

Other programs:

Program	Date	Entry Point	Function
TYPEIO	9/03/12	2400	Console Keyboard/Typewriter interface subroutine
FLTPT3	11/15/12	2700	Floating Point math operations subroutine
MATH101B	11/15/12	5649	Solve user entered math problem (no hierarchy)
MSGIO	9/30/12	7101	Type various messages

For TYPEIO program: Program call interface is:

B	2400	TYPEIO Program address
DCW	d	A d= I for input, O for output
DCW	m	A m= M for move mode, L for load mode
DSA	adr	A adr= address of message area (I) or message (O)
B	error_response	R Branch to error response instruction (4 char)
Pgm continues		R Continuation of calling program

For FLTPT3 program: Program call interface is:

B	2700	FLTPT3 Program address
DCW	o	A FLTPT3 opcode (where o is one of +-*/JCD)
DSA	arg1	A Argument 1 address
DSA	arg2	A Argument 2 address
DSA	answer	A Result address (can be same as arg1 or arg2)
B	error_response	R Branch to error response instruction (4 char)
Pgm continues		R Continuation of calling program

MATH101B is a program which asks for and solves a math problem that you enter. The problem may be up to 99 characters long. It may use math operators of +, -, *, / and J. It may contain 10 levels of () and J combined. The equation is solved from left to right. There is no operator hierarchy ie. +, -, *, / are processed in the order encountered. () are used to change the order of processing. Numbers are of the form: integer.fraction. There may be up to 10 unique number values (eg. i = 1.0 = 001) which may be used up to 15 times (total) in the problem. The program will compute the result and type out the answer in scientific notation ie. ±X.XXXXXXXXXXE±XX

eg. J(1+(1.0-001)*J((.10+0.1)/00.20)) ANSWER= 1.000000000E+00

MATH101B calls the TYPEIO, FLTPT3, MULT3A, DIVIDEX3 and SORT3 subroutines.

IBM 1440 Memory Map

11/15/12

Address	0	1	2	3	4	5	6	7	8	9		
2700	!	FLTPT INIT			!	FLTPT OP DECODE			!			
2800	FLTPT ARGUMENT COPY				!!	FLTPT MUL, DIV, SORT INIT						
2900	FLTPT MUL, DIV, SORT INIT					!!	FLTPT MUL					
3000	FLTPT MUL				!!	FLTPT DIV						
3100	FLTPT DIV				!!	FLTPT SORT						
3200	FLTPT SORT									!!		
3300	FLTPT ADD & SUB											
3400	FLTPT ADD & SUB											
3500	FLTPT ADD & SUB											
3600	FLTPT ADD & SUB											
3700	FLTPT ADD & SUB											
3800		!!	FLTPT FIXED TO FLOAT CONVERSION									
3900	FLTPT FIXED TO FLOAT CONVERSION											
4000	FLTPT FIXED TO FLOAT CONVERSION											
4100		!!	FLTPT RETURN ANSWER				!!	FLTPT FLOAT TO SCIENTIFIC NOTATION CONVERSION				
4200		!!	FLTPT PSM CONSTANTS			!!ALIX!!	ARG 1	!!	ARG 2	!	FLTPT MAX	
4300	FLTPT 0	!	!!	WORK AREA B	!!	WORK AREA A	!!	WORK AREA 0	!!	ANSWER	!	SCI
4400	- NOTATION	!	!	Patch 1	!!	Patch 4	!!	Patch 6		!		
4500												
4600												
4700												
4800												
4900												
5000	!	MATH101 USER INPUT STRING AREA										
5100	!	MATH101 MESSAGES FOR USER							!!	ANSWER FORMATED		
5200	!!	VARIABLES!!		MATH101 FUNCTION TABLE								
5300	MATH101	FUNCTION TABLE !!			MATH101			VALUE DIRECTORY		!!	MATH101	VALUE TABLE

5400	0	1	2	3	4	5	6	7	8	9	MATH101 VALUE TABLE
5500	0	1	2	3	4	5	6	7	8	9	MATH101 EXECUTION TABLE
5600	0	1	2	3	4	5	6	7	8	9	MATH101 EXECUTION TABLE | MATH101 INITIALIZATION
5700	0	1	2	3	4	5	6	7	8	9	MATH101 INIT | MATH101 ERROR RESPONSE | MATH101 USER
5800	0	1	2	3	4	5	6	7	8	9	INPUT REQUEST | MATH101 INPUT PROCESSING INITIALIZATION |
5900	0	1	2	3	4	5	6	7	8	9	MATH101 INPUT CHARACTER SCANNING
6000	0	1	2	3	4	5	6	7	8	9	MATH101 INPUT CHARACTER PROCESSING
6100	0	1	2	3	4	5	6	7	8	9	MATH101 INPUT CHARACTER PROCESSING
6200	0	1	2	3	4	5	6	7	8	9	| CONV NUM TO FLTPT FORMAT | VALUE TABLE SCAN FOR DUPLICATE NUMBER
6300	0	1	2	3	4	5	6	7	8	9	| VALUE TABLE BUILD | MATH101 FUNCTION TABLE AND VALUE DIRECTORY BUILD
6400	0	1	2	3	4	5	6	7	8	9	FOR A VALUE | FUNCTION TABLE BUILD FOR MATH AND CONTROL | MATH101 FORMULA
6500	0	1	2	3	4	5	6	7	8	9	EXEC INIT | MATH101 FORMULA EXECUTION
6600	0	1	2	3	4	5	6	7	8	9	MATH101 FORMULA EXECUTION
6700	0	1	2	3	4	5	6	7	8	9	| CALL FLOATING POINT SUBROUTINE FOR MATH OP | SORT CHECK
6800	0	1	2	3	4	5	6	7	8	9	| END TEST | FORMAT ANSWER | PRINT RESPONSE | MATH101 CONSTANTS
6900	0	1	2	3	4	5	6	7	8	9	MATH101 | Patch 2 || Patch 5 || Patch 7 || Patch 8 |
7000	0	1	2	3	4	5	6	7	8	9	
7100	0	1	2	3	4	5	6	7	8	9	| MSGIO INIT | MSGIO MANUAL MESSAGE SELECT
7200	0	1	2	3	4	5	6	7	8	9	MSGIO MANUAL MESSAGE SELECT | AUTOMATIC MESSAGE SELECT |
7300	0	1	2	3	4	5	6	7	8	9	| CONSTANTS | MSGIO MESSAGE ADDRESSES | MSGIO MESSAGES
7400	0	1	2	3	4	5	6	7	8	9	MSGIO MESSAGES
7500	0	1	2	3	4	5	6	7	8	9	MSGIO MESSAGES
7600	0	1	2	3	4	5	6	7	8	9	MSGIO MESSAGES |
7700	0	1	2	3	4	5	6	7	8	9	
7800	0	1	2	3	4	5	6	7	8	9	
7900	0	1	2	3	4	5	6	7	8	9	

Ct	IAdr	O	AAd	BAd	d	AAdr	BAdr	Pg	L#	Label	Opcd	A/I-AdtAj:X,B-AdtAj:X,d	Comment	
								01	010*	SUBROUTINE TO COMPUTE SQUARE ROOT OF A NUMBER (VALUE)				SQRT
								01	020*					SQRT
								01	030*	ON ENTRY, B ADR REG=ADDRESS OF USER ARGUMENT LIST:				SQRT
2								01	040	VALADR EQU 2			A ADR OF INPUT VALUE	SQRT
5								01	050	SQRADR EQU 5			A ADR FOR SQRT	SQRT
6								01	060	DVORTH EQU 6			R DIV BY 0 RETURN	SQRT
10								01	070	NMLRTN EQU 10			R NORMAL RETURN	SQRT
								01	080*	NOTE: BOTH VALUE AND SQUARE ROOT ARE 20 CHARACTERS LONG				SQRT
								01	090*					SQRT
8000								01	100	CTL 4			8K MEMORY	SQRT
2100								01	110	ORG 2100				SQRT
								01	120*	CONSTANTS				SQRT
1155								01	130	DIVIDE EQU 1155			ADR OF DIVIDE ADR	SQRT
20	2100		0000000000050000000000					01	140	IGUESS DCW 00000000005000000000			INITIAL GUESS	SQRT
20	2120		000000000000000000000002					01	150	TWO DCW 00000000000000000000				SQRT
								01	160*	WORKING VARIABLES				SQRT
3	2140							01	170	ARGADR DS 3			ARGUMENT LST ADR	SQRT
1	2143							01	180	LPCNTR DS 1			LOOP COUNTER	SQRT
20	2144							01	190	GUESS DS 20			GUESS N	SQRT
20	2164							01	200	RSLT DS 20			DIV QUOTIENT	SQRT
								01	210*					SQRT
4	2184	H	089			89		01	220	START SBR X1			X1 = ARG LST ADR	SQRT
7	2188	L	089	J42		89	2142	01	230	MLCWA X1,ARGADR			SAVE ARG LST ADR	SQRT
7	2195	M	012	K39		2	2239	01	240	MLC VALADR:X1,VADR			GET VALUE ADR	SQRT
7	2202	L	J19	J63		2119	2163	01	250	MLCWA IGUESS,GUESS			SET INITIAL GUESS	SQRT
7	2209	L	L26	J43		2326	2143	01	260	MLCWA 000,LPCNTR			RESET LOOP CNTR	SQRT
7	2216	M	/55	K33		1155	2233	01	270	MLC DIVIDE,LOOP%3			SET DIV BR ADR	SQRT
7	2223	M	/55	K57		1155	2257	01	280	MLC DIVIDE,DIV2%3			SET DIV BR ADR	SQRT
4	2230	B	K33			2233		01	290	LOOP B #			CALL DIVIDE SUB	SQRT
3	2234	J63				2163		01	300	DSA GUESS			A DIVISOR	SQRT
3	2237	K39				2239		01	310	VADR DSA #			A DIVIDEND	SQRT
3	2240	J83				2183		01	320	DSA RSLT			A QUOTIENT	SQRT
4	2243	B	L15			2315		01	330	B BADDIV			R DIV BY 0 RTN	SQRT
7	2247	A	J63	J83		2163	2183	01	340	A GUESS,RSLT			R SUM GUESS & RSLT	SQRT
4	2254	B	K57			2257		01	350	DIV2 B #			CALL DIVIDE SUB	SQRT
3	2258	J39				2139		01	360	DSA TWO			A DIVISOR	SQRT
3	2261	J83				2183		01	370	DSA RSLT			A DIVIDEND	SQRT
3	2264	J63				2163		01	380	DSA GUESS			A QUOTIENT	SQRT
4	2267	B	L15			2315		01	390	B BADDIV			R DIV BY 0 RTN	SQRT
7	2271	A	L27	J43		2327	2143	01	400	A 010,LPCNTR			R COUNT LOOP	SQRT
7	2278	C	L28	J43		2328	2143	01	410	C 050,LPCNTR			STOP AT 5 LOOPS	SQRT
5	2285	B	K30	/		2230		01	420	BU LOOP, /			B IF LESS	SQRT
								01	430*					SQRT
								01	440*	LAST GUESS = SQRT OF VALUE (ADJUST FOR DECIMAL POINT)				SQRT
								01	450*	COPY RESULT TO USERS SPACE				SQRT
								01	460*					SQRT
7	2290	M	J42	089		2142	89	01	470	MLC ARGADR,X1			X1 = ARG LST ADR	SQRT
7	2297	M	015	L10		5	2310	01	480	MLC SQRADR:X1,%7			GET SQRT ADR	SQRT
7	2304	L	J63	L10		2163	2310	01	490	MLCWA GUESS,#			CPY TO USER AREA	SQRT
4	2311	B	0/0			10		01	500	B NMLRTN:X1			NORMAL RETURN	SQRT
								01	510*					SQRT
7	2315	M	J42	089		2142	89	01	520	BADDIV MLC ARGADR,X1			X1 = ARG LST ADR	SQRT
4	2322	B	016			6		01	530	B DVORTH:X1			BAD PROC RETURN	SQRT
1	2326	0								DCW 0				
1	2327	1								DCW 1				
1	2328	5								DCW 5				
	2184							01	540	END START				SQRT

Ct	IAdr	O	AAd	BAd	d	AAdr	BAdr	Pg	L#	Label	Opcd	A/I-AdtAj:X,B-AdtAj:X,d	Comment	TYPE
								01	010*	SUBROUTINE			TO READ/WRITE MESSAGES ON CONSOLE KBD/TYPER	TYPE
								01	020*					TYPE
								01	030*	ON ENTRY,			B ADR REG=ADDRESS OF USER ARGUMENT LIST:	TYPE
0								01	040	ID	EQU	0	A I=INPUT, O=OUTPUT	TYPE
1								01	050	MODE	EQU	1	A L=LOAD, M=MOVE	TYPE
4								01	060	MSGADR	EQU	4	A ADR OF/FOR MESSAGE	TYPE
5								01	070	IDERTN	EQU	5	R I/O ERROR RETURN	TYPE
9								01	080	NMLRTN	EQU	9	R NORMAL RETURN	TYPE
								01	090*	NOTE: MESSAGE LENGTH UP TO 132 CHARACTERS LONG				TYPE
								01	100*	FOLLOWED BY GM+WM CHARACTER TO END MSG SPACE (I) OR MSG (O)				TYPE
								01	110*					TYPE
	8000							01	120	CTL	4		8K MEMORY	TYPE
	2400							01	130	ORG	2400			TYPE
4	2400	H	089			89		01	140	START	SBR	X1	X1 = ARG LST ADR	TYPE
7	2404	L	094	016		94	2616	01	150	MLCWA	X2,SAVEX2		SAVE INDEX 2	TYPE
4	2411	/	332			332		01	160	CS	ENDBUF		CLEAR..	TYPE
1	2415	/						01	170	CS			..BUFFER	TYPE
8	2416	B	N26	010	0	2526	0	01	180	BCE	OUT,IO:X1,0		BR IF OUTPUT CALL	TYPE
								01	190*					TYPE
								01	200*	READ A MESSAGE FROM KEYBOARD				TYPE
7	2424	L	010	333		2610	333	01	210	MLCWA	@=@,ENDBUF&1		TAG ON GMMH CHAR	TYPE
								01	220*	COPY CALLERS MSG AREA TO SET USERS MAX MSG LENGTH				TYPE
7	2431	M	014	M41		4	2441	01	230	MLC	MSGADR:X1, *&4		GET CALLER MSG ADR	TYPE
7	2438	P	M44	201		2444	201	01	240	MRCM	*,INPUT		COPY MSG TO BUFFER	TYPE
4	2445	H	094			94		01	250	SBR	X2		1 CHAR AFTER MSG	TYPE
7	2449	#	013	094		2613	94	01	260	MA	@I9I@,X2		DECR CHAR POINTER	TYPE
4	2456	,	010			0		01	270	SW	0:X2		SET WM ON GM CHAR	TYPE
8	2460	B	M80	011	M	2480	1	01	280	BCE	IM,MODE:X1,M		B IF MOVE MODE	TYPE
8	2468	L	%TO	201	R		201	01	290		L %TO,INPUT,R		READ MSG FROM KBD	TYPE
4	2476	B	M88			2488		01	300	B	ITST			TYPE
8	2480	M	%TO	201	R		201	01	310	IM	RCP %TO,INPUT,R		READ MSG FROM KBD	TYPE
5	2488	B	N99	*		2599		01	320	ITST	B	BADIO,,*	B ON INPUT ERROR	TYPE
								01	330*	DOES INPUT MSG END WITH GMMH FROM CONSOLE ?				TYPE
7	2493	M	014	N06		4	2506	01	340	MLC	MSGADR:X1, *&7		GET MSG ADR	TYPE
7	2500	P	201	N06		201	2506	01	350	MRCM	INPUT, *		COPY MSG TO CALLER	TYPE
4	2507	H	094			94		01	360	SBR	X2		1 CHAR AFTER MSG	TYPE
7	2511	#	013	094		2613	94	01	370	MA	@I9I@,X2		DECR CHAR POINTER	TYPE
4	2518	,	010			0		01	380	SW	0:X2		SET WM ON GM CHAR	TYPE
4	2522	B	N88			2588		01	390	B	RETURN		RETURN TO CALLER	TYPE
								01	400*					TYPE
								01	410*	TYPE A MESSAGE				TYPE
7	2526	M	014	N36		4	2536	01	420	OUT	MLC	MSGADR:X1, *&4	GET CALLER MSG ADR	TYPE
7	2533	P	N39	201		2539	201	01	430	MRCM	*,OUTPUT		COPY MSG TO BUFFER	TYPE
4	2540	H	094			94		01	440	SBR	X2		1 CHAR AFTER MSG	TYPE
7	2544	#	013	094		2613	94	01	450	MA	@I9I@,X2		DECR CHAR POINTER	TYPE
4	2551	,	010			0		01	460	SW	0:X2		SET WM ON GM CHAR	TYPE
8	2555	B	N75	011	M	2575	1	01	470	BCE	OM,MODE:X1,M		B IF MOVE MODE	TYPE
8	2563	L	%TO	201	W		201	01	480		L %TO,OUTPUT,W		TYPE OUT DATA	TYPE
4	2571	B	N83			2583		01	490	B	OTST			TYPE
8	2575	M	%TO	201	W		201	01	500	OM	WCP %TO,OUTPUT,W		TYPE OUT DATA	TYPE
5	2583	B	N99	*		2599		01	510	OTST	B	BADIO,,*	B ON OUTPUT ERROR	TYPE
7	2588	M	016	094		2616	94	01	520	RETURN	MLC	SAVEX2,X2	RESTORE INDEX 2	TYPE
4	2595	B	019			9		01	530	B	NMLRTN:X1		RETURN TO CALLER	TYPE
								01	540*					TYPE
7	2599	M	016	094		2616	94	01	550	BADIO	MLC	SAVEX2,X2	RESTORE INDEX 2	TYPE
4	2606	B	015			5		01	560	B	IDERTN:X1		RETURN TO CALLER	TYPE

Ct	IAdr	O AAd	BAd	d AAdr	BAdr	Pg	L#	Label	Opcd	A/I-AddA;X,B-AddA;X,d	Comment	FLPT
						01	010*	PROGRAM TO PROCESS FLOATING POINT NUMBERS.				FLPT
						01	020*	PROVIDES CONVERSION OF NUMERIC STRING TO FLOATING POINT FORM.				FLPT
						01	030*	THE MATH FUNCTIONS OF ADD, SUB, MULT, DIV, SQRT AND CONVERSION				FLPT
						01	040*	BACK TO SCIENTIFIC NOTATION TO PRINT.				FLPT
						01	050*	CALLS MULT3A, DIVIDEX3 AND SORT3 SUBROUTINES.				FLPT
						01	060*	WRITTEN BY: WILLIAM GREEN				FLPT
	8000					01	070	ETL 4			BK MEMORY	FLPT
						01	080*	SUBROUTINE ENTRY POINT ADDRESS LIST				FLPT
	1147					01	090	ORG 1147				FLPT
3	1147	P00			2700	01	100	FLTA DSA START			FLTPT	FLPT
3	1150	/52			1152	01	110	MULA DSA *			MULT3A	FLPT
3	1153	/55			1155	01	120	DIVA DSA *			DIVIDEX3	FLPT
3	1156	/58			1158	01	130	SORA DSA *			SORT3	FLPT
						01	140*	*****				FLPT
						01	150*	FLOATING POINT NUMBER FORMAT: 0123456789XP 12 DIGITS, 0=ALL 05				FLPT
						01	160*	MANTISSA (0123456789): MM AT 0, IMPLIED DEC PT BETWEEN 0 AND 1,				FLPT
						01	170*	9 SIGNED, RANGE 1000000000 TO 9999999999				FLPT
						01	180*	EXPONENT (XP): MM AT X, XP INTEGER, P SIGNED, RANGE +99 TO -99				FLPT
						01	190*					FLPT
						01	200*	FLOATING POINT SUBROUTINE CALL INTERFACE:				FLPT
						01	210*	ON ENTRY, B ADR REG=ADDRESS OF USER ARGUMENT LIST.				FLPT
0						01	220	OP EDU 0			A FLTPT OP	FLPT
3						01	230	ARIADR EDU 3			A ARG1 ADR	FLPT
6						01	240	AR2ADR EDU 6			A ARG2 ADR	FLPT
9						01	250	ANSADR EDU 9			A RESULT ADR	FLPT
10						01	260	ERRTN EDU 10			R PROC ERROR RETURN	FLPT
14						01	270	NMLRTN EDU 14			R RETURN TO NSI	FLPT
						01	280*					FLPT
						01	290*	B FLTPT CALL FLTPT WITH FOLLOWING ARGUMENT LIST				FLPT
						01	300*	DCW @_@ A C + - * / D				FLPT
						01	310*	DSA ARG1 A FXNUM ADDND1 MINUND MULTIPLIER DIVIDND FLNUM				FLPT
						01	320*	DSA ARG2 A ADDND2 SUBTRND MULTIPLOND DIVISOR VALUE				FLPT
						01	330*	DSA ANSWER A RSLT RSLT RSLT RSLT RSLT RSLT RSLT				FLPT
						01	340*	B ERROR R PROC ERROR RETURN				FLPT
						01	350*	NSI R NORMAL RETURN				FLPT
						01	360*					FLPT
						01	370*	OP				FLPT
						01	380*	C CONVERT ANSWER = FLTPT FORM OF ARG1				FLPT
						01	390*	N DIGIT FIXED PT VALUE OF THE FORM: "INTEGER.FRACTION"				FLPT
						01	400*	(CONSIDERED POSITIVE) AT ARG1 IS CONVERTED TO FLT PT				FLPT
						01	410*	FORMAT AND PLACED AT ANSWER. "." IS CONSIDERED ZERO.				FLPT
						01	420*					FLPT
						01	430*	+-/ MATH OP ANSWER = ARG1 MATHOP ARG2				FLPT
						01	440*					FLPT
						01	450*	/ SQUARE ROOT ANSWER = / ARG2				FLPT
						01	460*					FLPT
						01	470*	D DE-CONVERT ANSWER = FIXED FORM OF ARG1				FLPT
						01	480*	FLT PT VALUE AT ARG1 IS DE-CONVERTED AND PLACED IN A 16				FLPT
						01	490*	CHAR FIELD AT ANSWER. FORMAT: "±#.#####E±##"				FLPT
						01	500*	*****				FLPT
	2700					01	510	ORG 2700				FLPT
4	2700	H 089			89	01	520	START SBR X1			X1 = ARG LST ADR	FLPT
7	2704	L 089 25Y			89 4258	01	530	MLOWA X1,ARGADR			SAVE ARG LST ADR	FLPT
7	2711	L 094 26/			94 4261	01	540	MLOWA X2,SAVEX2			SAVE X2 REG	FLPT
7	2718	L 30Z 39V			4309 4395	01	550	MLOWA ZROEXP,ANSEXF			CLR ANS TO..	FLPT
1	2725	L				01	560	MLOWA			..FLT PT 0	FLPT
7	2726	L 38/ 36/			4381 4361	01	570	MLOWA WRKO,WRKA			CLR WRK AREA A	FLPT

Ct	IAdr	D	AAAd	BAd	d	AAAd	BAd	Pg	L#	Label	Opcd	A/I-AdtAj:X,B-AdtAj:X,d	Comment	FLPT
1	2733	L						01	580		NLOWA		CLR WRK AREA B	FLPT
8	2734	B	H23	010	C	3823	0	01	590		BCE	DOWN,OP:X1,C	ANS=FLTPT(ARG1)	FLPT
8	2742	B	P94	010	+	2794	0	01	600		BCE	FLFL,OP:X1,+	ANS=ARG1+ARG2	FLPT
8	2750	B	P94	010	-	2794	0	01	610		BCE	FLFL,OP:X1,-	ANS=ARG1-ARG2	FLPT
8	2758	B	P94	010	*	2794	0	01	620		BCE	FLFL,OP:X1,*	ANS=ARG1*ARG2	FLPT
8	2766	B	P94	010	/	2794	0	01	630		BCE	FLFL,OP:X1,/	ANS=ARG1/ARG2	FLPT
8	2774	B	017	010	J	2817	0	01	640		BCE	XXFL,OP:X1,J	ANS=SORT ARG2	FLPT
8	2782	B	P94	010	D	2794	0	01	650		BCE	FLFL,OP:X1,D	ANS=FIXED(ARG1)	FLPT
4	2790	B	010			10		01	660		B	ERRPTN:X1	ERROR RETURN, EAD OP	FLPT
7	2794	M	013	004		3	2804	01	670	FLFL	NLC	AR1ADR:X1,*A	SET ARG1 EXP ADR	FLPT
7	2801	L	007	27T		2807	4273	01	680		NLOWA	*,AR1EXP	COPY ARG1 EXP	FLPT
1	2808	L						01	690		NLOWA		COPY ARG1 MAN	FLPT
8	2809	B	15T	010	D	4153	0	01	700		BCE	DECDNV,OP:X1,D		FLPT
7	2817	M	016	027		6	2827	01	710	XXFL	NLC	AR2ADR:X1,*A	SET ARG2 EXP ADR	FLPT
7	2824	L	030	28V		2830	4285	01	720		NLOWA	*,AR2EXP	COPY ARG2 EXP	FLPT
1	2831	L						01	730		NLOWA		COPY ARG2 MAN	FLPT
8	2832	B	B92	010	+	3292	0	01	740		BCE	ADDSUB,OP:X1,+		FLPT
8	2840	B	B92	010	-	3292	0	01	750		BCE	ADDSUB,OP:X1,-		FLPT
								01	760*					FLPT
								01	770*	DO MUL, DIV, SORT PRELIM CHECKS				FLPT
8	2848	B	060	27U	0	2860	4274	01	780		BCE	**5,AR2MAN-9,0	B IF ARG2 = 0	FLPT
4	2856	B	072			2872		01	790		B	NLDV		FLPT
8	2860	B	I44	010	/	3944	0	01	800		BCE	ERROR,OP:X1,/	B X/0	FLPT
4	2868	B	115			4112		01	810		B	USE0	B X*0, J0	FLPT
8	2872	B	A39	010	J	3139	0	01	820	NLDV	BCE	SORT,OP:X1,J		FLPT
8	2880	B	115	26S	0	4112	4262	01	830		BCE	USE0,AR1MAN-9,0	B IF 0*X, 0/Y	FLPT
7	2888	Y	21V	38S		4215	4382	01	840		HLZS	020,SIGN	ASSUME RSLT POS	FLPT
8	2895	V	R15	27/	K	2915	4271	01	850		BWZ	CHKA2,AR1MAN,K	B ARG1 NEG	FLPT
8	2903	V	R23	28T	K	2923	4283	01	860		BWZ	SNEG,AR2MAN,K	B ARG2 NEG	FLPT
4	2911	B	R30			2930		01	870		B	SOK		FLPT
8	2915	V	R30	28T	K	2930	4283	01	880	CHKA2	BWZ	SOK,AR2MAN,K	B ARG2 NEG	FLPT
7	2923	Y	38T	38S		4383	4382	01	890	SNEG	HLZS	MINUS,SIGN	SET RSLT SIGN NEG	FLPT
7	2930	Y	21W	27/		4216	4271	01	900	SOK	HLZS	010,AR1MAN	SET ARG1 POS	FLPT
7	2937	Y	21W	28T		4216	4283	01	910		HLZS	010,AR2MAN	SET ARG2 POS	FLPT
8	2944	B	740	010	/	3040	0	01	920		BCE	DIV,OP:X1,/		FLPT
								01	930*					FLPT
								01	940*	* ANSWER = FLTPT ARG1 * FLTPT ARG2				FLPT
7	2952	M	152	R62		1152	2962	01	950		NLC	MULA,*A	SET MULT B ADR	FLPT
4	2959	B	R62			2962		01	960		B	*	B TO MULT	FLPT
3	2963	27/				4271		01	970		DSA	AR1MAN	A MULTIPLIER ADR	FLPT
3	2966	28T				4283		01	980		DSA	AR2MAN	A MULTIPLICAND ADR	FLPT
3	2969	34/				4341		01	990		DSA	WRKB	A PRODUCT ADR	FLPT
7	2972	M	21Z	089		4219	89	02	010		NLC	&1,X1	R SET X1 ! LDNG 0	FLPT
7	2979	M	22S	094		4222	94	02	020		NLC	&0,X2	SET X2 NO EXP ADJ	FLPT
8	2986	B	708	32S	0	3008	4322	02	030		BCE	MRND,WRKB-19,0	B IF PRD HAS LDNG 0	FLPT
7	2994	M	22S	089		4222	89	02	040		NLC	&0,X1	SET X1 NO LDNG 0	FLPT
7	3001	M	21Z	094		4219	94	02	050		NLC	&1,X2	SET X2 EXP ADJ	FLPT
7	3008	A	22T	3TS		4223	4332	02	060	NRND	A	050,WRKB-9:X1	ROUND RESULT	FLPT
7	3015	M	3T/	39T		4331	4393	02	070		NLC	WRKB-10:X1,ANSMAN	SET ANS MAN	FLPT
7	3022	A	27T	094		4273	94	02	080		A	AR1EXP,X2	X2= ADJ + ARG1 EXP,.	FLPT
7	3029	A	28V	094		4285	94	02	090		A	AR2EXP,X2	..+ ARG2 EXP	FLPT
4	3036	B	634			3734		02	100		B	SETEXF		FLPT
								02	110*					FLPT
								02	120*	/ ANSWER = FLTPT ARG1 / FLTPT ARG2				FLPT
7	3040	M	27/	35/		4271	4351	02	130	DIV	NLC	AR1MAN,WRKA-10	SETUP DIVND	FLPT
7	3047	M	28T	34/		4283	4341	02	140		NLC	AR2MAN,WRKB	SETUP DIVSR	FLPT
7	3054	M	155	764		1155	3064	02	150		NLC	DIVA,*A	SET DIV B ADR	FLPT

Ct	IAdr	O	AAd	BAd	d	AAdr	BAdr	Pg	L#	Label	Opcd	A/I-AddAdj:X,B-AddAdj:X,d	Comment	FLPT
4	3061	B	764			3064		02	160		B	#	R TO DIV	FLPT
3	3065	34/				4341		02	170	DSA	WRKB		A DIVISDR ADR	FLPT
3	3068	36/				4361		02	180	DSA	WRKA		A DIVIDEND ADR	FLPT
3	3071	34/				4341		02	190	DSA	WRKB		A QUOTIENT ADR	FLPT
4	3074	B	I44			3944		02	200	B	ERROR		R DIV BY 0 RETURN	FLPT
7	3078	M	21Z	089		4219	89	02	210	NLC	%1,X1		SET LONG 0, EXP ADJ	FLPT
8	3085	B	A00	33/	0	3100	4331	02	220	BCE	DVMAN,WRKB-10,0		B IF LONG 0	FLPT
7	3093	M	22S	089		4222	89	02	230	NLC	%0,X1		SET NO LONG 0, EXP ADJ	FLPT
7	3100	M	3U1	39T		4340	4393	02	240	DVMAN	NLC	WRKB-1:X1,ANSMAN	SET ANS MAN	FLPT
7	3107	M	22U	092		4224	92	02	250	NLC	%10-2,X2-2		X2 =..	FLPT
7	3114	M	27T	094		4273	94	02	260	NLC	AR1EXP,X2		..ARG1 EXP..	FLPT
7	3121	S	28V	094		4285	94	02	270	S	AR2EXP,X2		..- ARG2 EXP.	FLPT
7	3128	S	089	094		89	94	02	280	S	V1,X2		..- EXP ADJUSTMENT	FLPT
4	3135	B	B34			3734		02	290	B	SETEXP			FLPT
								02	300†					FLPT
								02	310†	J	ANSWER = J FLTPT ARG2			FLPT
8	3139	V	I44	28T	K	3944	4283	02	320	SBZ	ERROR,AR2MAN,K		B IF SBZ NEG NUM	FLPT
7	3147	L	22/	39V		4221	4395	02	330	NLCWA	%0-1,ANSEXP		CLR NEW EXP DNT	FLPT
8	3154	V	B24	28V	K	3224	4285	02	340	TSTEXP	BWZ	INCEXP,AR2EXP,K	B IF SMALL NUM	FLPT
8	3162	B	A74	28U	0	3174	4284	02	350	TOOBIG	BCE	%85,AR2EXP-1,0	B IF EXP TENS = 0	FLPT
4	3170	B	B06			3206		02	360	B	DECEXP		B, EXP >9	FLPT
8	3174	B	B42	28V	0	3242	4285	02	370	BCE	SMLMAN,AR2EXP,0		B IF EXP 0 TRU 0	FLPT
8	3182	B	B42	28V	?	3242	4285	02	380	BCE	SMLMAN,AR2EXP,?		B IF EXP 0 + 0	FLPT
8	3190	B	B53	28V	1	3253	4285	02	390	BCE	LRGMAN,AR2EXP,1		B IF EXP 1 TRU 1	FLPT
8	3198	B	B53	28V	A	3253	4285	02	400	BCE	LRGMAN,AR2EXP,A		B IF EXP 1 + 1	FLPT
7	3206	S	21V	28V		4215	4285	02	410	DECEXP	S	%20,AR2EXP	DEC EXP 2 DIGITS	FLPT
7	3213	A	21W	39V		4216	4395	02	420	A	%10,ANSEXP		INC NEW EXP VAL	FLPT
4	3220	B	A62			3162		02	430	B	TOOBIG			FLPT
7	3224	A	21V	28V		4215	4285	02	440	INCEXP	A	%20,AR2EXP	INC EXP 2 DIGITS	FLPT
7	3231	S	21W	39V		4216	4395	02	450	S	%10,ANSEXP		DEC NEW EXP VAL	FLPT
4	3238	B	A54			3154		02	460	B	TSTEXP			FLPT
7	3242	M	28T	35S		4283	4352	02	470	SMLMAN	NLC	AR2MAN,WRKA-9	SETUP SML NUM EG 4	FLPT
4	3249	B	B60			3260		02	480	B	%8		GO DO SBZ	FLPT
7	3253	M	28T	35/		4283	4351	02	490	LRGMAN	NLC	AR2MAN,WRKA-10	SETUP LRG NUM EG 40	FLPT
7	3260	M	/58	B70		1158	3270	02	500	NLC	SORA,%4		SET SORT B ADR	FLPT
4	3267	B	B70			3270		02	510	B	#		B TO SORT	FLPT
3	3271	36/				4361		02	520	DSA	WRKA		A ADR OF INPUT VALUE	FLPT
3	3274	34/				4341		02	530	DSA	WRKB		A ADR FOR SORT	FLPT
4	3277	B	I44			3944		02	540	B	ERROR		R DIV BY 0 RETURN	FLPT
7	3281	M	34/	39T		4341	4393	02	550	NLC	WRKB,ANSMAN		R SET ANS MAN	FLPT
4	3288	B	121			4120		02	560	B	RTNANS			FLPT
								02	570†					FLPT
								02	580†	+, -	ANSWER = FLTPT ARG1 +, - FLTPT ARG2			FLPT
8	3292	B	B99	27U	0	3799	4274	02	590	ADDSUB	BCE	USEAR1,AR2MAN-9,0	B IF ARG2 = 0	FLPT
8	3300	B	C34	010	+	3334	0	02	600	BCE	ADD,DP:X1,+		B IF ADD DP	FLPT
8	3308	V	C27	28T	K	3327	4283	02	610	BWZ	%12,AR2MAN,K		B IF ARG2 IS NEG	FLPT
7	3316	Y	38T	28T		4383	4283	02	620	NLZS	MINUS,AR2MAN		SET ARG2 NEG	FLPT
4	3323	B	C34			3334		02	630	B	ADD			FLPT
7	3327	Y	21V	28T		4215	4283	02	640	NLZS	%20,AR2MAN		SET ARG2 POS	FLPT
8	3334	B	H11	26S	0	3811	4262	02	650	ADD	BCE	USEAR2,AR1MAN-9,0	B IF ARG1 = 0	FLPT
7	3342	M	22S	092		4222	92	02	660	NLC	%0,X2-2		X2(DELTA EXP)=..	FLPT
7	3349	M	27T	094		4273	94	02	670	NLC	AR1EXP,X2		..ARG1EXP..	FLPT
7	3356	S	28V	094		4285	94	02	680	S	AR2EXP,X2		..- ARG2EXP	FLPT
8	3363	V	C78	094	K	3378	94	02	690	BWZ	%6,X2,K		B IF DELTA EXP NEG	FLPT
7	3371	Y	21V	094		4215	94	02	700	NLZS	%20,X2		BA=00 IF POS	FLPT
7	3378	L	094	31V		94	4315	02	710	NLCWA	X2,DLTEXP		DLTEXP = X2	FLPT
7	3385	Y	21W	094		4216	94	02	720	NLZS	%10,X2		X2=ABS VAL DLTEXP	FLPT

Dt	IAdr	D	AAd	BAd	d	AAdr	BAdr	Pg	L#	Label	Opcd	A/I-AddA):X,B-AddA):X,d	Comment	FLPT
7	3392	C	22W	094		4226	94	02	730		C	%10,X2	B IF X2..	FLPT
5	3399	B	691		U	3791		02	740		BH	USEA12,,U	..> 10	FLPT
								02	750*	ADD ARG1 AND ARG2 AFTER ALIGNING DEC PTS VIA DELTA EXP				FLPT
7	3404	M	094	089		94	89	02	760		MLC	X2,X1	X1=ABS VAL DLTEXP	FLPT
7	3411	M	22W	094		4226	94	02	770		MLC	%10,X2	X2=10-ABS VAL DLTEXP..	FLPT
7	3418	S	089	094		89	94	02	780		S	X1,X2	..=UNITS DGT OFFSET	FLPT
7	3425	Y	21V	094		4215	94	02	790		MLZS	%20,X2	CLR X2 SIGN BITS	FLPT
8	3432	V	D65	31V	K	3465	4315	02	800		BWZ	EXPILD,DLTEXP,K	B IF EXPC > EXP1	FLPT
7	3440	L	27T	321		4273	4320	02	810		MLCWA	AR1EXP,BIGEXP	SAVE BTGR EXP	FLPT
7	3447	M	28T	341		4283	4341	02	820		MLC	AR2MAN,WRKB		FLPT
7	3454	M	271	3N1		4271	4351	02	830		MLC	AR1MAN,WRKA-10:Y2	LOAD ARG1 MAN LFT SHFTD	FLPT
4	3461	B	D86			3486		02	840		B	DOSUM		FLPT
7	3465	L	28V	321		4285	4320	02	850	EXPILD	MLCWA	AR2EXP,BIGEXP	SAVE B1GR EXP	FLPT
7	3472	M	271	341		4271	4341	02	860		MLC	AR1MAN,WRKB		FLPT
7	3479	M	28T	3N1		4283	4351	02	870		MLC	AR2MAN,WRKA-10:Y2	LOAD ARG2 MAN LFT SHFTD	FLPT
7	3486	Y	3N1	38S		4351	4382	02	880	DOSUM	MLZS	WRKA-10:Y2,SIGN	SAVE ARG SIGN	FLPT
7	3493	Y	21V	3N1		4215	4351	02	890		MLZS	%20,WRKA-10:Y2	CLR COPY OF ARG SIGN	FLPT
7	3500	Y	38S	361		4382	4361	02	900		MLZS	SIGN,WRKA	SET WRKA SIGN	FLPT
7	3507	A	361	341		4361	4341	02	910		A	WRKA,WRKB	WRVB = ARG1 +/- ARG2	FLPT
7	3514	Y	341	38S		4341	4382	02	920		MLZS	WRKB,SIGN	SAVE RESULT SIGN	FLPT
7	3521	Y	21V	341		4215	4341	02	930		MLZS	%20,WRKB	CLR WRKB SIGN	FLPT
7	3528	C	381	341		4381	4341	02	940		C	WRKO,WRKB	TEST SUM FOR ALL OS	FLPT
5	3535	B	11S		S	4112		02	950		BE	USE0,,S		FLPT
7	3540	C	22S	31V		4222	4315	02	960		C	%0,DLTEXP	B IF..	FLPT
5	3547	B	F29		S	3629		02	970		BE	LDOCHK,,S	..DLTEYP = 0	FLPT
7	3552	C	29V	331		4295	4331	02	980		C	MAXMAN,WRKB-10	ROUND UNLESS ALL..	FLPT
5	3559	B	F0S		/	3608		02	990		BU	ROUND,,/	..9S IN LEFT WRKB..	FLPT
7	3564	C	22T	33S		4223	4332	03	010		C	%50,WRKB-9	..AND ROUNDING..	FLPT
5	3571	B	F29		T	3629		03	020		BL	LDOCHK,,T	..WILL CARRY OUT	FLPT
7	3576	M	23W	39T		4236	4393	03	030		MLC	%10000000000,ANSMAN	ANSMAN=1000000000	FLPT
7	3583	M	22S	092		4222	92	03	040		MLC	%0,X2-2	NEW EXP =..	FLPT
7	3590	M	321	094		4320	94	03	050		MLC	BIGEXP,X2	..BIGEXP..	FLPT
7	3597	A	21W	094		4216	94	03	060		A	%10,X2	..+ 1	FLPT
4	3604	B	634			3734		03	070		B	SETEXP		FLPT
7	3608	M	381	361		4381	4361	03	080	ROUND	MLC	WRKO,WRKA	SET A FOR ROUNDING	FLPT
7	3615	M	221	3NS		4220	4352	03	090		MLC	%0-2,WRKA-9:Y2	LOAD .5 (REWORK REQ)	FLPT
7	3622	A	361	341		4361	4341	03	100		A	WRKA,WRKB	WRKB = ROUNDED ANS	FLPT
								03	110*	ADJUST EXP FOR CHANGE IN # LEADING OS				FLPT
7	3629	M	22S	089		4222	89	03	120	LDOCHK	MLC	%0,X1	X1=0	FLPT
4	3636	B	F47			3647		03	130		B	%8	SKIP INC	FLPT
7	3640	A	21W	089		4216	89	03	140	CNT0	A	%10,X1	INC LEADING 0 CNT	FLPT
8	3647	B	F40	3SS	O	3640	4322	03	150		BCE	CNT0,WRKB-19:Y1,0	B IF A LEADING 0	FLPT
7	3655	S	089	094		89	94	03	160		S	X1,X2	Y2=X2-X1+BIGEXP..	FLPT
7	3662	A	321	094		4320	94	03	170		A	BIGEXP,X2	..=NEW EXP VALUE	FLPT
7	3669	L	094	31V		94	4315	03	180		MLCWA	X2,DLTEXP	SAVE CALC EXP	FLPT
								03	190*	ASSUME ANSWER IS CALCULATED VALUE				FLPT
7	3676	M	23Z	094		4239	94	03	200		MLC	%20,X2	X2=NUM OF ANS..	FLPT
7	3683	S	089	094		89	94	03	210		S	X1,X2	..DIGITS IN WRKB	FLPT
7	3690	Y	21V	094		4215	94	03	220		MLZS	%20,X2	CLR X2 SIGN	FLPT
7	3697	C	22W	094		4226	94	03	230		C	%10,X2	CMP WITH MAN SIZE	FLPT
5	3704	B	620		U	3720		03	240		BH	LNGMAN,,U	B IF > 10	FLPT
7	3709	M	341	30T		4341	4383	03	250		MLC	WRKB,ANSMAN-10:Y2	USE ALL AVAIL DIGITS	FLPT
4	3716	B	627			3727		03	260		B	%8	GO TACK ON EXP	FLPT
7	3720	M	3T1	39T		4331	4393	03	270	LNGMAN	MLC	WRKB-10:Y1,ANSMAN	USE HIGH ORDER 10	FLPT
7	3727	M	31V	094		4315	94	03	280		MLC	DLTEXP,X2	RESTORE CALC EXP	FLPT
								03	290*	TST NEW EXP FOR TOO BIG (>99) / TOO SMALL (<-99)				FLPT
8	3734	V	649	094	K	3749	94	03	300	SETEXP	BWZ	%8,X2,K	SKIP NXT INSTR IF NEG EXP	FLPT

Ct	IAdr	D	AAd	BAd	d	AAdr	BAdr	Pg	L#	Label	Oprd	A/I-AddA;Y,B-AddA;X,d	Comment	FLPT
7	3742	Y	21V	094		4215	94	03	310		MLZS	020,X2	BA=00 IF POS EXP	FLPT
7	3749	M	094	39V		94	4395	03	320		MLC	X2,ANSEXP	SET ANS EXP	FLPT
8	3756	B	680	092	0	3780	92	03	330		BCE	SETSGN,X2-2,0	B IF EXP OK	FLPT
8	3764	V	11S	094	K	4112	94	03	340		BWZ	USE0,X2,K	B IF VERY SMALL NUM	FLPT
7	3772	L	29X	39V		4297	4395	03	350		MLCWA	MAXEXP,ANSEXP	ANS = MAX VALUE	FLPT
1	3779	L						03	360		MLCWA			FLPT
7	3780	Y	38S	39T		4382	4393	03	370	SETSGN	MLZS	SIGN,ANSMAN	SET ANSMAN SIGN	FLPT
4	3787	B	12!			4120		03	380		B	RTHANS		FLPT
								03	390*					FLPT
8	3791	V	H11	31V	K	3811	4315	03	400	USEAR2	BWZ	USEAR2,DLTEXP,K	B IF EXP2 > EXP1	FLPT
7	3799	L	27T	39V		4273	4395	03	410	USEAR1	MLCWA	AR1EXP,ANSEXP	ANS = ARG1	FLPT
1	3806	L						03	420		MLCWA			FLPT
4	3807	B	12!			4120		03	430		B	RTHANS		FLPT
7	3811	L	28V	39V		4285	4395	03	440	USEAR2	MLCWA	AR2EXP,ANSEXP	ANS = ARG2	FLPT
1	3818	L						03	450		MLCWA			FLPT
4	3819	B	12!			4120		03	460		B	RTHANS		FLPT
								03	470*					FLPT
								03	480*	C	ANSWER	= FLTPT FORM OF FIXED STRING ARG1		FLPT
7	3823	M	013	H43		3	3843	03	490	CONV	MLC	ARIADR:X1,FINDNM&6	PUT STR ADR IN INSTR	FLPT
7	3830	M	22S	089		4222	89	03	500		MLC	00,X1	X1 = 0	FLPT
8	3837	V	H63	H44	1	3863	3844	03	510	FINDNM	BW	SETUP,*,1	B IF START OF FIELD	FLPT
7	3845	#	24S	H43		4242	3843	03	520		MA	01910,FINDNM&6	DEC STRING ADR	FLPT
7	3852	A	21W	089		4216	89	03	530		A	010,X1	IND STRING NDX	FLPT
4	3859	B	H37			3837		03	540		B	FINDNM		FLPT
7	3863	M	H43	I12		3843	3912	03	550	SETUP	MLC	FINDNM&6,GETCHR&3	SET WH ADR IN INSTR..	FLPT
7	3870	Y	24T	I11		4243	3911	03	560		MLZS	0S0,GETCHR&2	..SET TO USE X1	FLPT
7	3877	L	089	31V		89	4315	03	570		MLCWA	X1,STLNGX	SAVE STR LNE NDX	FLPT
4	3884	L	089			89		03	580		MLCWA	X1	DEC PT NDX = NDX FOR..	FLPT
7	3888	A	21W	31S		4216	4312	03	590		A	010,DPTNDX	..FIXED STR END ADR + 1	FLPT
7	3895	M	22S	094		4222	94	03	600		MLC	00,X2	ANS DIGIT CNTR = 0	FLPT
7	3902	M	094	089		94	89	03	610		MLC	X2,X1	INIT STR BRCH NDX	FLPT
7	3909	M	I/5	32/		3915	4321	03	620	GETCHR	MLC	#:X1,CHR	GET STRING CHAR	FLPT
8	3916	B	I62	32/	.	3962	4321	03	630		BCE	DDPT,CHR..	B IF .	FLPT
8	3924	B	I73	32/	0	3973	4321	03	640		BCE	00,CHR,0	B IF 0	FLPT
7	3932	C	22!	32/		4220	4321	03	650		C	00-2,CHR	COMPARE DIGIT	FLPT
5	3939	B	I85		LI	3985		03	660		BH	CHKCNT,,U	B IF 1 TO 9	FLPT
7	3944	M	25Y	089		4258	89	03	670	ERROR	MLC	ARGADR,X1	X1 = ARG LST ADR	FLPT
7	3951	M	26/	094		4261	94	03	680		MLC	SAVEX2,X2	RESTORE X2	FLPT
4	3958	B	0/0			10		03	690		B	ERRTN:X1	PROC ERROR RETURN	FLPT
7	3962	M	089	31S		89	4312	03	700	DDPT	MLC	X1,DPTNDX	SAVE DEC PT NDX	FLPT
4	3969	B	03!			4030		03	710		B	NXTCHR		FLPT
7	3973	C	22S	094		4222	94	03	720	00	C	00,X2	DIGIT CNTR = 0?	FLPT
5	3980	B	03!		S	4030		03	730		BE	NXTCHR,,S	B IF 0	FLPT
7	3985	C	22W	094		4226	94	03	740	CHKCNT	C	010,X2	DIGIT CNTR = 10?	FLPT
5	3992	B	03!		S	4030		03	750		BE	NXTCHR,,S	B IF 10	FLPT
7	3997	C	22S	094		4222	94	03	760		C	00,X2	DIGIT CNTR = 0?	FLPT
5	4004	B	01W		/	4016		03	770		BU	CPYDGT,,/	B IF NOT 0	FLPT
7	4009	L	089	31Y		89	4318	03	780		MLCWA	X1,NMSTY	SAVE NUM START NDX	FLPT
7	4016	M	32/	30U		4321	4384	03	790	CPYDGT	MLC	CHR,ANSMAN-9:X2	CPY TO ANSMAN	FLPT
7	4023	A	21W	094		4216	94	03	800		A	010,X2	INCR DIGIT CNTR	FLPT
7	4030	C	089	31V		89	4315	03	810	NXTCHR	C	X1,STLNGX	END OF STRING?	FLPT
5	4037	B	05T		S	4053		03	820		BE	0012,,S	B IF 00	FLPT
7	4042	A	21W	089		4216	89	03	830		A	010,X1	INCR STR BRCH NDX	FLPT
4	4049	B	I09			3909		03	840		B	GETCHR	00 GET NEXT CHR	FLPT
7	4053	C	22S	094		4222	94	03	850		C	00,X2	DIGIT CNTR = 0?	FLPT
5	4060	B	12!		S	4120		03	860		BE	RTHANS,,S	B IF 0	FLPT
7	4065	M	31S	094		4312	94	03	870		MLC	DPTNDX,X2	X2=DEC PT NDX..	FLPT

Ct	IAdr	O	AAd	BAd	d	AAdr	BAdr	Pg	L#	Label	Opnd	A/I-AddA;X,B-AddA;X,d	Comment	FLPT
7	4072	S	31Y	094		4318	94	03	880		S	NWSTX,X2	... NUM START NDY	FLPT
8	4079	V	10/	094	K	4101	94	03	890		BWZ	EXPOK,X2,K	B IF EXP < 0	FLPT
7	4087	S	21W	094		4216	94	03	900		S	010,X2	EXP > 0, SUB 1	FLPT
7	4094	Y	21V	094		4215	94	03	910		MLZS	020,X2	CLR SIGN BITS FOR TRUE +	FLPT
7	4101	M	094	39V		94	4395	03	920	EXPOK	MLC	X2,ANSEXP	PUT EXP IN ANS	FLPT
4	4108	B	12:			4120		03	930		B	RTNANS		FLPT
									940*					FLPT
7	4112	L	30Z	39V		4309	4395	03	950	USE0	MLCWA	ZROEXP,ANSEXP	ANS IS...	FLPT
1	4119	L						03	960		MLCWA		...FLT PT 0	FLPT
7	4120	M	25Y	089		4258	89	03	970	RTNANS	MLC	ARGADR,X1	X1 = ARG LST ADR	FLPT
7	4127	M	019	14:		9	4140	03	980		MLC	ANSADR:X1,*#7	SET ANS EXP ADR	FLPT
7	4134	L	39V	14:		4395	4140	03	990		MLCWA	ANSEXP,*	CPY ANSWER TO...	FLPT
1	4141	L						04	010		MLCWA		...USER AREA	FLPT
7	4142	M	26/	094		4261	94	04	020		MLC	SAVEX2,X2	RESTORE X2	FLPT
4	4149	B	0/4			14		04	030		B	NMLRTN:X1	NORMAL RETURN	FLPT
									040*					FLPT
									050*	D	ANSWER = FIXED FORM (16 CHAR FIELD) OF FLTPT ARG1			FLPT
7	4153	M	27T	41/		4273	4411	04	060	DECONV	MLC	AR1EXP,ANSFIX	CPY EXP	FLPT
4	4160	M	38T			4383		04	070		MLC	MINUS	ASSUME - SIGN	FLPT
8	4164	V	17Z	27T	K	4179	4273	04	080		BWZ	*#8,AR1EXP,K	B IF EXP NEG	FLPT
7	4172	Y	24S	40Z		4242	4409	04	090		MLZS	01910,ANSFIX-2	CHG TO + SIGN	FLPT
7	4179	L	25V	40X		4255	4407	04	100		MLCWA	@- . @,ANSFIX-4	SET FORMAT STRING	FLPT
7	4186	E	27/	40X		4271	4407	04	110		MCE	AR1MAN,ANSFIX-4	FORMAT MAN	FLPT
4	4193	S	39W			4396		04	120		SW	ANSFIX-15	RESTORE WK FOR CPY	FLPT
7	4197	M	019	21:		9	4210	04	130		MLC	ANSADR:X1,*#7	SET ANS ADR	FLPT
7	4204	L	41/	21:		4411	4210	04	140		MLCWA	ANSFIX,*	CPY ANSWER TO USER	FLPT
4	4211	B	0/4			14		04	150		B	NMLRTN:X1	NORMAL RETURN	FLPT
									160					FLPT
1	4215	2									DCW	2		
1	4216	1									DCW	1		
3	4217	001				1					DSA	1		
3	4220	000				0					DSA	0		
1	4223	5									DCW	5		
3	4224	010				10					DSA	10		
10	4227	1000000000									DCW	1000000000		
3	4237	020				20					DSA	20		
3	4240	191									DCW	01910		
1	4243	5									DCW	050		
12	4244	-									DCW	@- . @		
3	4256							04	170	ARGADR	DS	3	ARGUMENT LST ADR	FLPT
3	4259							04	180	SAVEX2	DS	3	SAVED X2 VALUE	FLPT
10	4262							04	190	AR1MAN	DE	10	CPY OF ARG1 FLT NUM	FLPT
2	4272							04	200	AR1EXP	DS	2		FLPT
10	4274							04	210	AR2MAN	DS	10	CPY OF ARG2 FLT NUM	FLPT
2	4284							04	220	AR2EXP	DS	2		FLPT
10	4286	9999999999						04	230	MAXMAN	DCW	9999999999	MAX POS VALUE	FLPT
2	4296	99						04	240	MAXEXP	DCW	9999		FLPT
10	4298	0000000000						04	250	IR0MAN	DCW	0000000000	FLT PT 0	FLPT
2	4308	00						04	260	ZROEXP	DCW	0000		FLPT
3	4310	000				0		04	270	DPTNDX	DSA	000	FIXED INPUT DEC PT NDY	FLPT
3	4313							04	280	STLNGX	DS	3	MAX STR LENGTH NDY	FLPT
3	4316							04	290	NWSTX	DS	3	NUM START NDY IN STRING	FLPT
								04	300	DLTEXP	EDU	STLNGX	DELTA EXP	FLPT
2	4319							04	310	BIGEXP	DS	2	INITIAL ANS EXP	FLPT
1	4321							04	320	CHR	DCW	@ @	SINGLE CHAR WK AREA	FLPT
20	4322							04	330	WRKB	DS	20	WORK AREA B	FLPT
20	4342							04	340	WRKA	DS	20	WORK AREA A	FLPT

Ct	IAdr	O	AAd	BAd	d	AAdr	BAdr	Pg	L#	Label	Oprd	A/I-AdjAj:X,B-AdjAj:Y,d	Comment	
20	4362		00000000000000000000					04	350	WRK0	DCW	00000000000000000000	WORK AREA 20 05	FLPT
1	4382							04	360	SIGN	DS	1	NUM SIGN SAVED IN ZONE	FLPT
1	4383	-						04	370	MINUS	DCW	0-0	MINUS SIGN	FLPT
10	4384							04	380	ANSMAN	DS	10	RESULT FLT PT NUM	FLPT
2	4394							04	390	ANSEXP	DS	2		FLPT
16	4396	+X.XXXXXXXXXXE+XX						04	400	ANSFIX	DCW	0+X.XXXXXXXXXXE+XX0	RESULT FIXED NUM	FLPT
3	4412							04	410		DS	3	SPACER	FLPT
7	4415	M H43 31S		3843	4312			04	420	PATCH1	MLC	FINDWH06,DPTNDX	COPY FINDWH OFF B.	FLPT
7	4422	M 31S I12		4312	3912			04	430		MLC	DPTNDX,BETCHR03	..TO BETCHR OFF A	FLPT
4	4429	B H70		3870				04	440		B	SETUP07	RETURN TO PGM	FLPT
	3863							04	450	PAT4	ORG	SETUP	BY ADP FOR NEXT PATCH	FLPT
4	3863	B 41V		4415				04	460		B	PATCH1	B TO PATCH	FLPT
1	3867	.						04	470		H		FOR WH	FLPT
	4433							04	480		OPG	PAT4		FLPT
7	4433	Y 21V 41/		4215	4411			04	490	PATCH4	MLZS	020,ANSFIX	CLF ANSWER EXP SIGN	FLPT
8	4440	V 17Z 27T K		4179	4273			04	500		BWZ	4179,AR1EXP,K	REPLACE ORIG INSTR	FLPT
4	4448	B 17S		4172				04	510		B	4172	RETURN TO PGM	FLPT
	4164							04	520	PAT6	ORG	4164		FLPT
4	4164	B 43T		4433				04	530		B	PATCH4	B TO PATCH	FLPT
1	4168	.						04	540		H		FOR WH	FLPT
	4452							04	550		ORG	PAT6		FLPT
4	4452	, 39W		4396				04	560	PATCH6	SW	ANSFIX-15	REPLACE ORIG INSTR	FLPT
8	4456	V 47V 27/ K		4475	4271			04	570		BWZ	0012,AR1MAN,K	B IF NEGATIVE VALUE	FLPT
7	4464	Y 24S 39W		4242	4396			04	580		MLZS	01910,ANSFIX-15	SET SIGN TO +	FLPT
4	4471	B 19X		4197				04	590		B	4197	RETURN TO PGM	FLPT
7	4475	Y 38T 39W		4383	4396			04	600		MLZS	MINUS,ANSFIX-15	SET SIGN TO -	FLPT
4	4482	B 19X		4197				04	610		B	4197	RETURN TO PGM	FLPT
1	4486	.						04	620		H		FOR WH	FLPT
	4193							04	630		ORG	4193		FLPT
4	4193	B 45S		4452				04	640		B	PATCH6	B TO PATCH	FLPT
	2700							04	650		END	START		FLPT

0 Errors found.

Symbol	Val	Lng	Def	#Rf	<--	Xref	-->								
&0	4222	3	02020	15	02020	02040	02230	02330	02660	02960	03040	03090	03120		
					03500	03600	03650	03720	03760	03850					
&1	4219	3	02010	3	02010	02050	02210								
&10	4226	3	02250	5	02250	02730	02770	03230	03740						
&20	4239	3	03200	1	03200										
@-	4255	12	04100	1	04100										
@10	4216	1	01900	12	01900	01910	02420	02450	02720	03060	03140	03530	03590		
					03800	03830	03900								
@10000000	4236	10	03030	1	03030										
@20	4215	1	01840	12	01840	02410	02440	02640	02700	02790	02890	02930	03220		
					03310	03910	04490								
@50	4223	1	02060	2	02060	03010									
@1910	4242	3	03520	3	03520	04090	04580								
@60	4243	1	03560	1	03560										
ADD	3334	8	02650	2	02600	02630									
ADDSUB	3292	8	02590	2	01740	01750									
ANSADR	0009	0	01250	2	03980	04130									
ANSEXP	4395	2	04390	11	01550	02330	02420	02450	03320	03350	03410	03440	03920		
					03950	03990									
ANSFIX	4411	16	04400	10	04060	04090	04100	04110	04120	04140	04490	04560	04580		
					04600										
ANSMAN	4393	10	04380	8	02070	02240	02550	03030	03250	03270	03370	03790			

Symbol	Val	Lng	Def	#Rf	← Xref →
AR1ADR	0003	0	01230	2	01670 03490
AR1EXP	4273	2	04200	9	01680 02080 02260 02670 02810 03410 04060 04080 04500
AR1MAN	4271	10	04190	10	01830 01850 01900 01970 02130 02650 02830 02860 04110 04570
AR2ADR	0006	0	01240	1	01710
AR2EXP	4285	2	04220	14	01720 02090 02270 02340 02350 02370 02380 02390 02400 02410 02440 02680 02850 03440
AR2MAN	4283	10	04210	15	01780 01860 01880 01910 01980 02140 02320 02470 02490 02590 02610 02620 02640 02820 02870
ARGADR	4258	3	04170	3	01530 03670 03970
BIGEXP	4320	2	04310	4	02810 02850 03050 03170
CO	3973	7	03720	1	03640
CDPT	3962	7	03700	1	03630
CHKA2	2915	8	01880	1	01850
CHKCMT	3985	7	03740	1	03660
CHR	4321	1	04320	5	03620 03630 03640 03650 03790
CNTO	3640	7	03140	1	03150
CONV	3823	7	03490	1	01590
CPYDGT	4016	7	03790	1	03770
DECEXP	3206	7	02410	1	02360
DECONV	4153	7	04060	1	01700
DIV	3040	7	02130	1	01920
DIVA	1155	3	01120	1	02150
DLTEXP	4315	0	04300	6	02710 02800 02960 03180 03280 03400
DOSUM	3486	7	02880	1	02840
DPTNDX	4312	3	04270	5	03590 03700 03870 04420 04430
DVMAN	3100	7	02240	1	02220
ERROR	3944	7	03670	4	01800 02200 02320 02540
ERRTN	0010	0	01260	2	01660 03690
EXP1LD	3465	7	02850	1	02800
EXP0K	4101	7	03920	1	03890
FINDWH	3837	8	03510	5	03490 03520 03540 03550 04420
FLFL	2794	7	01670	5	01600 01610 01620 01630 01650
FLTA	1149	3	01100	0	
GETCHR	3909	7	03620	4	03550 03560 03840 04430
INDEXP	3224	7	02440	1	02340
LDCHK	3629	7	03120	2	02970 03020
LNGMAN	3720	7	03270	1	03240
LRGMAN	3253	7	02490	2	02390 02400
MAXEXP	4297	2	04240	1	03350
MAXMAN	4295	10	04230	1	02980
MINUS	4383	1	04370	4	01890 02620 04070 04600
MLDV	2872	8	01820	1	01790
MRND	3008	7	02060	1	02030
MULA	1152	3	01110	1	01950
NMLRTN	0014	0	01270	2	04030 04150
NMSTX	4318	3	04290	2	03780 03880
NXTCHR	4030	7	03810	3	03710 03730 03750
OP	0000	0	01220	14	01590 01600 01610 01620 01630 01640 01650 01700 01740 01750 01800 01820 01920 02600
PAT4	4433	0	04450	1	04480
PAT6	4452	0	04520	1	04550
PATCH1	4415	7	04420	1	04460
PATCH4	4433	7	04490	1	04530
PATCH6	4452	4	04560	1	04640
ROUND	3608	7	03080	1	02990
RTNANS	4120	7	03970	6	02560 03380 03430 03460 03860 03930

Symbol	Val	Lng	Def	#Rf	<--- Xref --->
SAVEX2	4261	3	04180	3	01540 03680 04020
SETEXP	3734	8	03300	3	02100 02290 03070
SETSGN	3780	7	03370	1	03330
SETUP	3863	7	03550	3	03510 04440 04450
STGN	4382	1	04360	6	01840 01890 02880 02900 02920 03370
SMLMAN	3242	7	02470	2	02370 02380
SNEG	2923	7	01890	1	01860
SOK	2930	7	01900	2	01870 01880
SQRA	1158	3	01130	1	02500
SORT	3139	8	02320	1	01820
START	2700	4	01520	2	01100 04650
STLNGX	4315	3	04280	3	03570 03810 04300
TOOBIG	3162	8	02350	1	02430
TSTEXP	3154	8	02340	1	02460
USEO	4112	7	03950	4	01810 01830 02950 03340
USEA12	3791	8	03400	1	02740
USEAR1	3799	7	03410	1	02590
USEAR2	3811	7	03440	2	02650 03400
WRKO	4381	20	04350	3	01570 02940 03080
WRKA	4361	20	04340	15	01570 02130 02180 02470 02490 02520 02830 02870 02880 02890 02900 02910 03080 03090 03100
WRKB	4341	20	04330	23	01990 02030 02040 02070 02140 02170 02190 02220 02240 02530 02550 02820 02860 02910 02920 02930 02940 02980 03010 03100 03150 03250 03270
X1	0089	3	0	53	01530 01530 01590 01600 01610 01620 01630 01640 01650 01660 01670 01700 01710 01740 01750 01800 01820 01920 02010 02040 02060 02070 02210 02230 02240 02280 02600 02760 02780 03120 03140 03150 03160 03210 03270 03490 03500 03530 03570 03580 03610 03620 03670 03690 03700 03780 03810 03830 03970 03980 04030 04130 04150
X2	0074	3	0	59	01540 02020 02050 02080 02090 02250 02360 02270 02280 02660 02670 02680 02690 02700 02710 02720 02730 02760 02770 02780 02790 02830 02870 02880 02890 03040 03050 03060 03090 03160 03170 03180 03200 03210 03220 03230 03250 03280 03300 03310 03320 03330 03340 03600 03610 03680 03720 03740 03760 03790 03800 03850 03870 03880 03890 03900 03910 03920 04020
X3	0099	3	0	0	
XXFL	2817	7	01710	1	01540
ZROEXP	4309	2	04260	2	01550 03950
ZROMAN	4307	10	04250	0	

Ct	IAdr	O	AAd	BAd	d	AAdr	BAdr	Pg	L#	Label	Opcd	A/I-AddAj:X,B-AddAj:X,d	Comment	
								01	010*	PROGRAM TO ACCEPT A MATH PROBLEM FROM THE CONSOLE KEYBOARD				MATH
								01	020*	(UP TO 99 CHARACTERS), COMPUTE THE ANSWER AND TYPE IT.				MATH
								01	030*	EG. 4(1+(1.0-1)*4*((.10+0.1)/00.20))		ANSWER=1		MATH
								01	040*	MATH OPERATORS PROCESSED L TO R EXCEPT AS CHANGED BY USE OF ()				MATH
								01	050*	WRITTEN BY: WILLIAM GREEN				MATH
	8000							01	060	CTL	4		8K MEMORY	MATH
								01	070*	SUBROUTINE ENTRY POINT ADDRESS LIST				MATH
	1147							01	080	ORG	1147			MATH
3	1147	POC				2700		01	090	FLT	DSA	2700	FLTPT	MATH
	1159							01	100	ORG	1159			MATH
3	1159	MOO				2400		01	110	TYP	DSA	2400	TYPEID	MATH
								01	120*					MATH
	5000							01	130	ORG	5000			MATH
1	5000							01	140	STRING	DS	1	INPUT STRING	MATH
98	5001							01	150	ENDSTR	DS	98	99 CHR LONG	MATH
1	5099	=						01	160	DCW	@=@		INPUT LIMITER	MATH
								01	170*					MATH
	5100							01	180	REQMSG	EQU	*	INPUT REQUEST MSG	MATH
20	5100	ENTER MATH PROBLEM T						01	190	DC	@ENTER MATH PROBLEM TO SOLVE.=@			MATH
9	5120	O SOLVE.=												
	5129							01	200	EROMSG	EQU	*	INPUT STRING ERROR	MATH
16	5129	ERROR AT COLUMN						01	210	DC	@ERROR AT COLUMN @			MATH
3	5145							01	220	EROCOL	DC	@ @		MATH
1	5148	=						01	230	DC	@=@			MATH
	5149							01	240	ER1MSG	EQU	*		MATH
13	5149	SETUP ERROR.=						01	250	DC	@SETUP ERROR.=@			MATH
	5162							01	260	ER2MSG	EQU	*		MATH
17	5162	MATH PROC ERROR.=						01	270	DC	@MATH PROC ERROR.=@			MATH
	5179							01	280	REPLY	EQU	*	REPLY MSG	MATH
9	5179	ANSWER =						01	290	DC	@ANSWER = @			MATH
16	5188	-1.234567890E-XX						01	300	DNUM	DCW	@-1.234567890E-XX@		MATH
1	5204	=						01	310	DC	@=@			MATH
								01	320*					MATH
1	5205							01	330	PRVCHR	DCW	@ @	PREVIOUS CHAR	MATH
1	5206							01	340	CURCHR	DCW	@ @	CURRENT CHAR	MATH
1	5207							01	350	PRVCP	DS	1	PRV CHAR AN OP FLG	MATH
1	5208							01	360	CURCP	DS	1	CUR CHAR AN OP FLG	MATH
3	5209							01	370	PRNCT	DS	3	PAREN COUNTER	MATH
1	5212							01	380	NUMFLG	DS	1	NUMBER FLAG	MATH
1	5213							01	390	DPTFLG	DS	1	DEC PT FLAG	MATH
2	5214							01	400	CNT	DS	2	SCRATCH COUNTER	MATH
1	5216							01	410	CHR	DS	1	SCRATCH CHARACTER	MATH
								01	420*					MATH
								01	430*	FUNCTION TBL		1 CHAR/ENTRY		MATH
3	5217	100						01	440	FMAX	DCW	100	MAX FTBL ENTRIES	MATH
1								01	450	FESZ	EQU	1	FTBL ENTRY SIZE	MATH
3	5220	000						01	460	FCNT	DCW	000	NUM FTBL ENTRIES	MATH
3	5223	S2W				5226		01	470	FEADR	DSA	FCHR	NEXT ENTRY ADR	MATH
1	5224							01	480	FCHR	DS	1	FUNCTION CHAR	MATH
	5326							01	490	ORG	*1899		AFTER FUNC TBL	MATH
								01	500*	VALUE DIR		3 CHAR/ENTRY		MATH
2	5326	15						01	510	DMAX	DCW	15	MAX VDIR ENTRIES	MATH
3								01	520	DESZ	EQU	3	DTBL ENTRY SIZE	MATH
2	5328	00						01	530	DCNT	DCW	00	NUM VDIR ENTRIES	MATH
3	5330	T3V				5335		01	540	DEADR	DSA	VADR	NEXT ENTRY ADR	MATH
3	5333							01	550	VADR	DS	3	ADR OF VTBL ENTRY	MATH
	5378							01	560	ORG	*1842		AFTER VDIR TBL	MATH

Ct	IA	Adr	D	AA	BAd	d	AA	BAd	Pg	L#	Label	Opcd	A/I-AdiA:Y,B-AdiA:Y,d	Comment	
7	5819	M	Q7W	S2V			6876	5225	02	150		MLC	%FCHR,FEADR	R NEXT FTBL ENTRY	MATH
4	5826	M	Q7Z				6879		02	160		MLC	00000	FTBL ENTRY CNT	MATH
7	5830	M	Q8S	T3S			6882	5332	02	170		MLC	%VADR,DEADR	NEXT VDIR ENTRY	MATH
4	5837	M	Q8U				6884		02	180		MLC	0000	VDIR ENTRY CNT	MATH
7	5841	M	Q8U	T8/			6884	5381	02	190		MLC	0000,VCNT	VTBL ENTRY CNT	MATH
7	5848	M	Q8U	VOV			6884	5505	02	200		MLC	0000,ECNT	ETBL ENTRY CNT	MATH
7	5855	L	Q7Z	S1/			6879	5211	02	210		MLCWA	00000,PRNCT	PAREN CT = 0	MATH
7	5862	*	S1S	S1T			5212	5213	02	220		CH	NUMFLG,DPTFLG	RESET NUM & DPT FLGS	MATH
7	5869	M	Q7Z	O94			6879	94	02	230		MLC	00000,X2	RESET SCAN INDEX	MATH
4	5876	B	Z0/				5901		02	240		B	NXTCHR	DO GET 1ST CHAR	MATH
									02	250*	SCAN STRING				MATH
7	5880	M	S0W	SOV			5206	5205	02	260	CLOOP	MLC	CURCHR,PRVCHR	SAVE CUR CHAR	MATH
7	5887	Y	S0Y	SOX			5208	5207	02	270		MLZS	CURCOP,PRVCOP	SAVE CUR CHR AN OP FLG	MATH
7	5894	A	Q6T	O94			6863	94	02	280		A	Q10,X2	INCR SCAN ADR	MATH
7	5901	M	!!!	S0W			5000	5206	02	290	NXTCHR	MLC	STRINGS:X2,CURCHR	GET NEXT CHAR	MATH
7	5908	Y	Q8V	SOY			6885	5208	02	300		MLZS	Q+9,CURCOP	SET CUR CHR AN OP	MATH
8	5915	B	!6Y	S0W	↓		6068	5206	02	310		BCE	CSQR,CURCHR,↓	B IF ↓	MATH
8	5923	B	J0!	S0W	+		6100	5206	02	320		BCE	CPLNN,CURCHR,+	B IF +	MATH
8	5931	B	J0!	S0W	-		6100	5206	02	330		BCE	CPLNN,CURCHR,-	B IF -	MATH
8	5939	B	J1W	S0W	*		6116	5206	02	340		BCE	CMLDV,CURCHR,*	B IF *	MATH
8	5947	B	J1W	S0W	/		6116	5206	02	350		BCE	CMLDV,CURCHR,/	B IF /	MATH
7	5955	Y	Q6T	SOY			6863	5208	02	360		MLZS	Q10,CURCOP	RESET CUR CHR AN OP	MATH
8	5962	B	!3Y	S0W	(		6038	5206	02	370		BCE	CLP,CURCHR,(	B IF (	MATH
8	5970	B	!4Z	S0W	)		6049	5206	02	380		BCE	CRP,CURCHR,)	B IF)	MATH
7	5978	C	Q8W	S0W			6886	5206	02	390		C	Q20,CURCHR	COMPARE CURCHR	MATH
5	5985	B	J6!		U		6160		02	400		BH	CHUN,,U	B IF 0 TO 9	MATH
8	5990	B	J4Y	S0W	.		6148	5206	02	410		BCE	CDPT,CURCHR,.	B IF .	MATH
8	5998	B	!1!	S0W	=		6010	5206	02	420		BCE	CGN,CURCHR,=	B IF GN	MATH
4	6006	B	X1W				5716		02	430		B	ERROR	SOME OTHER CHAR	MATH
									02	440*					MATH
7	6010	C	Q7Z	O94			6879	94	02	450	CGM	C	00000,X2	B IF..	MATH
5	6017	B	X9/		S		5791		02	460		BE	RDINIT,,S	..1ST CHAR	MATH
7	6022	C	Q7Z	S1/			6879	5211	02	470		C	00000,PRNCT	B IF UNBAL..	MATH
5	6029	B	X1W		/		5716		02	480		BH	ERROR,,/	..PARENS	MATH
4	6034	B	J3W				6136		02	490		B	OPTST		MATH
7	6038	A	Q6T	S1/			6863	5211	02	500	CLP	A	Q10,PRNCT	INC PAREN CNT	MATH
4	6045	B	!6Y				6068		02	510		B	CSQR		MATH
7	6049	S	Q6T	S1/			6863	5211	02	520	CRP	S	Q10,PRNCT	DEC PAREN CNT	MATH
8	6056	V	X1W	S1/	K		5716	5211	02	530		BWZ	ERROR,PRNCT,K	B IF CNT=0	MATH
4	6064	B	J3W				6136		02	540		B	OPTST		MATH
7	6068	C	Q7Z	O94			6879	94	02	550	CSQR	C	00000,X2	B IF..	MATH
5	6075	B	M2Z		S		6429		02	560		BE	FTBLD,,S	..1ST CHAR	MATH
8	6080	B	X1W	SOV	)		5716	5205	02	570		BCE	ERRDR,PRVCHR,)	B IF PRV CHR)	MATH
8	6088	V	X1W	S1S	1		5716	5212	02	580		BW	ERROR,NUMFLG,1	B IF PRV CHR NUMERIC	MATH
4	6096	B	M2Z				6429		02	590		B	FTBLD		MATH
7	6100	C	Q7Z	O94			6879	94	02	600	CPLNN	C	00000,X2	B IF..	MATH
5	6107	B	M2Z		S		6429		02	610		BE	FTBLD,,S	..1ST CHAR	MATH
4	6112	B	J3W				6136		02	620		B	OPTST		MATH
7	6116	C	Q7Z	O94			6879	94	02	630	CMLDV	C	00000,X2	B IF..	MATH
5	6123	B	X1W		S		5716		02	640		BE	ERROR,,S	..1ST CHAR	MATH
8	6128	B	X1W	SOV	(		5716	5205	02	650		BCE	ERRDR,PRVCHR,(	B IF PRV CHR (	MATH
8	6136	V	X1W	SOX	B		5716	5207	02	660	OPTST	BWZ	ERRDR,PRVCOP,B	B IF PRVCHR !+-!/+	MATH
4	6144	B	K1!				6210		02	670		B	NUMCHK		MATH
8	6148	V	X1W	S1T	1		5716	5213	02	680	CDPT	BW	ERROR,DPTFLG,1	B IF NOT 1ST DEC PT	MATH
4	6156	,	S1T				5213		02	690		BW	DPTFLG	SET DEC PT FLG	MATH
7	6160	C	Q7Z	O94			6879	94	02	700	CNUM	C	00000,X2	B IF 1ST CHAR..	MATH
5	6167	B	J8!		S		6180		02	710		BE	NUMTST,,S	..OF STRINGS	MATH

Ct	IAdr	O	AAd	BAd	d	AAdr	BAdr	Pg	L#	Label	Opcd	A/I-AddA:j:X,B-AddA:j:X,d	Comment	
8	6172	B	X1W	S0V	)	5716	5205	02	720		BCE	ERROR,PRVCHR,)	B IF PRV CHR)	MATH
8	6180	V	J9V	S1S	1	6195	5212	02	730	NUMTST	BM	%8,NUMFLG,1	B IF MIDST OF NUM	MATH
7	6188	.	S1S	!!!		5212	5000	02	740		SW	NUMFLG,STRING:X2	SET NUM FLG 1ST CHR	MATH
4	6195	M	K2Z			6229		02	750		SBR	NUMADR	SET ADR OF..	MATH
7	6199	#	Q8Z	K2Z		6889	6229	02	760		MA	%1,NUMADR	..NUMBER	MATH
4	6206	B	Y8I			5880		02	770		B	CLOOP		MATH
								02	780*	***				MATH
								02	790*	BUILD FUNCTION AND VALUE TABLES				MATH
8	6210	V	K2S	S1S	1	6222	5212	02	800	NUMCHK	BW	FLCNV,NUMFLG,1	B IF NUM FOR FLTPT	MATH
4	6218	B	M2Z			6429		02	810		B	FTBLD		MATH
								02	820*	CONVERT NUM TO FLTPT VAL				MATH
4	6222	B	K2V			6225		02	830	FLCNV	B	*	BR TO FLTPT FOR CONV	MATH
1	6226	C						02	840		DCW	@C@	A CNV TO FLTPT	MATH
3	6227	K2Z				6229		02	850	NUMADR	DBA	*	A ADR OF VALUE IN	MATH
3	6230	K3S				6232		02	860		DBA	*	A UNUSED ADR FIELD	MATH
3	6233	V1X				5517		02	870		DBA	FPTNUM	A ADR FOR FLTPT OUT	MATH
4	6236	B	X1W			5716		02	880		B	ERROR	R PROC ERROR	MATH
								02	890*	PUT FL PT NUM INTO VALUE TBL IF NOT			ALREADY THERE	MATH
7	6240	L	T8/	S1V		5381	5215	02	900		MLCWA	VCNT,CNT	R COPY VTBL COUNT	MATH
7	6247	M	Q7Z	O89		6879	89	02	910		MLC	@000@,X1	X1=0	MATH
4	6254	B	K6V			6265		02	920		B	*@8		MATH
7	6258	#	Q9S	O89		6892	89	02	930	VLOOK	MA	@VESZ,X1	INC X1 BY 1 ENT	MATH
7	6265	S	Q6T	S1V		6863	5215	02	940		S	@1@,CNT	DEC COUNT COPY	MATH
8	6272	V	LOY	S1V	K	6308	5215	02	950		BWZ	VENTRY,CNT,K	B IF NO ENT TO TEST	MATH
7	6280	C	TZ/	V1V		5391	5515	02	960		C	VVAL-2;X1,FPTNUM-2	COMPARE MAN	MATH
5	6287	B	K5Y	/	6258			02	970		BU	VLOOK,,/	B IF NOT EQUAL	MATH
7	6292	C	TZT	V1X	/	5393	5517	02	980		C	VVAL:X1,FPTNUM	COMPARE EXP	MATH
5	6299	B	K5Y	/	6258			02	990		BU	VLOOK,,/	B IF NOT EQUAL	MATH
4	6304	B	L3V			6335		03	010		B	FENTRY		MATH
7	6308	C	T8/	T7Z		5381	5379	03	020	VENTRY	C	VCNT,VMAX	WILL ENTRY FIT?	MATH
5	6315	B	X4/	S	5741			03	030		BE	ERROR1,,S	B IF TBL FULL	MATH
7	6320	A	Q6T	T8/		6863	5381	03	040		A	@1@,VCNT	INC ENTRY CNT	MATH
7	6327	L	V1X	TZT		5517	5393	03	050		MLCWA	FPTNUM,VVAL:X1	PUT EXP IN VTBL	MATH
1	6334	L						03	060		MLCWA		PUT MAN IN VTBL	MATH
								03	070*	PUT V ENTRY INTO FUNC TBL AND ADD			ENTRY TO VDIR	MATH
7	6335	C	S2S	S1Z		5222	5219	03	080	FENTRY	C	FCNT,FMAX	WILL ENTRY FIT?	MATH
5	6342	B	X4/	S	5741			03	090		BE	ERROR1,,S	B IF TBL FULL	MATH
7	6347	A	Q6T	S2S		6863	5222	03	100		A	@1@,FCNT	INC ENTRY CNT	MATH
7	6354	M	S2V	L6X		5225	6367	03	110		MLC	FEADR,%#7	SET ADR	MATH
7	6361	L	Q9T	L6X		6893	6367	03	120		MLCWA	@V@,*	PUT V IN FTBL	MATH
7	6368	#	Q9W	S2V		6896	5225	03	130		MA	@VESZ,FEADR	POINT TO NXT ENT	MATH
7	6375	C	T2Z	T2X		5329	5327	03	140		C	DCNT,DMAX	WILL ENTRY FIT?	MATH
5	6382	B	X4/	S	5741			03	150		BE	ERROR1,,S	B IF TBL FULL	MATH
7	6387	A	Q6T	T2Z		6863	5329	03	160		A	@1@,DCNT	INC ENTRY CNT	MATH
7	6394	#	Q9Z	O89		6899	89	03	170		MA	@VVAL,X1	X1=VTBL ENTRY ADR	MATH
7	6401	M	T3S	M1U		5332	6414	03	180		MLC	DEADR,%#7	SET ADR	MATH
7	6408	L	O89	M1U		89	6414	03	190		MLCWA	X1,*	VDIR ENT=ADR VTBL ENT	MATH
7	6415	#	R0S	T3S		6902	5332	03	200		MA	@DESZ,DEADR	POINT TO NXT ENT	MATH
7	6422	.	S1S	S1T		5212	5213	03	210		DN	NUMFLG,DPTFLG	RESET NUM & DPT FLGS	MATH
								03	220*	PUT CURCHR INTO FUNC TBL				MATH
7	6429	C	S2S	S1Z		5222	5219	03	230	FTBLD	C	FCNT,FMAX	WILL ENTRY FIT?	MATH
5	6436	B	X4/	S	5741			03	240		BE	ERROR1,,S	B IF TBL FULL	MATH
7	6441	A	Q6T	S2S		6863	5222	03	250		A	@1@,FCNT	INC ENTRY CNT	MATH
7	6448	M	S2V	M6/		5225	6461	03	260		MLC	FEADR,%#7	SET ADR	MATH
7	6455	L	SOW	M6/		5206	6461	03	270		MLCWA	CURCHR,*	PUT CURCHR IN FTBL	MATH
7	6462	#	Q9W	S2V		6896	5225	03	280		MA	@VESZ,FEADR	POINT TO NXT ENT	MATH
8	6469	B	M8/	SOW	=	6481	5206	03	290		BCE	EXEC,CURCHR,=	B AT END OF STRING	MATH

Ct	IAdr	D	AAd	BAd	d	AAdr	BAdr	Pg	L#	Label	Opcd	A/I-AddAj:X,B-AddAj:X,d	Comment	MATH
4	6477	B	YB!			5880		03	300		B	CLOOP	GO BACK FOR NEXT CHR	MATH
								03	310*	***				MATH
								03	320*	COMPUTE RESULT				MATH
								03	330*	USE EXECUTION TBL WITH FUNCTION, VALUE DIR AND VALUE TBL				MATH
								03	340*	TO COMPUTE THE ANSWER.				MATH
7	6481	M	Q7Z	O94		6879	94	03	350	EXEC	MLC	@000@,X2	INIT FTBL INDEX	MATH
7	6488	M	Q8S	P3T		6882	6733	03	360		MLC	&VADR,FVAL&3	INIT VDIR ADR	MATH
7	6495	M	Q7Z	O99		6879	99	03	370		MLC	@000@,X3	INIT ETBL INDEX	MATH
7	6502	M	ROU	VOV		6904	5505	03	380		MLC	@01@,ECNT	INIT ETBL ENT CNT	MATH
7	6509	M	Q8V	S1W		6885	5216	03	390		MLC	@+@,CHR	SET DEFAULT OP TO +	MATH
7	6516	L	S1W	VAY		5216	5518	03	400	ENTINI	MLCWA	CHR,EDP:X3	INIT 1ST/NXT..	MATH
7	6523	L	Q8U	VAX		6884	5517	03	410		MLCWA	@00@,EVAL:X3	..ETBL..	MATH
4	6530	L	Q5Z			6859		03	420		MLCWA	@0000000000000-3	..ENTRY	MATH
7	6534	C	S2S	O94		5222	94	03	430	TSTFC	C	FCNT,X2	TST NUM ENTRIES	MATH
5	6541	B	X5S		S	5752		03	440		BE	ERROR2,,S	B IF NO MORE ENT	MATH
7	6546	L	SKW	S1W		5226	5216	03	450		MLCWA	FCNR:X2,CHR	CHR = FUNC TBL CHR	MATH
7	6553	A	Q9W	O94		6896	94	03	460		A	&FESZ,X2	INC FTBL INDX FOR NXT ENT	MATH
8	6560	B	Q8S	S1W	(	6682	5216	03	470		BCE	FLP,CHR,(	B IF (	MATH
8	6568	B	Q3W	S1W	)	6636	5216	03	480		BCE	FRP,CHR,)	B IF)	MATH
8	6576	B	Q8Z	S1W	J	6689	5216	03	490		BCE	FSQR,CHR,J	B IF J	MATH
8	6584	B	P1Z	S1W	+	6719	5216	03	500		BCE	FMATH,CHR,+	B IF +	MATH
8	6592	B	P1Z	S1W	-	6719	5216	03	510		BCE	FMATH,CHR,-	B IF -	MATH
8	6600	B	P1Z	S1W	*	6719	5216	03	520		BCE	FMATH,CHR,*	B IF *	MATH
8	6608	B	P1Z	S1W	/	6719	5216	03	530		BCE	FMATH,CHR,/	B IF /	MATH
8	6616	B	P3!	S1W	V	6730	5216	03	540		BCE	FVAL,CHR,V	B IF V	MATH
8	6624	B	QOT	S1W	=	6803	5216	03	550		BCE	DDNE,CHR,=	B IF =	MATH
4	6632	B	X5S			5752		03	560		B	ERROR2	SOME OTHER CHAR	MATH
7	6636	L	ROX	P7S		6907	6772	03	570	FRP	MLCWA	&EVAL,ARG2A	ARG2A -> CURRENT..	MATH
7	6643	#	O99	P7S		99	6772	03	580		MA	X3,ARG2A	..ETBL VAL FIELD	MATH
7	6650	S	Q6T	VOV		6863	5505	03	590	DECPTR	S	@1@,ECNT	DEC ETBL ENTRY CNT	MATH
7	6657	Y	Q6T	VOV		6863	5505	03	600		MLZS	@1@,ECNT	CLEAR ZONE BITS	MATH
7	6664	S	R1!	O99		6910	99	03	610		S	&EESZ,X3	DEC ETBL ENTRY INDEX	MATH
7	6671	Y	Q6T	O99		6863	99	03	620		MLZS	@1@,X3	CLEAR ZONE BITS	MATH
4	6678	B	P4U			6744		03	630		B	NXTOP		MATH
7	6682	M	Q8V	S1W		6885	5216	03	640	FLP	MLC	@+@,CHR	SET DEFAULT OP TO +	MATH
7	6689	C	VOV	VOT		5505	5503	03	650	FSQR	C	ECNT,EMAX	WILL ENTRY FIT?	MATH
5	6696	B	X5S		S	5752		03	660		BE	ERROR2,,S	B IF TBL FULL	MATH
7	6701	A	Q6T	VOV		6863	5505	03	670		A	@1@,ECNT	INC ENTRY CNT	MATH
7	6708	A	R1!	O99		6910	99	03	680		A	&EESZ,X3	INC ENTRY INDEX	MATH
4	6715	B	N1W			6516		03	690		B	ENTINI	GO ADD ETBL ENT	MATH
7	6719	L	S1W	VAY		5216	5518	03	700	FMATH	MLCWA	CHR,EDP:X3	COPY OP TO ETBL	MATH
4	6726	B	N3U			6534		03	710		B	TSTFC		MATH
7	6730	M	P3W	P7S		6736	6772	03	720	FVAL	MLC	*,ARG2A	ARG2A -> UTBL ENTRY	MATH
7	6737	#	ROS	P3T		6902	6733	03	730		MA	&DESZ,FVAL&3	INC DTBL ADR FOR NXT V	MATH
7	6744	L	VAY	P6W		5518	6766	03	740	NXTOP	MLCWA	EDP:X3,FLOP	FLTPT OP=ETBL OP	MATH
4	6751	Q	P6Z			6769		03	750		SAR	ARG1A	ARG1A = ADR EVAL FIELD	MATH
7	6755	M	P6Z	P7V		6769	6775	03	760		MLC	ARG1A,RSLTA	RSLTA = ARG1A	MATH
								03	770*	DO FLTPT MATH: ARG1 +/- ARG2 OR SQRT ARG2 ..				MATH
								03	780*	..AND SAVE ANSWER IN THIS ETBL VAL ENTRY.				MATH
								03	790*	IF SORT, SET ARG2 ADR TO THIS ETBL VAL ENTRY, DEC ETBL INDEX..				MATH
								03	800*	..AND GO DO OP (+-*/^) IN THAT ENTRY.				MATH
4	6762	B	P6V			6765		03	810	FLMATH	B	*	BR TO FLTPT MATH SUBR	MATH
1	6766							03	820	FLOP	DCW	@ @	A MATH FUNCTION	MATH
3	6767	P6Z				6769		03	830	ARG1A	DSA	*	A ARG1 ADR	MATH
3	6770	P7S				6772		03	840	ARG2A	DSA	*	A ARG2 ADR	MATH
3	6773	P7V				6775		03	850	RSLTA	DSA	*	A RESULT ADR	MATH
4	6776	B	X5S			5752		03	860		B	ERROR2	R PROC ERROR	MATH

Ct	IAdr	O	AAd	BAd	d	AAdr	BAdr	Pg	L#	Label	Opcd	A/I-AdjA):X,B-AdjA):X,d	Comment	
8	6780	B	P9S	P6W	J	6792	6766	03	970		BCE	#S,FLOP,J	R B IF OP WAS SORT	MATH
4	6788	B	N3U			6534		03	880		B	TSTFC	ELSE LOOK AT FUNC TBL	MATH
7	6792	M	P7V	P7S		6775	6772	03	890		MLC	RSLTA,ARG2A	ARG2A -> SORT RESULT	MATH
4	6799	B	05!			6650		03	900		B	DECPTR		MATH
								03	910	***				MATH
7	6803	C	07Z	099		6879	99	03	920	DONE	C	00000,X3	ON 1ST ENTRY?	MATH
5	6810	B	X5S		/	5752		03	930		BU	ERROR2, /	B IF NOT	MATH
								03	940	* CONVERT EVAL TO "FIXED PT" FORM AND			PLACE INTO ONUM FIELD.	MATH
4	6815	B	01Y			6818		03	950	FIXIT	B	*	BR TO FLTPT MATH SUBR	MATH
1	6819	D						03	960		DCW	000	A CNV TO FIXED	MATH
3	6820	V1X				5517		03	970		DSA	EVAL	A ADR OF FLT PT NUM	MATH
3	6823	02V				6825		03	980		DSA	*	A UNUSED ADR FIELD	MATH
3	6826	S0T				5203		03	990		DSA	ONUM	A ADR FOR OUTPUT STRING	MATH
4	6829	B	X5S			5752		04	010		B	ERROR2	R PROC ERROR	MATH
								04	020	* PRINT ANSWER MESSAGE				MATH
4	6833	B	03W			6836		04	030	RESP	B	*	R CALL TYPEID SUB	MATH
1	6837	D						04	040		DCW	000	A OUTPUT	MATH
1	6838	M						04	050		DCW	000	A MOVE MODE	MATH
3	6839	/7Z				5179		04	060		DSA	REPLY	A ADR OF MESSAGE	MATH
4	6842	B	X7S			5772		04	070		B	HALT	R I/O ERROR RETURN	MATH
4	6846	B	X7T			5773		04	080		D	START	R GET ANOTHER PROBLEM	MATH
								04	090		LTORG			MATH
13	6850	00000000000000									DCW	00000000000000		
1	6863	1									DCW	1		
3	6864	/2Z				5129					DSA	ER0MSB		
3	6867	/4Z				5149					DSA	ER1MSB		
3	6870	/6S				5162					DSA	ER2MSB		
1	6873	=									DCW	0=0		
3	6874	S2W				5226					DSA	FCHR		
3	6877	000									DCW	000		
3	6880	T3V				5335					DSA	VADR		
2	6883	00									DCW	00		
1	6885	+									DCW	0+0		
1	6886	Z									DCW	0Z0		
3	6887	001				1					DSA	1		
3	6890	012				12					DSA	VESZ		
1	6893	V									DCW	0V0		
3	6894	001				1					DSA	FESZ		
3	6897	T9T				5393					DSA	VVAL		
3	6900	003				3					DSA	DEEZ		
2	6903	01									DCW	01		
3	6905	V1X				5517					DSA	EVAL		
3	6908	013				13					DSA	EESZ		
											04	100		MATH
7	6911	M	R2U	K2Z		6924	6229	04	110	PATCH2	MLC	STRADR,NUMADR	NUMADR = STRING START ADR	MATH
4	6918	B	J9Z			6199		04	120		B	6199	RETURN TO PGM	MATH
3	6922	10!				5000		04	130	STRADR	DSA	STRING		MATH
								04	140	PAT5	DRB	6195		MATH
4	6195	B	R1/			6911		04	150		B	PATCH2	B TO PATCH	MATH
7	6199	#	094	K2Z		94	6229	04	160	MA	MA	X2,NUMADR	INC NUMADR BY INDEX	MATH
								04	170					MATH
								04	180		DRB	PAT5		MATH
7	6925	Y	08U	S1/		6884	5211	04	190	PATCH5	MLZE	3000,PRNCT	CLEAR ZONE BITS	MATH
4	6932	B	J3W			6136		04	200		B	DPTST	RETURN TO PGM	MATH
								04	210	PAT7	DRB	6064		MATH
4	6064	B	R2V			6925		04	220		B	PATCH5	B TO PATCH	MATH
								04	230					MATH

Symbol	Val	Len	Def	#Rf	<--	Xref	-->
CRP	6049	7	02520	1	02380		
CSRP	6068	7	02550	2	02310	02510	
CURCHR	5206	1	01340	17	02260	02290	02310 02320 02330 02340 02350 02370 02380 02390 02410 02420 03270 03290 04320 04330 04350
CURCOP	5208	1	01360	3	02270	02300	02360
DCNT	5329	2	01530	2	03140	03160	
DEADR	5332	3	01540	3	02170	03180	03200
DECPTR	6650	7	03590	1	03900		
DESZ	0003	0	01520	1	04090		
DMAX	5327	2	01510	1	03140		
DONE	6803	7	03920	1	03550		
DFTFLG	5213	1	01390	4	02220	02680	02690 03210
ECNT	5505	2	01660	6	02200	03380	03390 03600 03650 03670
EESZ	0013	0	01650	1	04090		
EMAX	5503	2	01640	1	03650		
EMSGA	5767	3	01930	3	01850	01870	01890
ENDSTR	5098	98	01150	3	02040	02050	02060
ENTINI	6516	7	03400	1	03690		
EOP	5518	1	01680	3	03400	03700	03740
ERODOL	5147	3	01220	1	01840		
EROMSG	5129	0	01200	1	04090		
ER1MSG	5149	0	01240	1	04090		
ER2MSG	5162	0	01260	1	04090		
ERRORP	5716	7	01830	12	02430	02480	02530 02570 02580 02640 02650 02660 02680 02720 02880 04340
ERROR1	5741	7	01870	4	03030	03090	03150 03240
ERROR2	5752	7	01890	6	03440	03560	03660 03860 03930 04010
EVAL	5517	12	01670	4	01690	03410	03970 04090
EXEC	6481	7	03350	1	03290		
FCHR	5226	1	01480	3	01470	03450	04090
FCNT	5222	3	01460	5	03080	03100	03230 03250 03430
FEADR	5225	3	01470	5	02150	03110	03130 03260 03280
FENTRY	6335	7	03080	1	03010		
FESZ	0001	0	01450	1	04090		
FIXIT	6815	4	03950	1	01810		
FLCNV	6222	4	02830	2	01790	02800	
FLMATH	6762	4	03810	1	01800		
FLOP	6766	1	03820	2	03740	03870	
FLP	6682	7	03640	1	03470		
FLT	1149	3	01090	3	01790	01800	01810
FMATH	6719	7	03700	4	03500	03510	03520 03530
FMAX	5219	3	01440	2	03080	03230	
FPTNUM	5517	0	01690	4	02870	02960	02980 03050
FRP	6636	7	03570	1	03480		
FSQR	6689	7	03650	1	03490		
FTBLD	6429	7	03230	4	02560	02590	02610 02810
FVAL	6730	7	03720	3	03360	03540	03730
HALT	5772	1	01950	6	01940	01970	02030 02110 04070 04250
INIT	5649	7	01730	1	04400		
NUMADR	6229	3	02850	4	02750	02760	04110 04160
NUMCHK	6210	8	02800	1	02670		
NUMFLG	5212	1	01380	6	02220	02580	02730 02740 02800 03210
NUMTST	6180	8	02730	1	02710		
NXTCHR	5901	7	02290	1	02240		
NXTOP	6744	7	03740	1	03630		
ONUM	5203	16	01300	1	03990		
OPTST	6136	8	02660	4	02490	02540	02620 04200

Symbol	Val	Len	Def	#R#	<--- Xref# --->
PAT5	6925	0	04140	1	04180
PAT7	6936	0	04210	1	04240
PAT8	6950	0	04280	1	04310
PATCH2	6911	7	04110	1	04150
PATCH5	6925	7	04190	1	04220
PATCH7	6936	5	04250	2	04270 04290
PATCH8	6950	8	04320	1	04390
PEMSG	5759	4	01900	3	01750 01860 01880
PRNCT	5211	3	01370	6	02210 02470 02500 02520 02530 04190
PRVCHR	5205	1	01330	4	02260 02570 02650 02720
PRVCOF	5207	1	01350	2	02270 02660
RDINIT	5791	4	02040	1	02460
READ	5806	4	02070	1	01770
REPLY	5179	0	01280	1	04060
REQMSG	5100	0	01180	1	02020
RESP	6833	4	04030	1	01780
RSLTA	6775	3	03850	2	03760 03890
START	5773	5	01970	3	01820 04080 04280
STRADR	6924	3	04130	1	04110
STRING	5000	1	01140	4	02100 02290 02740 04130
TSTFC	6534	7	03430	2	03710 03880
TYP	1161	3	01110	4	01750 01760 01770 01780
USEGM	6970	7	04350	1	04330
VADR	5335	3	01550	2	01540 04090
VCNT	5381	2	01600	4	02190 02900 03020 03040
VENTRY	6308	7	03020	1	02950
VESZ	0012	0	01590	1	04090
VLOOK	6258	7	02930	2	02970 02990
VMAX	5379	2	01580	1	03020
VVAL	5393	12	01610	4	02960 02980 03050 04090
X1	0089	3	0	8	01730 02910 02930 02960 02980 03050 03170 03190
X2	0094	3	0	17	01740 01830 01840 02230 02280 02290 02450 02550 02600 02630 02700 02740 03350 03430 03450 03460 04160
X3	0099	3	0	11	01740 03370 03400 03410 03580 03610 03620 03680 03700 03740 03920

Ct	IAdr	O	AAd	BAd	d	AAdr	BAdr	Pg	L#	Label	Opcd	A/I-AdtAj:X,B-AdtAj:X,d	Comment	DIV	
								01	010*	20	DIGIT	DIVIDE	SUBROUTINE USING INDEXING	DIV	
								01	020*					DIV	
								01	030*	ON ENTRY,	B	ADR	REG=ADDRESS OF USER ARGUMENT LIST:	DIV	
2								01	040	DVSADR	EQU	2	A	DIVISOR ADR	DIV
5								01	050	DVNADR	EQU	5	A	DIVIDEND ADR	DIV
8								01	060	QUOADR	EQU	8	A	QUOTIENT ADR	DIV
9								01	070	DVORTN	EQU	9	R	DIV BY 0 RETURN	DIV
13								01	080	NMLRTN	EQU	13	R	NORMAL RETURN	DIV
								01	090*	NOTE: EACH			DIVIDEND, DIVISOR & QUOTIENT IS 20 CHARACTERS LONG	DIV	
								01	100*					DIV	
	8000							01	110	CTL	4		8K MEMORY	DIV	
								01	120*	FOLLOWING			PARMS DEFINE WORK SPACE	DIV	
	1800							01	130	ORG	1800			DIV	
	1800							01	140	WWW	EQU	*	DIVIDEND WM ADR	DIV	
20	1800							01	150	WWA	DS	20		DIVIDEND AREA	DIV
	1820							01	160	XXX	EQU	*	QUOTIENT WM ADR	DIV	
20	1820							01	170	XXXA	DS	20		QUOTIENT AREA	DIV
	1840							01	180	YYY	EQU	*	DIVISOR WM ADR	DIV	
20	1840							01	190	ZZZ	DS	20		DIVISOR AREA	DIV
								01	200*					DIV	
2	1860							01	210	LNGDVS	DS	2		LENGTH OF DIVISOR	DIV
3	1862							01	220	ARGADR	DS	3		ARGUMENT LST ADR	DIV
								01	230*					DIV	
								01	240*	CONSTANTS				DIV	
20	1865	000000000000000000000000						01	250	ZERDS	DCW	00000000000000000000		DIV	
2	1885	20						01	260	ILNGDV	DCW	20	NN	LENGTH OF DIVISOR	DIV
								01	270*					DIV	
								01	280*	COPY USERS			VALUES TO WORK AREA	DIV	
4	1887	H	089			89		01	290	START	SBR	X1	X1 = ARG LST ADR	DIV	
7	1891	L	089	Y64		89	1864	01	300	MLCWA	X1,ARGADR		SAVE ARG LST ADR	DIV	
7	1898	M	012	Z22		2	1922	01	310	MLC	DVSADR:X1,CDVS&3		GET DIVISOR ADR	DIV	
7	1905	M	015	Z30		5	1930	01	320	MLC	DVNADR:X1,CDVN&3		GET DIVIDEND ADR	DIV	
7	1912	L	Y86	Y61		1886	1861	01	330	MLCWA	ILNGDV,LNGDVS		DIVISOR LENGTH	DIV	
4	1919	L	Z22			1922		01	340	CDVS	MLCWA *		COPY DIVISOR	DIV	
4	1923	L	Y84			1884		01	350	MLCWA	ZERDS		QUOTIENT = 0	DIV	
4	1927	L	Z30			1930		01	360	CDVN	MLCWA *		COPY DIVIDEND	DIV	
								01	370*					DIV	
								01	380*	SCAN			DIVISOR FOR LEADING ZEROS	DIV	
7	1931	M	Y84	089		1884	89	01	390	MLC	ZERDS,X1		SET INDEX 1 = 0	DIV	
4	1938	B	Z72			1972		01	400	B	LOOP			DIV	
7	1942	A	!92	089		2092	89	01	410	INCNTR	A @1@,X1		INCR DIVS 0 CNTR	DIV	
7	1949	C	089	Y61		89	1861	01	420	C	X1,LNGDVS		IF =, DIVS=0	DIV	
5	1956	B	Z72	/		1972		01	430	BU	LOOP,,/		B NOT =	DIV	
7	1961	M	Y64	089		1864	89	01	440	MLC	ARGADR,X1		X1 = ARG LST ADR	DIV	
4	1968	B	019			9		01	450	B	DVORTN:X1		DIV BY 0 RETURN	DIV	
8	1972	B	Z42	YU0	0	1942	1840	01	460	LOOP	BCE INCNTR,YYY:X1,0		B IF DIVSR DGT=0	DIV	
7	1980	S	089	Y61		89	1861	01	470	S	X1,LNGDVS		LNGDIVS-#HI DRDO	DIV	
7	1987	S	!92	Y61		2092	1861	01	480	S	@1@,LNGDVS		ADJ	DIV	
7	1994	M	Y61	089		1861	89	01	490	MLC	LNGDVS,X1		INIT INDEX 1	DIV	
7	2001	Y	!92	089		2092	89	01	500	MLZS	@1@,X1		CLR ZN LD POS	DIV	
								01	510*					DIV	
								01	520*	COMPUTE			QUOTIENT	DIV	
7	2008	S	Y59	Y!0		1859	1800	01	530	DVCALC	S ZZZ,WWW:X1		SUB DIVS FRM DND	DIV	
8	2015	V	!34	Y!0	K	2034	1800	01	540	BWZ	ADDBAK,WWW:X1,K		B IF NEG RESULT	DIV	
7	2023	A	!92	YS0		2092	1820	01	550	A	@1@,XXXM:X1		INCRMNT QUOTIENT	DIV	
4	2030	B	!08			2008		01	560	B	DVCALC		REPEAT SUB	DIV	
7	2034	A	Y59	Y!0		1859	1800	01	570	ADDBAK	A ZZZ,WWW:X1		ADD DIVS TO DVDN	DIV	

Ct	IAdr	O	AAd	BAd	d	AAdr	BAdr	Pg	L#	Label	Opcd	A/I-AdtAj:X,B-AdtAj:X,d	Comment	
3	1439	T39				1339		01	580		DSA	PRODC	A PRODUCT ADR	LINK
7	1442	M T39	S19		1339	1219		01	590		MLC	PRODC, DIVDND	R COPY TO DIVDND	LINK
7	1449	M /55	U59		1155	1459		01	600		MLC	DIVA, #4	SET DIV BR ADR	LINK
4	1456	B U59			1459			01	610		B	#	BR TO DIVIDE	LINK
3	1460	S39			1239			01	620		DSA	DIVISR	A DIVISOR	LINK
3	1463	S19			1219			01	630		DSA	DIVDND	A DIVIDEND	LINK
3	1466	S59			1259			01	640		DSA	QUOTNT	A QUOTIENT	LINK
4	1469	B /81			1181			01	650		B	BADDIV	R DIV BY 0 RTN	LINK
7	1473	C S59	T09		1259	1309		01	660		C	QUOTNT, MPLIER	R COMPARE RESULT	LINK
5	1480	B T50		S	1350			01	670		BE	MDLOOP, S	BR IF OKAY	LINK
4	1485	B /82			1182			01	680		B	NEXTMD	RETURN	LINK
								01	690	*****				LINK
								01	700	SINGLE MULTIPLY CALL				LINK
7	1489	M /52	U99		1152	1499		01	710	M1	MLC	MULA, #4	SET MUL BR ADR	LINK
4	1496	B U99			1499			01	720		B	#	BR TO MULTIPLY	LINK
3	1500	T09			1309			01	730		DSA	MPLIER	A MULTIPLIER ADR	LINK
3	1503	T19			1319			01	740		DSA	MCAND	A MULTIPLICAND ADR	LINK
3	1506	T39			1339			01	750		DSA	PRODC	A PRODUCT ADR	LINK
4	1509	B /86			1186			01	760		B	NEXTH	R RETURN	LINK
								01	770	*****				LINK
								01	780	SINGLE DIVIDE CALL				LINK
7	1513	M /55	V23		1155	1523		01	790	D1	MLC	DIVA, #4	SET DIV BR ADR	LINK
4	1520	B V23			1523			01	800		B	#	BR TO DIVIDE	LINK
3	1524	S39			1239			01	810		DSA	DIVISR	A DIVISOR	LINK
3	1527	S19			1219			01	820		DSA	DIVDND	A DIVIDEND	LINK
3	1530	S59			1259			01	830		DSA	QUOTNT	A QUOTIENT	LINK
4	1533	B /81			1181			01	840		B	BADDIV	R DIV BY 0 RTN	LINK
4	1537	B /90			1190			01	850		B	NEXTD	R RETURN	LINK
								01	860	*****				LINK
								01	870	SINGLE SQUARE ROOT CALL				LINK
7	1541	M /58	V51		1158	1551		01	880	S1	MLC	SQRA, #4	SET SQR BR ADR	LINK
4	1548	B V51			1551			01	890		B	#	BR TO SQUARE RT	LINK
3	1552	S79			1279			01	900		DSA	VALUE	A VALUE ADR	LINK
3	1555	S99			1299			01	910		DSA	SBRT	A SBRT ADR	LINK
4	1558	B /81			1181			01	920		B	BADDIV	R DIV BY 0 RTN	LINK
4	1562	B /94			1194			01	930		B	NEXTS	R RETURN	LINK
								01	940					LINK
8	1566	00000000									DCW	00000000		
10	1574	0000099998									DCW	0000099998		
1	1584	1									DCW	1		
10	1585	0000000002									DCW	0000000002		
	1170							01	950		END	INIT		LINK

0 Errors found.

Symbol	Val	Lng	Def	#Rf	<--- Xref --->
@00000000	1573	8	14	1	14
@00000000	1594	10	49	1	49
@00000999	1583	10	45	1	45
@1@	1584	1	47	3	47 51 52
BADDIV	1181	0	16	3	65 84 92
CPYMUL	1415	7	53	2	48 50
D1	1513	7	79	1	21
DECMUL	1384	5	48	2	44 46
DIVA	1155	3	9	2	60 79
DIVDND	1219	20	27	3	59 63 82
DIVISR	1239	20	28	3	53 62 81

Ct	IAdr	O	AAd	BAd	d	AAdr	BAdr	Pg	L#	Label	Opcd	A/I-AddtAj:X,B-AddtAj:Y,d	Comment	MSG				
								01	010*	PROGRAM TO	SELECT AND	TYPE	MESSAGES ON	CONSOLE	TYPER	MSG		
								01	020*							MSG		
	8000							01	030	CTL	4		BK MEMORY			MSG		
	1161							01	040	TYPEID	EQU	1161	ADR OF TYPEID	ADR		MSG		
								01	050*							MSG		
	7100							01	060	ORG	7100					MSG		
								01	070*	SELECT A	MSG	ADDRESS	VIA	SENSE	SWITCHES	MSG		
1	7100	.						01	080	HALT	H		ERROR	HALT/STOP		MSG		
7	7101	L	C1T	094		7313	94	01	090	START	MLCWA	0000000000,X1&5	CLEAR	X1, X2		MSG		
4	7108	,	092			92		01	100	SW	X2-2		SET	X2	WM	BIT	MSG	
7	7112	M	/61	B8Z		1161	7289	01	110	MLC	TYPEID,TYPE&3		SET	TYPEID	BR	ADR	MSG	
1	7119	.						01	120	PAUSE	H		END	OF	MSG	HALT	MSG	
5	7120	B	A01		C	7100		01	130	BSS	HALT,,C		B	IF	C	SW	UP	MSG
5	7125	B	B5T		D	7253		01	140	BSS	AUTO,,D		B	IF	D	SW	UP	MSG
5	7130	B	A9U		E	7194		01	150	BSS	SW1XX,,E		B	IF	E	SW	UP	MSG
5	7135	B	A6X		F	7167		01	160	BSS	SW01X,,F		B	IF	F	SW	UP	MSG
5	7140	B	A5W		G	7156		01	170	BSS	SW001,,G		B	IF	G	SW	UP	MSG
7	7145	M	C1W	B9U		7316	7294	01	180	MLC	&MSG0,MSGADR		SELECT	MSG		MSG		
4	7152	B	B8W			7286		01	190	B	TYPE						MSG	
7	7156	M	C1Z	B9U		7319	7294	01	200	SW001	MLC	&MSG1,MSGADR	SELECT	MSG		MSG		
4	7163	B	B8W			7286		01	210	B	TYPE						MSG	
5	7167	B	A8T		G	7183		01	220	SW01X	BSS	SW011,,G	B	IF	G	SW	UP	MSG
7	7172	M	C2S	B9U		7322	7294	01	230	MLC	&MSG2,MSGADR		SELECT	MSG		MSG		
4	7179	B	B8W			7286		01	240	B	TYPE						MSG	
7	7183	M	C2V	B9U		7325	7294	01	250	SW011	MLC	&MSG3,MSGADR	SELECT	MSG		MSG		
4	7190	B	B8W			7286		01	260	B	TYPE						MSG	
5	7194	B	B2W		F	7226		01	270	SW1XX	BSS	SW11X,,F	B	IF	F	SW	UP	MSG
5	7199	B	B1V		G	7215		01	280	BSS	SW101,,G		B	IF	G	SW	UP	MSG
7	7204	M	C2Y	B9U		7328	7294	01	290	MLC	&MSG4,MSGADR		SELECT	MSG		MSG		
4	7211	B	B8W			7286		01	300	B	TYPE						MSG	
7	7215	M	C3/	B9U		7331	7294	01	310	SW101	MLC	&MSG5,MSGADR	SELECT	MSG		MSG		
4	7222	B	B8W			7286		01	320	B	TYPE						MSG	
5	7226	B	B4S		G	7242		01	330	SW11X	BSS	SW111,,G	B	IF	G	SW	UP	MSG
7	7231	M	C3U	B9U		7334	7294	01	340	MLC	&MSG6,MSGADR		SELECT	MSG		MSG		
4	7238	B	B8W			7286		01	350	B	TYPE						MSG	
7	7242	M	C3X	B9U		7337	7294	01	360	SW111	MLC	&MSG7,MSGADR	SELECT	MSG		MSG		
4	7249	B	B8W			7286		01	370	B	TYPE						MSG	
								01	380*							MSG		
								01	390*	SELECT	MSG	ADDRESSES	SEQUENTIALLY			MSG		
7	7253	M	CJW	B9U		7316	7294	01	400	AUTO	MLC	&MSG0:X2,MSGADR	SELECT	MSG		MSG		
7	7260	A	COT	094		7303	94	01	410	A	ADRINC,X2		INCR	TO	NXT	MSG	MSG	
7	7267	C	COV	094		7305	94	01	420	C	ADRLIM,X2		TEST	MSG	INDEX		MSG	
5	7274	B	B8W	/		7286		01	430	BU	TYPE,,/		B	IF	<	LIM		MSG
7	7279	M	C1T	094		7313	94	01	440	MLC	0000000000,X2		RESET	X2			MSG	
								01	450*								MSG	
								01	460*	TYPE	SELECTED	MESSAGE					MSG	
4	7286	B	B8Z			7289		01	470	TYPE	B	*	CALL	TYPEID	SUB		MSG	
1	7290	D						01	480	DCW	000		A	OUTPUT			MSG	
1	7291	M						01	490	DCW	0M0		A	MOVE	MODE		MSG	
3	7292	B9U				7294		01	500	MSGADR	DSA	*	A	ADR	OF	MESSAGE	MSG	
4	7295	B	A01			7100		01	510	B	HALT		R	I/O	ERROR	RETURN	MSG	
4	7299	B	A1Z			7119		01	520	B	PAUSE		R	SELECT	NXT	MSG	MSG	
								01	530*								MSG	
1	7303	3						01	540	ADRINC	DCW	3	ADR	ENTRY	LNG		MSG	
2	7304	24						01	550	ADRLIM	DCW	24	INDEX	TOO	BIG	VAL	MSG	
								01	560	LTORG							MSG	
8	7306	00000000								DCW	00000000							

Ct	IAdr	O	AA	BAd	d	AA	BAd	Pg	L#	Label	Opcd	A/I	AdtAj:X,B	AdtAj:X,d	Comment	
3	7314		C5T			7353					DSA	MSG0				
3	7317		C8W			7386					DSA	MSG1				
3	7320		D5Y			7458					DSA	MSG2				
3	7323		D8/			7481					DSA	MSG3				
3	7326		E2/			7521					DSA	MSG4				
3	7329		E5/			7551					DSA	MSG5				
3	7332		F0S			7602					DSA	MSG6				
3	7335		F4Y			7648					DSA	MSG7				
15	7338							01	570		DS	15			SPC FOR 5 MSG ADR	MSG
								01	580*							MSG
						7353		01	590	MSG0	EQU	*				MSG
20	7353		MY FUTURE IS IN THE					01	600		DCW				@MY FUTURE IS IN THE <IBM> CARDS.=@	MSG
13	7373		<IBM> CARDS.=													
						7386		01	610	MSG1	EQU	*				MSG
20	7386		IF I HAD HALF A MIND					01	620		DCW				@IF I HAD HALF A MIND, WAIT I DO, I COULD@	MSG
20	7406		, WAIT I DO, I COULD													
20	7426		USE ANOTHER BK OF G					01	630		DC				@ USE ANOTHER BK OF GRAY MATTER.=@	MSG
12	7446		RAY MATTER.=													
						7458		01	640	MSG2	EQU	*				MSG
20	7458		EVEN MY PARITY IS ODD					01	650		DCW				@EVEN MY PARITY IS ODD.=@	MSG
3	7478		D.=													
						7481		01	660	MSG3	EQU	*				MSG
20	7481		OLD MACDONALD HAD A					01	670		DCW				@OLD MACDONALD HAD A COMPUTER E I/O I/O.=@	MSG
20	7501		COMPUTER E I/O I/O.=													
						7521		01	680	MSG4	EQU	*				MSG
20	7521		MY TRANSISTORS ARE R					01	690		DCW				@MY TRANSISTORS ARE RESISTING.=@	MSG
10	7541		ESISTING.=													
						7551		01	700	MSG5	EQU	*				MSG
20	7551		IF I HAD A HAMMER, A					01	710		DCW				@IF I HAD A HAMMER, AND THE REST OF A@	MSG
16	7571		ND THE REST OF A													
15	7587		LINE PRINTER.=					01	720		DC				@ LINE PRINTER.=@	MSG
						7602		01	730	MSG6	EQU	*				MSG
20	7602		NO LINE PRINTER! I					01	740		DCW				@NO LINE PRINTER! I WILL JUST CONSOLE@	MSG
17	7622		WILL JUST CONSOLE													
9	7639		MYSELF.=					01	750		DC				@ MYSELF.=@	MSG
						7648		01	760	MSG7	EQU	*				MSG
20	7648		MY DISKS ARE STACKED					01	770		DCW				@MY DISKS ARE STACKED AGAINST ME.=@	MSG
13	7668		AGAINST ME.=													
						7101		01	780		END				START	MSG

0 Errors found.

Symbol	Val	Lng	Def	#Rf	<--	Xref	-->
%MSG0	7316	3	18	2	18	40	
%MSG1	7319	3	20	1	20		
%MSG2	7322	3	23	1	23		
%MSG3	7325	3	25	1	25		
%MSG4	7328	3	29	1	29		
%MSG5	7331	3	31	1	31		
%MSG6	7334	3	34	1	34		
%MSG7	7337	3	36	1	36		
0000000007313	8	9	2	9	44		
ADRINC	7303	1	54	1	41		
ADRLIM	7305	2	55	1	42		
AUTO	7253	7	40	1	14		
HALT	7100	1	8	2	13	51	
MSG0	7353	0	59	1	56		

Ct	IAdr	O	AAd	BAd	d	AAdr	BAdr	Pg	L#	Label	Opcd	A/I-AdtAj:X,B-AdtAj:X,d	Comment	
								01	010*	PROGRAM TO USE OFFICE TYPEWRITER BALL TO PRINT CORE DATA				CNSL
	8000							01	020	CTL	4		9K MEMORY	CNSL
	2600							01	050	ORG	2600			CNSL
								01	060*	TWO INPUT FIELDS FOLLOW, DEFAULTS TO INTERNAL TEST STRING				CNSL
3	2600	A00				3100		01	070	ADR	DSA	TSTDAT	START ADR OF DATA	CNSL
4	2603	0045						01	080	LNG	DCW	0045	LENGTH OF DATA	CNSL
								01	090*	TRANSLATE CHARACTER STRING IN BLOCKS OF 100 CHARACTERS				CNSL
7	2607	L	002	786		2602	3086	01	100	START	MLCWA	ADR,WKADR	COPY ADR AND LNG..	CNSL
7	2614	L	006	790		2606	3090	01	110		MLCWA	LNG,WKLNQ	..TO WORK AREA	CNSL
7	2621	L	B25	797		3225	3097	01	120		MLCWA	000000-1,ADRINC	SET ADRINC=0	CNSL
7	2628	Y	B27	790		3227	3090	01	130	NXTPAS	MLZS	010,WKLNQ	CLEAR SIGN BITS	CNSL
7	2635	C	B26	790		3226	3090	01	140		C	000000,WKLNQ	PROCESSED ALL CHAR?	CNSL
5	2642	B	051		/	2651		01	150		BU	005, /	B IF WKLNQ NOT 0	CNSL
4	2647	.	007			2607		01	160		H	START	HALT, PROC DONE	CNSL
7	2651	#	797	786		3097	3086	01	170		MA	ADRINC,WKADR	INC TO NEXT BLOCK	CNSL
7	2658	M	B30	797		3230	3097	01	180		MLC	01000,ADRINC	CHG ADRINC TO 100	CNSL
7	2665	M	786	P40		3086	2740	01	190		MLC	WKADR,GETCHR&3	COPY ADR TO INSTR	CNSL
7	2672	Y	B31	P39		3231	2739	01	200		MLZS	0J0,GETCHR&2	SET BITS FOR X2	CNSL
7	2679	M	786	P50		3086	2750	01	210		MLC	WKADR,TSTWM&6	COPY ADR TO INSTR	CNSL
7	2686	Y	B31	P49		3231	2749	01	220		MLZS	0J0,TSTWM&5	SET BITS FOR X2	CNSL
7	2693	L	B25	094		3225	94	01	230		MLCWA	000000-1,X2	X2 = 0	CNSL
								01	240*	IF LENGTH>100 THEN DO 100 CHARACTERS ELSE DO REST				CNSL
7	2700	C	B35	790		3235	3090	01	250		C	001000,WKLNQ	TEST LENGTH	CNSL
5	2707	B	P23		U	2723		01	260		BH	LIMIT,,U	B IF WKLNQ>100	CNSL
7	2712	L	790	794		3090	3094	01	270		MLCWA	WKLNQ,CNTR	FINISH CHAR STRING	CNSL
4	2719	B	P30			2730		01	280		B	DECLNG		CNSL
7	2723	L	B35	794		3235	3094	01	290	LIMIT	MLEWA	001000,CNTR	SET 100 CHAR LIMIT	CNSL
7	2730	S	794	790		3094	3090	01	300	DECLNG	S	CNTR,WKLNQ	DECR TOTAL COUNT	CNSL
								01	310*	PICK NEXT INPUT CHARACTER VIA INDEX 2				CNSL
7	2737	M	706	798		3086	3098	01	320	GETCHR	MLC	WKADR:2,WKIN	COPY CHR TO WK AREA	CNSL
8	2744	V	P60	706	1	2760	3086	01	330	TSTWM	BW	SETWM,WKADR:2,1	B IF WM	CNSL
4	2752	.	BM4			3244		01	340		CW	OUTPUT:2	CLEAR WM FOR CHAR	CNSL
4	2756	B	P64			2764		01	350		B	CNVRT		CNSL
4	2760	,	BM4			3244		01	360	SETWM	SW	OUTPUT:2	SET WM FOR CHAR	CNSL
								01	370*	CONVERT CHARACTER'S CODE TO OCTAL INDEX VALUE IN INDEX 3				CNSL
7	2764	L	B25	099		3225	99	01	380	CNVRT	MLCWA	000000-1,X3	SET INDEX 3 = 0	CNSL
								01	390*	SET X3 MID DIGIT = BA8, LB DIGIT = 421 OF CHAR CODE				CNSL
								01	400*	TEST BA BITS				CNSL
8	2771	V	023	798	2	2823	3098	01	410		BWZ	CLRZN&7,WKIN,2	B IF BA=00	CNSL
7	2779	M	B36	098		3236	98	01	420		MLC	020,X3-1		CNSL
8	2786	V	016	798	S	2816	3098	01	430		BWZ	CLRZN,WKIN,5	B IF BA=01	CNSL
7	2794	M	B37	098		3237	98	01	440		MLC	040,X3-1		CNSL
8	2801	V	016	798	K	2816	3098	01	450		BWZ	CLRZN,WKIN,K	B IF BA=10	CNSL
7	2809	M	B38	098		3238	98	01	460		MLC	060,X3-1	ELSE BA=11	CNSL
								01	470*	TEST B421 BITS				CNSL
7	2816	Y	B27	798		3227	3098	01	480	CLRZN	MLZS	010,WKIN	SET WKIN BA=00	CNSL
8	2823	B	R99	798		2999	3098	01	490		BCE	XL8,WKIN,	B IF =0000	CNSL
8	2831	B	R92	798	8	2992	3098	01	500		BCE	SETB,WKIN,8	B IF =1000	CNSL
7	2839	M	B27	099		3227	99	01	510		MLC	010,X3	B421=X001?	CNSL
8	2846	B	R99	798	1	2999	3098	01	520		BCE	XL8,WKIN,1	B IF =0001	CNSL
8	2854	B	R92	798	9	2992	3098	01	530		BCE	SETB,WKIN,9	B IF =1001	CNSL
7	2862	M	B36	099		3236	99	01	540		MLC	020,X3	B421=X010?	CNSL
8	2869	B	R99	798	2	2999	3098	01	550		BCE	XL8,WKIN,2	B IF =0010	CNSL
8	2877	B	R92	798	0	2992	3098	01	560		BCE	SETB,WKIN,0	B IF =1010	CNSL
7	2885	M	B39	099		3239	99	01	570		MLC	030,X3	B421=X011?	CNSL
8	2892	B	R99	798	3	2999	3098	01	580		BCE	XL8,WKIN,3	B IF =0011	CNSL
8	2900	B	R92	798	#	2992	3098	01	590		BCE	SETB,WKIN,#	B IF =1011	CNSL

Ct	IAdr	O	AAd	BAd	d	AAdr	BAdr	Pg	L#	Label	Opcd	A/I-AdtAj:X,B-AdtAj:X,d	Comment	
7	2908	M	B37	099		3237	99	01	600		MLC	@4@,X3	8421=X100?	CNSL
8	2915	B	R99	798	4	2999	3098	01	610		BCE	XL8,WKIN,4	B IF =0100	CNSL
8	2923	B	R92	798	@	2992	3098	01	620		BCE	SETB,WKIN,@	B IF =1100	CNSL
7	2931	M	B40	099		3240	99	01	630		MLC	@5@,X3	8421=X101?	CNSL
8	2938	B	R99	798	5	2999	3098	01	640		BCE	XL8,WKIN,5	B IF =0101	CNSL
8	2946	B	R92	798	:	2992	3098	01	650		BCE	SETB,WKIN,:	B IF =1101	CNSL
7	2954	M	B38	099		3238	99	01	660		MLC	@6@,X3	8421=X110?	CNSL
8	2961	B	R99	798	6	2999	3098	01	670		BCE	XL8,WKIN,6	B IF =0110	CNSL
8	2969	B	R92	798	>	2992	3098	01	680		BCE	SETB,WKIN,>	B IF =1110	CNSL
7	2977	M	B41	099		3241	99	01	690		MLC	@7@,X3	8421=X111?	CNSL
8	2984	B	R99	798	7	2999	3098	01	700		BCE	XL8,WKIN,7	B IF =0111 ELSE =1111	CNSL
7	2992	A	B27	098		3227	98	01	710	SETB	A	@1@,X3-1	8421=1XXX	CNSL
													01 720* USE INDEX 3 TO GET CHARACTER CODE FROM TRANSLATE TABLE	CNSL
7	2999	M	AD5	799		3145	3099	01	730	XL8	MLC	XL8TBL:3,WKOUT		CNSL
													01 740* PLACE XL8TBL CHARACTER INTO OUTPUT BUFFER VIA INDEX 2	CNSL
7	3006	M	799	BM4		3099	3244	01	750		MLC	WKOUT,OUTPUT:2		CNSL
7	3013	A	B27	094		3227	94	01	760		A	@1@,X2	INCR CHAR POINTER	CNSL
7	3020	S	B27	794		3227	3094	01	770		S	@1@,CNTR	COUNT A CHARACTER	CNSL
7	3027	Y	B27	794		3227	3094	01	780		MLZ5	@1@,CNTR	CLEAR SIGN BITS	CNSL
7	3034	C	B26	794		3226	3094	01	790		C	@0000@,CNTR	LAST CHR OF PASS?	CNSL
5	3041	B	P37		U	2737		01	800		BH	GETCHR,,U	NO, GET NEXT CHAR	CNSL
													01 810* TYPE TRANSLATED DATA USING OFFICE TYPEWRITER BALL	CNSL
7	3046	L	B43	BM4		3243	3244	01	820		MLCWA	BMWM,OUTPUT:2	TAG ON BMWM CHAR	CNSL
8	3053	L	%T0	B44	W		3244	01	830			L %T0,OUTPUT,W	TYPE OUT CONV DATA	CNSL
7	3061	P	B42	B44		3242	3244	01	840		MRCM	CRLF,OUTPUT	COPY CRLF TO BUFFER	CNSL
4	3068	,	B45			3245		01	850		SW	OUTPUT&1	SET WM ON GROUP MARK	CNSL
8	3072	M	%T0	B44	W		3244	01	860		WCP	%T0,OUTPUT,W	DO CR/LF	CNSL
4	3080	B	028			2628		01	870		B	NXTPAS	GO DO NEXT BLOCK	CNSL
													01 880*	CNSL
3	3084							01	890	WKADR	DS	3	WORK COPY OF ADR	CNSL
4	3087							01	900	WKLNG	DS	4	WORK COPY OF LNG	CNSL
4	3091							01	910	CNTR	DS	4	CHARACTER COUNTER	CNSL
3	3095							01	920	ADRINC	DS	3	BLOCK INCR FOR ADR	CNSL
1	3098							01	930	WKIN	DCW	@ @	CHAR FROM INPUT	CNSL
1	3099							02	010	WKOUT	DCW	@ @	CHAR FROM XL8TBL	CNSL
													02 020*	CNSL
													02 030 TSTDAT EQU #	CNSL
20	3100		0123456789	ABCDEFGHIJ				02	040	DCW	@0123456789ABCDEFGHIJKLMNPQRSTUVWXYZ@		START OF TEST DATA	CNSL
16	3120		KLMNOPQRST	UVWXYZ										CNSL
9	3136	:	;, &-*/%.					02	050	DC	@:;, &-*/%.			CNSL
													02 060 EQU #-TSTDAT	CNSL
													TEST DATA LENGTH	CNSL
													02 070*	CNSL
													02 080* CHARACTER TRANSLATION TABLE	CNSL
													02 090* INPUT (AS OCTAL INDEX): 1440 BCD CHARACTER CODE	CNSL
													02 100* OUTPUT: 123 TYPE BALL CHAR CODE FOR DESIRED 1440 CHARACTER	CNSL
													02 110 XL8TBL EQU #	CNSL
20	3145	<	1238465..7#9J\=%&..					02	120	DC	@<1238465..7#9J\=%&..@	BA=00		CNSL
20	3165	-HR:TL#/.	..I0^6:M! ..					02	130	DC	@-HR:TL#/. ..I0^6:M! ..@	BA=01 B2=DELTA		CNSL
20	3185	.?WYJSQD..FN6J>[E;..						02	140	DC	@.?WYJSQD..FN6J>[E;..@	BA=10 B2=/B		CNSL
18	3205	@P,XVUCA..Z0*KB#H~						02	150	DC	@ @P,XVUCA..Z0*KB#H~@	BA=11 =@ B4=6M 842=LZ6M		CNSL
													02 160*	CNSL
													8421=BIRD	CNSL
													02 170	CNSL
													LTOBG	CNSL
4	3223	0000									DCW	0000		CNSL
1	3227	1									DCW	1		CNSL
3	3228	100									DCW	100		CNSL
1	3231	J									DCW	@J@		CNSL
4	3232	0100									DCW	0100		CNSL

