN	REFERENCES								VER 15, MOD 00    23/05/20    PAGE 106			
@XR	001	0002	0014	2315	2317	2319	2319*	2336	2338	2338*	2345	2346	2347*	2357	2361
				2361*	2365*	2376	2377	2382*	2383	2400	2406	2422*	2423	2425	2425*
				2427	2519*	2521	2532*	2637*	2638	2640	2645	2647	2662	2662*	2670
				2672	2688	2691	2691*	2701	2703	2712	2720*	2721	2721*	2748	2757*
				2758	2758*	2763	2765	2792	2794	2794*	2804	2806	2806*	2814	2840
				2852*	2863*	2872	2872*	2879*	2888	2889	3189	3208	3210	3212	3215
				3217	3226*	3251	3252	3252*	3263	3479	3482	3482*	3483	3486	3486*
				3499	3510	3510*	3515	3524	3524*	3529	3533	3535	3538	3549	3556*
				3660	3663	3663*	3664	3666	3666*	3667	3669	3674	3689	3720	3729
				3745	3748	3748*	3753	3753*	3754	3761	3902	3905	3905*	3906	3908
				3911	3911*	3912	3914	3916	4081	4090*	4092	4094	4096	4096*	4129*
				4201*	4204	4204*	4205	4208	4211	4214	4217	4220	4220*	4221	4221*
				4222	4225	4513	4515*	4516	4516*	4517	4518	4519*	4520	4521	4522
				4525	4527	4527*	4532	4532*	4535	4536*	4537	4552	4563	4564	4569*
				4706	4720*	4721	4722	4722*	4724	4726	4726*	4734	4735	4740	4749*
				4860	4864*	4867	4868	4868*	4875	4881	4882	4882*	4890	4900	4900
				4904	4904*	4907*	4908	4913*	4925	4926	4927	4928	4929	4933	4934
				5050	5061*	5066	5069	5074	5075	5075*	5078	5080	5080*	5091	5093*
				5094	5095	5097*	5104	5238	5239*	5240	5255	5268	5270	5274	5276
				5280	5282	5286	5288	5295	5297	5310	5312	5317	5318	5319	5322
				5343	5348*	5384									
@ZERO	001	0000	0062	2325	2346	2351	2372	2384	2409	2443	2450	2640	2645	2647	2670
				2672	2688	2701	2706	2726	2728	2729*	2742	2761	2763	2765	2773
				2775	2792	2804	2814	2817	2840	2848	2889	2894	3198	3208	3210
				3212	3215	3217	3251	3260	3263	3277	3479	3483	3499	3515	3529
				3531	3533	3535	3549	3657	3660	3664	3667	3669	3674	3674*	4092
				4117	4205	4214	4217	4222	4225	4229	4361	4529	4738	4927	5076
				5253	5254	5255	5268	5274	5280	5286	5295	5310			
C4BCHC	001	0004	3789												
C4BCHR	001	14C6	3777	3745*	3746										
C4BINI	001	14C5	3775	3722											
C4BIN2	001	145A	3712	2797	3713	3716									
C4BLEN	002	14C2	3787	3761*	3762*					</					

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
DL2C48	001	16A0	4402	4352 4356
DL2DPL	006	16AC	4410	4351*
DL2END	001	16AF	4415	
DL2E01	001	0001	4334	4352 4354 4356 4360 4372 4380
DL2E02	001	0002	4335	4365 4368 4386
DL2E18	001	0018	4336	4366
DL2E60	001	0060	4337	4381
DL2E7C	001	007C	4339	4378
DL2ICS	001	1616	4340	2476 2506 2512 4539 4554 4565 4715 4741 5070 5320
DL2K18	002	16A2	4403	4369
DL2K60	002	169D	4400	4387
DL2K80	002	169F	4401	4368 4386
DL2LST	001	16A7	4409	4352* 4354* 4356* 4360 4361* 4365* 4368* 4372 4378* 4386* 4389* 4394
				4411
DL2PHY	001	16A9	4411	
DL2RAD	002	16AE	4414	2530 4365 4714* 5317*
DL2SAD	005	162E	4412	4372* 4379* 4380* 4381 4387* 4389
DL2SEC	005	1637	4413	4360* 4366 4369* 4370 4370* 4371 4371* 4380
DL2SWH	003	168C	4392	
DL2TSD	001	0083	4338	4379
DL2000	001	161A	4342	4332 4343
DL2001	005	162A	4349	4345* 4412
DL2002	005	1633	4351	4349* 4350* 4413
DL2005	004	1638	4352	4355
DL2006	004	1646	4356	4353
DL2008	004	1663	4370	4367
DL2010	003	1679	4381	
DL2100	004	1687	4389	4382
DL2110	003	168B	4391	4392
DL2900	004	1694	4395	4341* 4391
DL2910	004	1698	4396	4347*
KALCTR	001	0EC2	2565	2320* 2328* 2339* 2353* 2355* 2362* 2566 2891* 2893*
KALDFI	001	0005	3009	2752
KALDKT	001	1201	2933	2739
KALDPA	001	0EF2	2613	2531
KALDPL	001	0EE0	2587	2378* 2386* 2393 2634
KALDP2	001	0EE6	2595	2477 2482 2504* 2507
KALDP3	001	0EEC	2604	2510* 2513
KALDUP	001	00FF	3008	2726 2729 2771 2778
KALEMP	001	0000	2564	2315
KALENG	001	0008	2562	2317 2317 2425 2687
KALEOF	001	0EDF	2585	2609
KALESX	004	1185	2853	2677* 2703* 2809 2829
KALFIV	001	0005	2560	2427 2436 2459 2489
KALIDC	001	0ED5	2577	2372 2376 2399* 2405* 2578 2728* 2775 2817 2848
KALINP	004	0E8F	2533	2638*
KALIOR	001	1C00	5403	2347 2382 2591 2879
KALKE0	001	0000	2994	2938
KALKE1	001	0000	2995	
KALKE2	001	0016	2996	2943
KALKE3	001	0040	2997	2948
KALKE4	001	004F	2998	2953
KALKE5	001	0010	2999	2958
KALKE6	001	0052	3000	2963
KALKE7	001	0054	3001	2968
KALKE8	001	0010	3002	2973

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
KALKE9	001	0050	3003	2819
KALKS0	001	0000	2981	2937
KALKS1	001	0080	2982	2403 2650 2655
KALKS2	001	0040	2983	2866 2942
KALKS3	001	0020	2984	2947
KALKS4	001	0010	2985	2952
KALKS5	001	0008	2986	2428 2868 2957
KALKS6	001	0004	2987	2500 2962
KALKS7	001	0002	2988	2967
KALKS8	001	0001	2989	2761 2784 2861 2972
KALKS9	001	0021	2990	2824
KALLPR	001	004D	2561	2647 2765 2792
KALMFS	002	0EDD	2583	2870
KALMSK	001	0EC4	2569	2401 2403 2428 2500 2570 2650 2655* 2779 2782* 2819 2824* 2861
				2866 2868
KALNB1	003	0F81	2675	2669*
KALNDC	004	1024	2732	2657* 2733* 2740*
KALNDT	001	11E9	2907	2704
KALNEA	002	0ED7	2580	2496
KALNEW	001	0E96	2542	2580
KALNFI	001	0004	3006	2715
KALNUL	001	1B00	5401	2600 5403
KALONE	001	0EDE	2584	2320 2339 2362 2467
KALPDP	001	0EF8	2621	2536
KALRPR	001	005D	2563	2670 2688 2804
KALSET	004	10B2	2783	2773* 2784
KALSIX	001	0006	2559	2427
KALSPC	002	0EA1	2548	2400 2474 2487 2802* 2870
KALSPT	004	1194	2864	2809* 2829*
KALSTR	002	0EDB	2582	2430
KALSVN	001	0007	2558	2423
KALTED	001	1249	2975	
KALTEK	001	124A	3005	2711 2747
KALTEM	001	00FF	3010	2706 2742 2872
KALTSB	001	0003	3007	2724 2760
KALTST	004	10AB	2780	2777*
KALUEA	002	0E9F	2544	2499* 2510
KALUED	003	0EA8	2552	2498*
KALUEF	001	0EA0	2545	2547
KALUEH	001	0EA9	2553	2555 2827
KALUEN	008	0E9D	2543	2497*
KALUES	001	0EA3	2550	2502*
KALUF1	008	0ECC	2572	2317 2357 2377 2667*
KALUF2	008	0ED4	2574	2336 2687* 2894
KALU2E	001	0ECD	2573	2575
KALXRS	004	0E76	2520	2345* 2365 2406*
KALZRO	002	0ED9	2581	2485 2799
KAL100	003	0C55	2315	2321 2329 2895
KAL110	004	0C83	2330	2326
KAL120	005	0C8A	2336	2340 2896
KAL125	004	0CA6	2345	2337
KAL126	004	0CC0	2355	2352
KAL130	005	0CC4	2357	2354 2363
KAL135	004	0CD0	2360	2331 2342
KAL140	003	0CD4	2361	2358
KAL150	001	0CE5	2371	2316 2318



## CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
KAL2SS	001	0EC3	2568	2325 2327* 2351 2383 2384 2888*
KAL200	001	0CEC	2375	2402 2522
KAL205	004	0D11	2389	2385
KAL210	001	0D15	2390	2387
KAL250	001	0D1F	2398	2373
KAL251	004	0D4D	2411	2444
KAL253	004	0D54	2414	2404
KAL254	004	0D58	2415	2412
KAL255	001	0D5C	2416	2410
KAL258	001	0D62	2421	2445
KAL260	005	0D66	2423	2426
KAL270	005	0D75	2427	2424
KAL280	004	0D7A	2428	2437 2442
KAL300	001	0D92	2435	2408
KAL350	001	0DAE	2449	2431
KAL355	004	0DCD	2459	2455
KAL360	004	0DDC	2465	2490
KAL370	006	0DF4	2474	2460
KAL375	004	0E2E	2491	2466 2470
KAL380	006	0E36	2496	2486
KAL385	004	0E59	2503	2501
KAL400	004	0E73	2519	2429 2520
KAL450	001	0E80	2529	2488
KAL460	004	0E8C	2532	2533
KAL500	001	0EFE	2631	2293 5404
KAL505	004	0F1F	2644	2658
KAL510	003	0F54	2662	2648
KAL515	003	0F74	2670	2668
KAL518	003	0F80	2674	2675
KAL520	004	0F83	2676	2689
KAL525	004	0F91	2679	2673
KAL530	004	0F9D	2685	2674
KAL535	003	0FB2	2691	2671
KAL540	001	0FC1	2700	2734 2785 2810 2831
KAL545	001	0FD0	2705	2716
KAL550	004	0FEB	2712	2708* 2709* 2710* 2711*
KAL555	003	0FFC	2720	2713
KAL560	004	1023	2731	2732
KAL600	001	102F	2738	2707
KAL605	001	1037	2741	2753
KAL610	004	1052	2748	2744* 2745* 2746* 2747*
KAL615	003	1063	2757	2749
KAL617	004	1084	2769	2762
KAL618	004	1088	2770	2764 2766
KAL620	004	10AA	2779	2780
KAL625	004	10B1	2782	2783
KAL630	003	1110	2814	2743
KAL635	003	112C	2822	2823*
KAL650	004	1152	2835	2722 2769 2808 2830
KAL653	004	1161	2839	2835*
KAL656	004	1168	2841	2836*
KAL663	004	1173	2847	2767 2793 2798 2800 2805 2815
KAL665	004	1182	2852	2678 2727 2731 2772 2776 2781 2818 2820 2828 2843 2849 2853
KAL669	004	1186	2855	2641 2643 2646 2651 2654 2664 2666 2686 2694 2791 2796 2803
				2822 2838
KAL700	004	118A	2861	2702



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SYMBOL	LEN	VALUE	DEFN	REFERENCES
KAL703	004	1191	2863	2864
KAL706	006	11A8	2870	2867
KAL710	004	11BC	2879	2862 2871
KAL720	004	11D9	2893	2890
KAL800	004	11DD	2894	2892
SALBSE	001	126B	3207	3182 3185
SALCNT	001	1307	3304	3198* 3236* 3239 3243 3260
SALCT6	001	0006	3167	
SALCT8	001	0008	3165	
SALERR	003	1281	3313	3225
SALFST	001	0001	3301	3222 3234
SALIDR	001	1306	3294	3179* 3219 3222 3234* 3237 3265 3277*
SALND0	004	12FE	3285	3184*
SALND2	004	1302	3286	3186*
SALPHR	001	130A	3308	2667 2687 3310 3311 3312 3498 3514 3528
SALPHS	002	1315	3310	3199
SALPH6	001	124F	3183	3526
SALPH8	001	124B	3176	2665 2685 3496 3512
SALPR6	001	1312	3312	3197*
SALPR7	001	1313	3311	3196* 3197
SAL001	002	1309	3307	3236 3250
SAL008	001	0080	3298	3179 3219 3237 3265
SAL100	003	125D	3196	
SAL200	003	126B	3208	3253
SAL250	003	1280	3216	3313
SAL350	003	1299	3225	3241 3245 3269
SAL375	004	129C	3226	2677 3189* 3538* 3556
SAL400	003	12A3	3234	3209 3211 3213 3218
SAL425	004	12A6	3236	3220 3224
SAL450	003	12BD	3243	3238
SAL500	004	12C7	3250	3242
SAL525	005	12CB	3251	3199* 3250*
SAL750	003	12D6	3260	3216
SAL755	004	12D9	3261	
SAL760	003	12F4	3269	3264 3267
SAL775	004	12F7	3270	3262
SAL800	003	12FB	3277	3227
SCACNT	002	150A	3926	3531 3916* 3917*
SCACOF	001	0087	3898	2656 2681 2789 3495
SCACOM	001	0001	3897	2679 2692 2807 3539
SCAINC	001	0001	3896	3905 3911
SCAMMA	003	14E7	3920	2656* 2679* 2681* 2692* 2789* 2807* 3495* 3539*
SCANIT	001	14CA	3900	2642 2663 2680 2693 2790 2795 2801 2837 3270 3511 3525 3540
SCASVE	002	1508	3925	3902* 3917
SCASV1	001	1507	3924	
SCA100	003	14D9	3905	3907
SCA200	003	14DC	3906	3904
SCA250	003	14E6	3909	3920
SCA300	003	14E9	3911	3913
SCA400	004	14F9	3916	3909
SCA500	004	1503	3919	3901* 3915
SCSCNT	001	1454	3702	3657* 3671* 3677
SCSERR	002	1459	3705	3686
SCSFRC	001	00FF	3700	3689
SCSLNG	004	1430	3698	2825*
SCSPL1	002	1456	3703	3655 3671

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
SCSPL2	001	1457	3704	3654
SCSQO	001	007D	3699	2814 3660 3664 3667
SCSTRG	001	13DF	3651	2826
SCS005	004	13FD	3659	3656*
SCS006	003	1407	3663	3680
SCS010	003	1419	3669	3665
SCS020	003	1425	3673	3658* 3679*
SCS025	004	142F	3677	3698
SCS029	004	143A	3680	3673 3678
SCS030	001	143E	3685	3661 3670
SCS040	003	1449	3689	3668
SCS050	004	144C	3693	3652* 3688
SCS051	004	1450	3694	3653* 3654*
SFIAS	001	005C	5373	5251
SFIBSE	003	19B5	5380	5235 5236
SFICTR	001	1A89	5357	5253* 5262 5265 5271* 5277* 5283* 5289* 5332
SFIDPL	001	1A8A	5360	5321
SFIEFE	001	00FE	5376	5271 5332
SFIEFF	001	00FF	5377	5359
SFIEND	001	1A92	5381	
SFIERR	004	0DC9	2457	5313 5372
SFIETD	001	0006	5382	2465 5338
SFIEXT	004	1A88	5353	5237*
SFIE02	001	0002	5374	5283
SFIE03	001	0003	5375	5265 5289
SFIE06	001	0006	5378	5268 5274 5280 5286
SFIE07	001	0007	5379	5270 5276 5282 5288
SFIFND	003	1A63	5337	2462*
SFINDF	001	1977	5233	2451 2468
SFINTR	001	1A91	5365	2465 2467* 5338 5341 5366
SFIONE	001	1A92	5368	5340
SFIRDA	002	1A8C	5361	5319*
SFISBR	004	1A84	5351	5234*
SFISTR	003	1A60	5335	2461*
SFISXR	004	1A80	5349	5238*
SFITTC	001	1A90	5364	5254* 5340* 5341
SFIVOL	004	1998	5246	
SFI050	004	1997	5245	5246
SFI100	004	199E	5251	5244
SFI200	003	19B5	5262	5334 5342 5380
SFI210	003	19C4	5268	5287
SFI220	003	19D5	5274	5263
SFI230	003	19E6	5280	5264 5275
SFI240	003	19F7	5286	5266 5281
SFI320	003	1A08	5295	5252
SFI340	005	1A0E	5297	5256
SFI350	004	1A13	5301	5247 5272 5278 5284 5290
SFI500	003	1A28	5310	5242
SFI505	003	1A2E	5312	5296
SFI510	005	1A35	5317	5311
SFI520	004	1A4E	5326	5306
SFI540	003	1A59	5332	5303
SFI542	003	1A5F	5334	5335
SFI543	003	1A62	5336	5337
SFI545	003	1A76	5343	5269 5336 5339
SFI550	004	1A7D	5348	5305 5328 5333 5349

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
SFI560	004	1A81	5350	5351
SFI570	004	1A85	5352	5353
SGECNT	001	1821	4764	4721* 4727* 4738
SGEC01	002	1823	4765	4727
SGEDPL	001	1819	4756	4716 4720 4740* 4742 4745*
SGEEND	001	1824	4767	
SGERAD	002	1820	4763	4745
SGETDB	001	1798	4703	4702 4705 5301
SGE050	003	17AE	4712	4713* 4744*
SGE055	003	17C6	4720	4712
SGE060	005	17D0	4724	4728
SGE070	004	17E6	4734	4725
SGE080	004	17FC	4740	
SGE900	004	180D	4748	4704* 4737 4739
SGE901	004	1811	4749	4706*
SGE902	004	1815	4750	4707*
SMAEND	001	132D	5496	
SMALES	001	0EFE	5470	5471
SMBFDA	001	0F18	5476	4094* 4117 4239* 4714 5270* 5276* 5282* 5288* 5297* 5318* 5477
SMDAAD	001	0F2C	5486	5095* 5492
SMFNAM	001	0F14	5474	2497 2521 3498* 5078 5475
SMFUDA	001	0F28	5484	4735* 5322* 5485
SMIND1	001	0EFE	5471	2450* 2452 2454 2469 4711* 4729* 4736 5092* 5105* 5257* 5302 5304
				5327 5344* 5472
SMNDBA	001	0F2A	5485	2482* 4864 4907 5486
SMNDEA	001	0F1E	5479	2485 2499 4549 4552 4890* 4918* 5480
SMNETD	001	0F22	5481	5482
SMNSCT	001	0F20	5480	2474* 4547* 4875 4925 4928 5481
SMNULT	001	0F1C	5478	2487 4865* 4881* 5479
SMPDB1	001	0F2D	5492	4760 5493 5494
SMPEAD	001	0F26	5483	4734* 5484
SMPIBS	001	0F2D	5493	
SMPSWD	001	0F0C	5473	2407 2417* 2430 2441 3469* 3470 3470* 3481* 3485* 3501 3514* 4724
				5241 5251 5474
SMUDBA	001	0F1A	5477	4519 5094* 5478
SMUDB1	001	0F2D	5494	5114 5363 5495
SMUDB2	001	112D	5495	5115 5496
SMUDEA	001	0F16	5475	5091* 5104* 5476
SMUPEN	001	0F24	5482	2496* 4515 5483
SMVOID	001	0F04	5472	2427* 2436 2459 2489 3471* 3528* 4092 4229 5243 5473
SM1FNE	001	0080	5487	2454 5092 5105 5327 5344
SM1NPD	001	0040	5488	
SM1PDS	001	0010	5490	4736 5304
SM1PNF	001	0008	5491	2452 2469 4711 4729 5257 5302
SM1STN	001	0020	5489	
SRCACT	002	1969	5113	5055* 5061 5085 5086* 5093
SRCBA1	002	196B	5114	5053
SRCBA2	002	196D	5115	5054
SRCBFR	002	1976	5122	5068*
SRCBF1	002	1965	5111	5053* 5055 5084* 5086
SRCBF2	002	1967	5112	5054* 5068 5084 5085*
SRCCNT	001	196E	5116	5074* 5076 5081*
SRCC01	002	1970	5117	5066 5081
SRCDAD	002	1973	5120	5069*
SRCDPL	001	1971	5118	5071
SRCGET	001	1971	5119	

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
SRCHFN	001	18C6	5046	5326
SRC SCT	001	1974	5121	
SRC010	004	18CA	5049	5048 5049
SRC020	004	18E4	5057	5087
SRC030	004	1908	5074	5067
SRC035	005	1915	5078	5082
SRC040	004	1939	5091	5079
SRC050	003	1941	5093	5106
SRC055	003	1927	5083	5060* 5073* 5077
SRC060	004	1959	5104	5083
SRC900	004	194D	5096	5047*
SRC910	004	1951	5097	5050*
SRC920	004	1955	5098	5051*
STU CLU	001	1758	4585	4547
STU CNT	001	1759	4592	4525* 4529 4531*
STUC00	002	1757	4584	4549
STUC01	001	1797	4595	4531 4537
STUDPL	001	1750	4580	4564* 4566
STUERR	004	0E26	2489	4550
STUE01	001	0001	4507	4562
STUE02	001	0002	4508	4547
STUFID	001	16AF	4506	2503
STUHDR	001	1759	4590	4562* 4563* 4583 4592
STULST	001	174A	4576	4520* 4521* 4536 4540 4555
STUNHD	012	1764	4591	4557 4557*
STUNNT	050	1796	4593	4558*
STU000	004	16B3	4511	4510 4511
STU010	003	16E2	4529	4533
STU020	005	16F2	4535	4517* 4530
STU040	005	1707	4547	4523
STU050	005	1719	4552	
STU060	005	1728	4558	4518*
STU900	004	173E	4568	4509* 4542
STU910	004	1742	4569	4513*
STU920	004	1746	4570	4512*
SUF BSE	001	1349	3494	3456 3459
SUFFER	001	1316	3457	2653
SUFND0	004	13D7	3568	3458* 3558
SUFND2	004	13DB	3569	3460*
SUF100	004	1349	3495	3480 3484
SUF200	003	1381	3524	3502
SUF400	003	138C	3527	3557
SUF600	003	1395	3529	3500 3516
SUF625	003	1398	3530	2652*
SUF650	004	13AE	3538	3532
SUF680	004	13C6	3552	3536 3551* 3553
SUF750	003	13CE	3557	3497 3513 3527 3541
SUF780	003	13D1	3558	3566
SUF800	003	13D4	3566	3530 3534 3550
SURCHN	001	1824	4855	2483 4548
SURCNT	003	1847	4870	4867* 4883* 4901*
SURC00	002	18C2	4941	4865 4869 4918
SURC01	001	18C3	4942	4883 4901 4908 4931
SURC48	002	18C5	4943	4929 4933
SURE01	001	0001	4856	4867 4883 4901
SURE02	001	0002	4940	4865 4908 4928 4929 4933

## CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
SURSWK	003	18BC	4935	4926* 4931*
SUR0A2	005	1863	4890	4876
SUR0A3	005	1898	4925	4894
SUR0G2	005	1890	4918	4871
SUR000	004	1828	4859	4857 4859
SUR010	003	1846	4869	4870 4884
SUR020	004	186B	4900	4905
SUR024	004	187C	4907	4902
SUR03C	003	18BB	4934	4935
SUR033	004	18B7	4933	4930
SUR034	004	18A9	4929	4932
SUR900	004	1884	4912	4858* 4919 4936
SUR910	004	1888	4913	4860*
SUR920	004	188C	4914	4861*
SVOBSE	001	151D	4091	4078 4080
SVOBUF	001	1B00	5402	4182* 4228
SVOCT1	001	1564	4140	4097* 4141
SVOCT2	001	1565	4144	4095* 4106 4145
SVOEND	001	00FF	4069	4182* 4228
SVOERR	004	0DC9	5372	4131
SVOINP	001	0100	4068	4182 4228
SVOLID	001	150B	4077	5245
SVOLN1	001	0001	4065	4095 4097
SVOONE	001	1566	4147	4095 4097
SVO001	001	00F1	4066	4208
SVO002	001	00F2	4067	4211
SVO100	005	151D	4092	4098
SVO200	003	152E	4096	4093
SVO260	004	1545	4117	4241
SVO270	004	1550	4120	4108 4157 4231
SVO274	004	1554	4128	4079* 4118
SVO276	004	1558	4129	4081*
SVO280	004	155C	4131	4120*
SVO290	004	1560	4132	4082*
SVO300	004	1567	4155	4109
SVO310	004	156B	4156	
SVO315	003	156F	4157	
SVO320	001	1572	4165	4212 4218 4226
SVO330	001	1584	4179	4183*
SVO333	004	1590	4185	4181
SVO335	004	159A	4188	4169*
SVO350	004	15A2	4190	4191
SVO360	003	15B8	4204	4206
SVO400	003	15D2	4214	4209
SVO440	003	15E2	4220	4215
SVO445	003	15E5	4221	4223
SVO450	005	15FC	4229	

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY = 0

OL105 I THE CODE LENGTH OF #KALLO IS 6912 DECIMAL.  
OL103 I TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS 22  
NAME-#KALLO,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-R,CATEGORY-000

START ADDRESS	CATEGORY	NAME AND ENTRY	CODE LENGTH	HEXADECIMAL	DECIMAL
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0C00      0      #KALLO      1B00      6912
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OL100 I THE TOTAL CORE USED BY #KALLO IS 6912 DECIMAL.
OL101 I THE START CONTROL ADDRESS OF THIS MODULE IS 0C00.
OL104 I TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS 28
      NAME-#KALLO,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-O

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