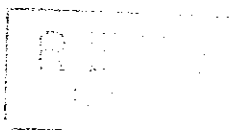


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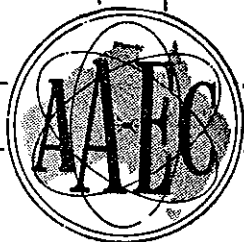
AUSTRALIAN ATOMIC ENERGY COMMISSION
RESEARCH ESTABLISHMENT
LUCAS HEIGHTS

DESIGN OF CONCENTRIC TUBULAR REACTOR FUEL
ELEMENTS FOR UNIFORM COOLANT CONDITIONS

by

IAN M. BINNS
R. LICCIARDO

Issued Sydney, June 1962



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ABSTRACT

Concentric tubular reactor fuel element geometries to give equal coolant outlet temperatures are presented. Oscillations from tube to tube in thickness and temperatures generally occur but it is possible to eliminate them by choice of the centre element. This may be a fuel rod or a non-heat-producing rod with or without a surrounding annulus of fuel. The geometries and temperatures are dependent on the voidage and on a non-dimensional parameter equivalent to a Biot number based on the channel equivalent diameter.

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1. INTRODUCTION

One of the difficulties associated with computer programmes assembled in a fixed part of core storage is that major modifications to a programme usually necessitate a complete re-assembly with re-testing of the programme.

With relocatable assemblies, this is not so. Internal references within any one section or subroutine are adjusted on loading, depending on the current location of the subroutine in storage. External references present a problem, since the locations of other subroutines may not be known until all loading has been completed. The indirect addressing feature available on the I.B.M. 1620 computer can be used to overcome this problem. No restriction is placed on the degree of cross-referencing allowable.

The minimum requirement is a 40K I.B.M. 1620 card computer, with indirect addressing.

2. ASSEMBLY SYSTEMS

A computer programme assembly system provides a means for translating a programmer's instructions into a language directly acceptable to the computer. One such assembly system is the Symbolic Programming System (SPS) developed by I.B.M. for their 1620 computer*.

Machine language instructions are allotted mnemonics, and reference points within a programme are given labels. On assembly, the mnemonics used are replaced by the corresponding machine language instructions, and references to labels by appropriate numerical values normally determined by the assembler.

In addition to machine language instructions, certain special instructions called pseudo-instructions are available in mnemonic form for use with the assembler. These pseudo-instructions provide for such matters as telling the assembler where the start of a particular assembly should be located in storage, and when the end of an assembly has been reached. Pseudo-instructions are also used to reserve working areas and to specify constant data required in a programme.

Another important use for pseudo-instructions is the specification of a group of machine language instructions by a single pseudo-instruction. Such pseudo-instructions are called macro instructions. Macro instructions simplify the linking together of subroutines within a programme.

3. DISADVANTAGES OF AN ABSOLUTE ASSEMBLER

When preparing programmes for a computer, it is usually desirable to be able to assemble and to test separately the various component sections (subroutines) of each programme. This is especially so with large programmes, and with subroutines that may be used in more than one programme. The standard SPS compiler for the 1620* does not readily permit this, for two reasons.

First, programmes are assembled into locations that are fixed once and for all at the time of assembly. It is difficult to know in advance just how much room to reserve for any given programme, especially when allowance must be made for possible corrections and modifications at a later date.

Second, apart from the ability to refer to a few "built in" subroutines such as floating addition and subtraction, no provision is made for cross-referencing subroutines not assembled together.

These difficulties may be overcome by a relocatable assembler.

4. THE RELOCATABLE ASSEMBLER

The basic property of a relocatable assembler, implied in its name, is that subroutines assembled by it may be located in varying positions of storage to fit in with other subroutines which may already be present in storage.

* I.B.M. publication J28--4201-1 May 1960

The relocatable assembler described in this report achieves this by marking those quantities within a subroutine whose values depend on the actual position in storage of the subroutine. A separate loading programme recognizes these marks, and makes the necessary adjustments as the subroutines are read into the computer.

The cross-referencing problem is more difficult. Since the location in storage of any one of a group of subroutines is not known until that subroutine is actually loaded into storage, any reference to this subroutine cannot be satisfied until after this subroutine has started loading. This problem has been overcome as follows, using the indirect addressing feature available on the 1620.

A list of all the external references from a subroutine is made during the assembly of that particular subroutine repeated references being counted once only. Title cards are produced by the assembler, containing the name by which the subroutine will be referred to, and also the list of external references for that subroutine. Five digit locations are reserved by the assembler at the start of the subroutine for each external reference from the subroutine. Indirect addressing is used with these reference locations to link various subroutines together. As each subroutine is loaded into the computer, these title cards provide the loader with the information needed to enable it to remember these reserved locations and to fill them in with the actual positions of the various subroutines referred to as these become available.

The assembly process is fundamentally a two pass process. During the first pass, an ordered list is prepared of the reference points within a subroutine, a search is made for any external references used, and the storage requirements of the subroutine are determined. Allowance is made for the external reference requirements in front of the subroutine. Title cards, containing the first subroutine label, the subroutine size, and the external references used, are punched at the end of the first pass.

During the second pass, all symbolic addresses are "looked up" in the ordered tables produced from the first pass, and the assembled subroutine is punched onto cards. Addresses whose values relate to the position of the subroutine in storage are marked with a flagged record mark on the output cards and an asterisk on the printed listing which may be produced if desired. If there is more than one possible subroutine entry point, each additional entry point produces a special card, called a Syn card, in the output deck of cards. An overall compression of about four to one is achieved during assembly.

External references, both to and from a subroutine, are marked by adding a special character -- the dollar character -- to the end of each such reference label or symbol.

5. THE CONCEPT OF A NEXT SUBROUTINE

The concept of a "next subroutine" has been introduced. Subroutines, when loaded together into a computer, are necessarily loaded in some sequence. The "next subroutine" in any programme is then that subroutine immediately following in the loading sequence. In the same way that references within any one subroutine may be either absolute or relocatable, so external references from a subroutine may be either fixed (labelled), or relative (next subroutine).

A dollar sign by itself in an address field is used to refer to the next subroutine; reference is made to the first dollar reference point within that next subroutine, whichever subroutine that might be. A dollar sign may also be used by itself to label the first dollar reference point within any subroutine.

One application of this concept is to the development of interpretive systems such as I.B.M. Fortran. These systems use statements which are ordered, but not necessarily separately labelled. Each statement would then correspond to a subroutine, and the next such statement would correspond to the next subroutine.

6. CONCLUSIONS

A system has been developed, applicable to an I.B.M. 1620 computer, which will enable each section of a computer programme to be assembled and tested separately, the separate assemblies finally being loaded together and run as a single programme.

The concept of a "next subroutine" has been introduced, and its applications to interpretive schemes such as Fortran have been shown.

7. ACKNOWLEDGMENT

The author wishes to express his appreciation to Mr. J.P. Pollard and Mr. E.E. Jansen for many helpful discussions and for the preparation of the standard subroutines needed for use with the relocatable assembler.

APPENDIX A

SYMBOLS, LABELS, AND EXPRESSIONS

A symbol is a group of characters, used for reference purposes, conforming to one of the following.

- (i) Any group of from one to six digits or letters, containing at least one letter.
- (ii) An asterisk by itself.
- (iii) Any group satisfying (i), with a dollar character added at the end.
- (iv) Any group of from one to six digits, with a dollar character added at the end.
- (v) A dollar character by itself.

A symbol satisfying one of (iii), (iv), or (v) is called a dollar symbol, dollar symbols of class (v) sometimes being called blank dollar symbols.

An asterisk symbol is used for local references within a programme.

A label is a symbol, used to mark a reference point in a programme. Any symbol of six characters or less, other than an asterisk symbol, may be used as a label.

Two attributes are associated with each symbol; a type and a value. Symbols may be either absolute or relocatable in type and may possess up to five digit integers as values. All values are taken modulo core storage size. For definiteness, the value of a relocatable symbol is taken to be the value that would be allotted to it if the subroutine containing it were to be loaded into the computer starting at location zero.

Absolute symbols are restricted to be symbols of class (i).

An expression is either

- (a) a collection of integers of six digits or less and non-dollar symbols, each separated by a single character +, -, or * and possibly commencing with a + or - character, or
- (b) a dollar symbol by itself.

Expressions may be absolute, relocatable, or illegal. Class (b) expressions are always relocatable. The nature of a class (a) expression may be determined by the following rule:

Consider those groups of symbols and integers within the expression joined solely by asterisks. If more than one relocatable symbol occurs in any one such group, the whole expression is illegal. If not, ignore absolute symbols and integers when neither is in a group, and also ignore those groups containing only absolute symbols and integers. Elsewhere, replace all absolute symbols by their known values, and all relocatable symbols by the value unity. Combine the resulting numbers remaining in the expression by the rules of arithmetic, a connecting asterisk denoting multiplication. If the resulting number is zero, the expression is absolute. If it is unity, the expression is relocatable. If it is any other value, the expression is illegal.

The value of an expression is not defined if it is an illegal expression, but is otherwise obtained by replacing all symbols by their known values, and combining the resultant expression by the rules of arithmetic. The result is taken modulo core storage size. A connecting asterisk denotes multiplication. The rules of formation of an expression avoid any confusion between symbol asterisks and multiplication asterisks.

APPENDIX B

PROGRAMME CARD PREPARATION

Instructions and pseudo operations are punched, one per card, in the following form.

cols. 1 - 5 Card identification, or blank

cols. 6 - 11 A reference label, or blank

cols. 12 - 15 Instruction or pseudo-operation

cols. 16 - 75 Address on operand fields, separated by commas.

Cards containing an asterisk in column six may be used as comments cards. Such cards are not processed, but are included in any typed listing produced.

Each machine instruction listed in Appendix C may have associated with it up to four operands and a label. Each of the first two operands may be either absolute or relocatable. A symbol asterisk used with either of these two operands refers to the first digit position of the instruction. The third operand specifies any flag requirements. The twelve instruction digit positions are numbered from 0 to 11, these numbers then being used to specify the flag requirements. For example the combination 6711 would specify flags over positions 6, 7, and 11. The fourth operand is purely for comments, being simply reproduced on any typed listing. Operands may be omitted; but the appropriate number of commas must be inserted if later operands, such as comments, are used. Labels refer to instruction position 0.

If no flags are specified, "immediate" instructions, apart from TDM, have a flag automatically inserted over position seven of the instruction.

Pseudo-operation operands are discussed individually in Appendix D.

APPENDIX C

INSTRUCTION MNEMONICS

The following is a list of the instruction mnemonics available, together with their equivalent machine codes and interpretations.

A	21	Add
AM	11	Add Immediate
B	49	Branch
BA	46	Branch Any Latch On †
BB	42	Branch Back
BC1	46	Branch Console Switch One On †
BC2	46	Branch Console Switch Two On †
BC3	46	Branch Console Switch Three On †
BC4	46	Branch Console Switch Four On †
BD	43	Branch on Digit
BE	46	Branch Equal †
BH	46	Branch High †
BI	46	Branch Indicator *
BL	47	Branch Low †
BLC	46	Branch Last Card †
BN	47	Branch Negative †
BNA	47	Branch Any Latch Off †
BNC1	47	Branch Console Switch One Off †
BNC2	47	Branch Console Switch Two Off †
BNC3	47	Branch Console Switch Three Off †
BNC4	47	Branch Console Switch Four Off †
BNE	47	Branch Not Equal †
BNF	44	Branch No Flag
BNH	47	Branch Not High †
BNI	47	Branch No Indicator *
BNL	46	Branch Not Low †
BNLC	47	Branch Not Last Card †
BNN	46	Branch Not Negative †
BNP	47	Branch Not Positive †
BNR	45	Branch No Record Mark
BNV	47	Branch No Overflow †
BNZ	47	Branch Not Zero †
BP	46	Branch Positive †
BT	27	Branch and Transmit
BTM	17	Branch and Transmit Immediate
BV	46	Branch on Overflow †
BZ	46	Branch Zero †
C	24	Compare
CF	33	Clear Flag
CM	14	Compare Immediate
D	29	Divide
DM	19	Divide Immediate
DN	35	Dump Numerically *
DNCD	35	Dump Numerically Cards †
DNPT	35	Dump Numerically Paper Tape †
DNTY	35	Dump Numerically Typewriter †
H	48	Halt
K	34	Controle **
LD	28	Load Dividend
LDM	18	Load Dividend Immediate

APPENDIX C (continued)

M	23	Multiply
MF	71	Move Flag
MM	13	Multiply Immediate
NOP	41	No Operation
RA	37	Read Alphamerically *
RACD	37	Read Alphamerically Card ‡
RAPT	37	Read Alphamerically Paper Tape ‡
RATY	37	Read Alphamerically Typewriter ‡
RCTY	34	Return Carriage Typewriter**
RN	36	Read Numerically *
RNCD	36	Read Numerically Card ‡
RNPT	36	Read Numerically Paper Tape ‡
RNTY	36	Read Numerically Typewriter ‡
S	22	Subtract
SF	32	Set Flag
SM	12	Subtract Immediate
SPTY	34	Space Typewriter ‡
TBTY	34	Tabulate Typewriter ‡
TD	25	Transmit Digit
TDM	15	Transmit Digit Immediate
TF	26	Transmit Field
TFM	16	Transmit Field Immediate
TNF	73	Transfer Numerical Fill
TNS	72	Transfer Numerical Strip
TR	31	Transmit Record
WA	39	Write Alphamerically *
WACD	39	Write Alphamerically Card ‡
WAPT	39	Write Alphamerically Paper Tape ‡
WATY	39	Write Alphamerically Typewriter ‡
WN	38	Write Numerically *
WNCD	38	Write Numerically Card ‡
WNPT	38	Write Numerically Paper Tape
WNTY	38	Write Numerically Typewriter

‡ The required instruction modifiers are inserted by the assembler. If a second operand is specified, positions 8, 9, and 11 of this specification will be overwritten by the processor and the resultant operand will be taken to be an absolute expression.

* Modifiers in instruction positions 8 and 9 are required.

** Modifiers in instruction positions 8, 9, and 11 are required.

APPENDIX D (continued)

If an @ is present, the right hand data field digit will be a record mark. If the value of the first operand exceeds the number of digits specified (including any @ character), zeros will be supplied to the left of the specified digits. A flag will be placed over the left hand zero or digit position of the data field if two or more digit positions are specified. If a minus sign is present in the second operand, a flag will be placed over the right-most numerical digit of the data field.

The third operand may be used to specify the location of the right hand digit of the data field defined by the DC card. If specified, this operand may be either an absolute or a relocatable non-dollar expression; and any label present will assume the value and type of this expression. If the third operand is blank, the data will be located by the processor, any label present then being relocatable and referring to the right hand digit of the data field.

DEND Define End

The last card of any assembly must be a DEND card. The DEND card may also be used to indicate the starting point of a programme.

A DEND card may contain two operands, the second operand being for comments. If the first operand is blank, no starting point is indicated and no transfer set card is produced (see Appendix G). If the first operand is not blank, it must be a relocatable expression. If it is a non-dollar expression, it may refer to any reference point within the assembly containing the DEND card as a programme starting point. If it is a dollar expression, an external reference point is indicated as a programme starting point. An appropriate transfer set card is produced in either case.

DIN Define Instruction

This pseudo-operation is used to define additional instruction mnemonics. The desired instruction mnemonic is punched in card columns 6 to 9, and a five digit integer code in card columns 16 to 20. The first two digits of this code give the required two digit machine operation code. If no instruction modifiers are required, the fourth code digit is a zero. In this case, the fifth code digit is arbitrary, the third code digit being used to specify whether or not a flag should be assembled over the seventh instruction position in the absence of a flag operand when using the defined instruction mnemonic. A flag is set if this third code digit is non-zero, the fourth code digit being zero.

If instruction modifiers are required, the fourth code digit is non-zero. The third, fourth, and fifth code digits then specify the eighth, ninth, and eleventh instruction position modifiers respectively.

DIN cards must precede cards using mnemonics defined by them. Once defined, a mnemonic may not be re-defined without re-loading the processor. Care should therefore be taken not to duplicate DIN cards when preparing multiple assemblies.

DMAC Define Macro Instruction

This pseudo-operation is used to specify macro instructions. The desired macro instruction is punched in card columns 6 to 9. No other specification is needed.

When using a defined macro instruction in a programme up to ten operands may be specified. Each operand may be any absolute or relocatable expression. No comments are permitted, and no comma should appear after the last operand.

The linkage generated by the macro instruction

	LABEL	SUBR	A, B, , Z	for example,
is	LABEL	BTM	SUBR \$, * + 12	
		DSA	* + α , A, B, , Z	
		DC	1, @	

where α has the value $5(N + 1) + 2$ if N is even,
or $5(N + 1) + 3$ if N is odd, N being the number of operands present.

APPENDIX E

USING THE RELOCATABLE ASSEMBLER

Load the relocatable assembler card deck. If a printed listing is desired, set the typewriter margins to the extreme left and extreme right positions, and set the tabulate stops to positions 51 and 66.

A succession of programme card decks may be assembled, the last card of each deck being a DEND card.

Two versions of the relocatable assembler are available; a one pass version for subroutines of up to about 500 cards, and a two pass version for longer assemblies. The one pass version stores compressed card images for use during the two assembly passes. Each version is readily adaptable to either a 40 K or a 60 K machine.

APPENDIX F

ERROR MESSAGES

Error messages are printed out, together with the contents of the card in error, whether or not a printed listing has been requested.

The following error messages may occur

TOO MANY DIGITS
INVALID FIELD LENGTH
PROGRAMME CARD ERROR
COMMA MISSING
ILLEGAL CHARACTER
ILLEGAL LABEL
OPERAND ERROR
ILLEGAL OPERATION
LABEL PREVIOUSLY DEFINED
SYMBOL TABLE FULL
PHASE ERROR
UNDEFINED SYMBOL
RELOCATION ERROR

These error messages are, for the most part, self explanatory. A phase error will arise if any label has changed its value or type between the two assembly passes.

APPENDIX G

OUTPUT CARD FORMATS

Output cards of the following formats may be produced by the relocatable assembler or are acceptable to the loader.

TITLE CARDS

Col 1 zero
Cols 2-6 relocatable label value. Col 2 flagged
Cols 7-18 right justified alphameric label representation, or zeros. Col 7 flagged
Col 19 record mark
Cols 20-24 total number of digits in subroutine. Col 20 flagged
Cols 25-26 number of external references. Col 25 flagged
Cols 27-28 zeros. Col 27 flagged
Cols 29-76 up to four twelve digit right justified external references, the left hand end digits being flagged
Cols 77-80 serial number, col 77 flagged

TITLE CONTINUATION CARDS

Col 1 zero
Col 19 flagged record mark
Cols 27-28 two digit serial number, col 27 flagged
Cols 29-76 up to four twelve digit external references, the left hand end digits being flagged
Cols 77-80 serial number, col 77 flagged

PROGRAMME CARDS

Col 1 flagged record mark
Cols 2-6 relocatable or absolute value of first digit, col 2 flagged
Absolute values denoted by a flag on col 6
Cols 7-8 number of card digits after col 8. Col 7 flagged
Cols 9-76 up to 68 digits, including relocatable marker (flagged record mark) following each relocatable 5 digit field
Cols 77-80 serial number, col 77 flagged

DIGIT DEFINITION CARDS

Col 1 record mark
Cols 2-6 relocatable or absolute value of first digit. Col 2 flagged
Absolute values denoted by a flag on col 6
Col 7 flagged or un-flagged record mark
Col 8 a digit
Cols 9-13 a count, N. Col 9 flagged
Cols 77-80 serial number, col 77 flagged

The digit from col 8 is taken, with or without a flag depending on whether the record mark in column 7 is flagged or unflagged, and repeated N times, starting in the location indicated by cols 2-6.

SYN CARDS

Col 1 a non-zero integer
Cols 2-6 relocatable label value. Col 2 flagged
Cols 7-18 alphameric label representation. Col 7 flagged
Col 19 record mark
Cols 77-80 serial number, col 77 flagged

APPENDIX G (continued)

TRANSFER SET CARDS

Col 1 record mark
Cols 2-6 used only if label zero, then giving desired relocatable starting location. Col 2
flagged
Cols 7-18 zeros, or external reference label at which programme is to be entered.
Col 7 flagged
Col 19 record mark
Cols 77-80 serial number, col 77 flagged

TRANSFER CARD

Col 1 no record mark
Col 3 no record
Col 19 no record mark

A blank card will suffice.

SYMBOL TABLE CARDS

Col 1 no record mark
Col 3 record mark
Col 4 unflagged zero if any symbols present on card
record mark if no symbol on card
Cols 5-9 absolute value of first symbol on card. Col 5 flagged
Cols 10-21 first symbol, right justified. Col 10 flagged
Col 22 unflagged zero if more than one symbol on card
record mark if only one symbol on card
Cols 23-27 absolute value of second symbol on card. Col 23 flagged etc.
Col 76 record mark if four symbols on card
Cols 77-80 serial number, col 77 flagged

APPENDIX II

USING THE PROGRAMME LOADER

The programme loader is first loaded into core storage, followed in any order by the programmes and subroutines to be loaded. Finally, a single blank card is loaded.

If all necessary subroutines have been included in the loading, the message LOAD DATA will be typed. The programme is then ready to run.

If any necessary subroutines have been omitted, a list of these will be typed out. The missing subroutines may then be loaded, followed by a further blank card.

Should any subroutine or reference label be duplicated, the duplicated label will be listed. The subroutine will be loaded; but only the first occurring label will be used for reference.

Symbol table cards, and one following card, are ignored by the loader.

APPENDIX J

A SAMPLE LISTING

The following listing of a subroutine for evaluating the functions SINH and COSH illustrates subroutine linkages and external reference labelling.

*FSNH AND FCSH SUBROUTINE. DATA IN B, RESULT IN A. FLOATING POINT

*REQUIRES FEX,FA,FD,FM

CALLING SEQUENCE BTM FSNH\$,+12 OR BTM FCSH\$,*+12

* DSA *+17,A,B DSA *+17,A,B

* DC 1,@ DC 1,@

FEX DMAC
FA DMAC
FD DMAC
FM DMAC

DS 5 00024 00005

FSNH\$ TR FSC2+2,*-1,11, FSNH ENTRY POINT 00026 31 00236*00025*

TDM FSC1+1,2 00038 15 00155*00002

B FCSH+24 00050 49 00086*00000

FCSH\$ TR FSC2+2,*-1,11, FCSH ENTRY POINT 00062 31 00236*00061*

TDM FSC1+1,3 00074 15 00155*00003

TF FSC1A,FSC2+16,11 00086 26 00261*00250*

FEX FSC1A,FSC1A

00098 17 00019*00110*

00114 00015 00126*00261*00261*

00125 00001 ‡

FD FSC1C,FSC1A

00126 17 00009*00138*

00142 00015 00154*00271*00261*

00153 00001 ‡

FSC1 SF 99,,, CF FOR FCSH

00154 32 00099 00000

FA FSC1A,99

00166 17 00004*00178*

00182 00015 00194*00261*00099

00193 00001 ‡

FM FSC1A,FSC2C

00194 17 00014*00206*

00210 00015 00222*00261*00281*

00221 00001 ‡

FSC2 TF FSC2+11,99,6

00222 26 00245*00099

B

00234 49 00000 00000

DS 6

00251 00006

FSC1A DS 10

00261 00010

FSC1C DC 10,5110000000

00271 00010 5110000000

FSC2C DC 10,5050000000

00281 00010 5050000000

DEND

END OF PASS 2

APPENDIX K

THE RELOCATABLE ASSEMBLER

A listing of the one-pass version of the relocatable assembler is given. To convert to a two pass assembler, omit cards 2118 to 2182. To adapt to other machine sizes, change card 1301 appropriately.

The standard SPS processor was modified to assemble DC 1, 0 as an unflagged zero digit.

THE RELOCATABLE ASSEMBLER

0001	DORG 402,	00402		
0002	SET TFM RTA1C,RTAIT,,	SET SYMBOL TABLE		
		00402	16	18215 K2882
0003	TDM RTB1F,0,,	00414	15	23059 00000
0004	TFM DTA1C,DTAIT,,	SET DOLLAR TABLE		
		00426	16	09666 J0866
0005	TDM DTB1F,0,,	00438	15	11057 00000
0006	TFM DTB1N,0,10,	SET DOLLAR COUNTER		
		00450	16	11056 000+0
0007	TR PTC4R,SET1A,,	SET TITLE LABEL		
		00462	31	17874 00709
0008	TFM LPA1V,0,8,	CLEAR LPA INDICATORS		
		00474	16	16286 0+000
0009	TFM ILC,99999,,	SET ILC		
		00486	16	16282 R9999
0010	TD RCT,SET2A,,	SET RM IN RCT		
		00498	25	16297 00727
0011	TDM CPR1E,0,,	CLEAR CPR ENTRY INDICATOR		
		00510	15	02398 00000
0012	TFM CPR3T,1,8,	SET CARD COUNTER		
		00522	16	02404 0+001
0013	TDM LPA1S,0,,	CARD PRINTING INDICATOR		
		00534	15	15315 00000
0014	RCTY	00546	34	00000 00102
0015	BTM LPA ,*+12,,	DO ASSEMBLY		
		00558	17	15100 +0570
0016	BD SET2 ,LPA1X	00570	43	00678 16284
0017	SET1 RCTY,,,	00582	34	00000 00102
0018	WATY SET1F,,,	00594	39	00651 00100
0019	RCTY	00606	34	00000 00102
0020	RCTY	00618	34	00000 00102
0021	H	00630	48	00000 00000
0022	B SET	00642	49	00402 00000
0023	DORG *-3	00650		
0024	SET1F DAC 14,END OF PASS 2@,,	00651		00014
0025	SET2 RCTY	00678	34	00000 00102
0026	WATYSET3A	00690	39	00729 00100
0027	B SET1	00702	49	00582 00000
0028	DORG *-4	00709		
0029	SET1A DC 1,0,,	00709		00001
0030	DC 5,0,,	00714		00005
0031	DC 12,0,,	00726		00012
0032	SET2A DC 1,@,,	00727		00001
0033	SET3A DAC 15,ASSEMBLY ERROR@,,	00729		00015
0034	RCD DAS 80,,	00759		00080
0035	DORG RCD-1	00758		
0036	H ,,0410,	00758	M8	00+00 000+0
0037	H ,,0246810,	00770	M8	+0+0+ 0+0+0
0038	H ,,6810,	00782	48	0000+ 0+0+0
0039	H ,,0246810,	00794	M8	+0+0+ 0+0+0
0040	H ,,0246810,	00806	M8	+0+0+ 0+0+0
0041	H ,,0246810,	00818	M8	+0+0+ 0+0+0
0042	H ,,0246810,	00830	M8	+0+0+ 0+0+0
0043	H ,,0246810,	00842	M8	+0+0+ 0+0+0
0044	H ,,0246810,	00854	M8	+0+0+ 0+0+0
0045	H ,,0246810,	00866	M8	+0+0+ 0+0+0

0046	H	,,0246810,	00878	M8	+0+0+	0+0+0
0047	H	,,0246810,	00890	M8	+0+0+	0+0+0
0048	H	,,0246810,	00902	M8	+0+0+	0+0+0
0049	H	,,0246810,	00914	M8	+0+0+	0+0+0
0050	H	,,0246810,	00926	M8	+0+0+	0+0+0
0051	DAC	1,@	00939		00001	
0052	DS	5.	00944		00005	
0053	ARS	TF ARS1S,EVACS,,	00946	26	01155	13556
0054		SF ARS1S,,,	00958	32	01155	00000
0055		TFM ARS1E,RTA1T-13,,	00970	16	01017	K2869
0056	ARS1	C RTA1C,ARS1E,,	00982	24	18215	01017
0057		BH ARS-1,,6,	00994	46	0094N	01100
0058		BNF ARS2 ,,,	01006	44	01126	00000
0059	ARS1E	DS ,*,	01017		00000	
0060		S ARS1E,99,6,	01018	22	0101P	00099
0061		C - ARS1S,ARS1E,11,	01030	24	01155	0101P
0062		BL ARS2 ,,,	01042	47	01126	01300
0063		TF ARS1V,ARS1E,11,	01054	26	01161	0101P
0064		CF ARS1V-4,,,	01066	33	01157	00000
0065		TDM ARS1V-5,0,11,	01078	15	01156	0000+
0066		S ARS1V,ARS1S,,	01090	22	01161	01155
0067		SF ARS1V-4,,,	01102	32	01157	00000
0068		TF ARS1E,ARS1V,6,	01114	26	0101P	01161
0069	ARS2	SM ARS1E,18,10,	01126	12	01017	000J8
0070		B ARS1 ,,,	01138	49	00982	00000
0071	ARS1S	DS 6,,	01155		00006	
0072	ARS1V	DS 6,,	01161		00006	
0073	AST	BD AST8,LPA2T	01162	43	01518	16283
0074	AST9	TDM LPA1P,1,,	01174	15	16285	00001
0075	AST11	TDM SMB1T,,,	01186	15	24853	00000
0076		DC 1,@,*,	01197		00001	
0077	AST1	RNCDCPR4R,,,	01198	36	02519	00500
0078		BNR LPA ,CPR4R+2,,	01210	45	15100	02521
0079		BD AST1 ,LPA2T,,	01222	43	01198	16283
0080		BNR AST2 ,CPR4R+3,,	01234	45	01258	02522
0081		B AST1 ,,,	01246	49	01198	00000
0082	AST1L	DS ,*,	01257		00000	
0083	AST2	TFM AST1E,CPR4R+3,,	01258	16	01305	+2522
0084	AST3	TF AST1L,AST1E,,	01270	26	01257	01305
0085		AM AST1E,18,10,	01282	11	01305	000J8
0086		TD AST1T ,,,	01294	25	01315	00000
0087	AST1E	DS ,*,	01305		00000	
0088		TDM AST1E,,6,	01306	15	0130N	00000
0089	AST1T	DS ,*-2	01315		00000	
0090		DC 1,@,*,	01317		00001	
0091		TDM AST1L,0,6,	01318	15	0125P	00000
0092		TDM SMB2S,0,,	01330	15	24852	00000
0093		TR SMB1R,AST1L,11,	01342	31	24834	0125P
0094		BNR AST4 ,SMB2S,,	01354	45	01542	24852
0095		TDM SMB2S,0,,	01366	15	24852	00000
0097		SF SMB1R+1,,,	01390	32	24835	00000
0098		CF SMB1V ,,,	01402	33	24839	00000
0099		TDM SMB1R,0,,	01414	15	24834	00000
0100		BTM RTA ,*+12,,	01426	17	17960	+1438
0101		BD AST6 ,RTA1S,,	01438	43	01566	18273
0102		BTM RTB ,*+12,,	01450	17	22888	+1462
0103		BD AST7 ,RTB1F,,	01462	43	01590	23059

0104	AST5	CM	AST1L,CPR4R+57,,	01474	14	01257	+2576	
0105		BNL	AST1 ,,,	01486	46	01198	01300	
0106		BNR	AST3 ,AST1T,,	01498	45	01270	01315	
0107		B	AST1 ,,,	01510	49	01198	00000	
0108		DORG	*-3 ,	01518				
0109	AST8	BD	AST9,LPA1S,,	01518	43	01174	15315	
0110		BTM	CDP,AST11,,	01530	17	01620	+1186	
0111	AST4	WATYSMB1S+1,,,		01542	39	24841	00100	
0112		BTM	SCP ,AST5,,	01554	17	11576	+1474	
0113	AST6	WATYSMB1S+1,,,		01566	39	24841	00100	
0114		BTM	LLP ,AST5,,	01578	17	11824	+1474	
0115	AST7	WATYSMB1S+1,,,		01590	39	24841	00100	
0116		BTM	LLE ,AST1,,	01602	17	11904	+1198	
0117		DS	5,,	01618		00005		
0118	CDP	BD	CDP-1,LPA1P,6,	EXIT IF ALREADY PRINTED				
				01620	43	0161R	16285	
0119		WATYCDP3S,,,		01632	39	01765	00100	
0120		SPTY		01644	34	00000	00101	
0121		WATYRCD+10,,,		01656	39	00769	00100	
0122		SPTY		01668	34	00000	00101	
0123		WATYCTA4S,,,		01680	39	02873	00100	
0124		SPTY		01692	34	00000	00101	
0125		WATYRCD+30,,,		01704	39	00789	00100	
0126		TDM	LPA1P,1,,	01716	15	16285	00001	
0127		BD	CDP-1;CDP1P,6,	01728	43	0161R	01763	
0128		RCTY	,,,	01740	34	00000	00102	
0129		B	CDP-1,,6,	01752	49	0161R	00000	
0130	CDP1P	DS	,*,	01763		00000		
0131	CDP3S	DAS	3	01765		00003		
0132		DC	2,@,,	01771		00002		
0133		DS	5,,	01776		00005		
0134	CPR	TFM	CPR3E,CPR4R,,	RESET DIGIT EXTRACT COUNTER				
				01778	16	02421	+2519	
0135		BD	CPR1 ,CPR1E,,	BRANCH IF NOT FIRST ENTRY				
				01790	43	01858	02398	
0136		TDM	CPR1P,1,,	01802	15	02399	00001	
0137		TD	CPR2R,CPR3R,,	SET STARTING RM				
				01814	25	02437	02406	
0138		SF	CPR2R,,,	AND FLAG IT				
				01826	32	02437	00000	
0139		TDM	CPR1E,1,,	SET ENTRY INDICATOR				
				01838	15	02398	00001	
0140		B	CPR14,,,	01850	49	02350	00000	
0141		DORG	*-3	01858				
0142	CPR1	CM	CPR3D,68,10,	CHECK LENGTH				
				01858	14	02416	00008	
0143		BNH	CPR2,,,	01870	47	01906	01100	
0144		TFM	CPR3D,0,10,	CLEAR DIGITS CURRENT COUNTER				
				01882	16	02416	000+0	
0145		BTM	TMP,CPR9,,	ERROR PRINT (TOO MANY DIGITS)				
				01894	17	11312	+2206	
0146	CPR2	BD	CPR9 ,CPR1P,,	BRANCH FOR POSSIBLE PUNCH OUT				
				01906	43	02206	02399	
0147		TF	CPR3W,CPR3D,,	01918	26	02436	02416	
0148		SF	CPR3D-1,,,	TWO DIGIT FIELD				
				01930	32	02415	00000	
0149		A	CPR3W,CPR2D,,	01942	21	02436	02444	
0150		CM	CPR3W,68,10,	01954	14	02436	00008	
0151		BH	CPR11,,,	01966	46	02218	01100	

0152 CM CPR3D,0,10,
0153 BE CPR-1,,6,

0154 BH CPR3 ,,,
0155 TFM CPR3D,0,10,
0156 BTM FLP,CPR9,,,

0157 CPR3 TF CPR3C,CPR3S,,

0158 CPR4 BD CPR7 ,CPR1R,,

0159 CPR5 TD CPR3S,CPR3E,611,

0160 AM CPR3S,1,10,

0161 CPR6 AM CPR3E,1,10,

0162 SM CPR3D,1,10,

0163 BH CPR4,,,

0164 B CPR8
0165 DORG *-3
0166 CPR7 BNR CPR5,CPR3E,11,

0167 BNF CPR6,CPR3E,11,
0168 B CPR5,,,

0169 DORG *-3
0170 CPR8 S CPR3C,CPR3S,,
0171 SF CPR3C-1,,,
0172 S CPR2D,CPR3C,,

0173 B CPR-1,,6,

0174 DORG *-3
0175 CPR9 TDM CPR1P,0,,
0176 CPR11 CM CPR2D,0,10,
0177 BH CPR13,,,
0178 BE CPR15,,,
0179 BTM CEP ,CPR14
0180 CPR12 TD CPR3S,CPR3B,6,

0181 AM CPR3S,1,10,
0182 CPR13 CM CPR3S,CPR2T-3,,
0183 BL CPR12,,,
0184 TF CPR2T,CPR3T,,

0185 WNCDCPR2R,,,

0186 AM CPR3T,1,10,
0187 CPR14 TFM CPR2D,0,10,

0188 CPR15 TF CPR2A,CPR3A,,

0189 TFM CPR3S,CPR2D+ ,,

01978 14 02416 000+0
EXIT
01990 46 0177P 01200
02002 46 02038 01100
02014 16 02416 000+0
ERROR PRINT (INVALID FIELD LENGTH)
02026 17 11374 +2206
DIGIT SET TO PREVIOUS SET
02038 26 02431 02426
BRANCH FOR RELOCATION TEST
02050 43 02130 02400
TRANSMIT DIGIT
02062 25 02420 0242J
ADD 1 TO SET COUNTER
02074 11 02426 000+1
ADD 1 TO EXTRACT COUNTER
02086 11 02421 000+1
SUBTRACT 1 FROM DIGITS CURRENT COUNTER
02098 12 02416 000+1
REPEAT FOR NEXT DIGIT
02110 46 02050 01100
02122 49 02162 00000
02130
BRANCH NO RM
02130 45 02062 0242J
02142 44 02086 0242J
BRANCH TO TRANSMIT FLAGGED RM
02154 49 02062 00000
02162
02162 22 02431 02426
02174 32 02430 00000
INCREASE CARD DIGITS COUNTER
02186 22 02444 02431
BY NO OF DIGITS ADDED AND EXIT
02198 49 0177P 00000
02206
02206 15 02399 00000
02218 14 02444 000+0
02230 46 02290 01100
02242 46 02362 01200
02254 17 11446 +2350
SET TRAILING BLANKS ON CARD
02266 25 02420 02405
02278 11 02426 000+1
02290 14 02426 +2513
02302 47 02266 01300
SET CARD NUMBER
02314 26 02516 02404
OUT@PUT CARD
02326 38 02437 00400
02338 11 02404 000+1
RESET CARD DIGITS COUNTER
02350 16 02444 000+0
RESET CARD ADDRESS COUNTER
02362 26 02442 02411
RESET DIGIT SET COUNTER
02374 16 02426 +2445

0190	B	CPR1,,,	02386	49	01858	00000
0191	CPR1E	DC 1,0,,	PROG ENTRY INDICATOR			
0192	CPR1P	DC 1,0,,	02398		00001	
0193	CPR1R	DC 1,0,,	PUNCH OUT INDICATOR			
0194	CPR3T	DC 4,1,,	02399		00001	
0195	CPR3B	DNB 1,,	REL INDICATOR			
0196	CPR3R	DC 1,@,,	02400		00001	
0197	CPR3A	DC 5,0,,	CARD TOTAL COUNTER			
0198	CPR3D	DC 5,0,,	02404		00004	
0199	CPR3E	DS 5,,	NUMERICAL BLANK			
0200	CPR3S	DS 5,,	02405		00001	
0201	CPR3C	DS 5,,	RM 02406		00001	
0202	CPR3W	DS 5,,	CURRENT ADDRESS COUNTER			
0203	CPR2R	DS 1,,	02411		00005	
0204	CPR2A	DS 5,,	DIGITS CURRENT COUNTER			
0205	CPR2D	DS 2,,	02416		00005	
0206		DS 68,,	DIGITS EXTRACT COUNTER			
0207	CPR2T	DS 4,,	02421		00005	
0208	CPR4R	DAS 59,,	DIGITS SET COUNTER			
0209		DS 5,,	02426		00005	
0210	CTA	TR CTA2A,CTA1A,	PREVIOUS SET COUNTER			
0211		TDM CTA2S,0,,	02431		00005	
0212	CTA1	AM CTA1D,5,10,	WORKING COUNTER			
0213		C CTA1E,CTA1C,,	02436		00005	
0214		BNH CTA2 ,,,	FOR FLAGGED RM AT START CARD IMAGE			
0215		C CTA2S,CTA1E,11,	02437		00001	
0216		BH CTA2 ,,,	FOR CARD ADDRESS COUNTER			
0217		TF CTA1P,CTA1E,,	02442		00005	
0218		BE CTA5 ,,,	FOR CARD DIGITS COUNTER			
0219	CTA2	BNR CTA3 ,CTA1D,11,	02444		00002	
0220		B CTA-1,,6,	FOR PROGRAMME DIGITS			
0221		DORG *-3	02512		00068	
0222	CTA3	BH CTA4 ,,,	FOR CARD NUMBER			
0223		A CTA1E,CTA1D,11,	02516		00004	
0224		B CTA1 ,,,	FOR ACCUMULATED DIGITS			
0225		DORG *-3	02519		00059	
0226	CTA4	S CTA1E,CTA1D,11,	02640		00005	
0227		B CTA1 ,,,	02642	31	02935	02882
			02654	15	02880	00000
			02666	11	02946	000+5
			02678	24	02951	02888
			02690	47	02750	01100
			02702	24	02880	0295J
			02714	46	02750	01100
			02726	26	02941	02951
			02738	46	02822	01200
			02750	45	02770	02940
			02762	49	0264J	00000
			02770			
			02770	46	02802	01100
			02782	21	02951	02940
			02794	49	02666	00000
			02802			
			02802	22	02951	02940
			02814	49	02666	00000

0228	DORG *-4	02821	
0229	CTA5 TDM CTA1S,1,,	02822	15 02936 00001
0230	SM CTA1E,9,10,	02834	12 02951 000+9
0231	TF CTA1V,CTA1E,11,	02846	26 02871 0295J
0232	B CTA-1,,6,	02858	49 0264J 00000
0233	DORG *-3	02866	
0234	CTA1R DC 1,0,,	02866	00001
0235	CTA1V DS 5,,	SYMBOL VALUE	
		02871	00005
0236	CTA4S DAC 5, @,,	02873	00005
0237	CTA2S DS ,CTA4S+7,	02880	00000
0238	DC 2,0,,	02883	00002
0239	CTA1A DS ,*-1,	02882	00000
0240	CTA1C DSA CTA1T-102*14	02888	00005 +3304
0241	DSA CTA2D-5,CTA1T-63*14	02893	00005 +2899
		02898	00005 +3850
0242	DC 1,@,,	02899	00001
0243	CTA2D DSA 32*14,16*14,8*14,4*14,2*14,1*14	02904	00005 +0448
		02909	00005 +0224
		02914	00005 +0112
		02919	00005 +0056
		02924	00005 +0028
		02929	00005 +0014
0244	DC 5,@,,	02934	00005
0245	CTA2A DS 1,,	02935	00001
0246	CTA1S DS 1,,	SYMBOL PRESENT IF DIGIT	
		02936	00001
0247	CTA1P DS 5,,	SYMBOL R.H. POSITION	
		02941	00005
0248	CTA1D DS 5,,	POWER TWO DIRECTOR	
		02946	00005
0249	CTA1E DS 5,,	SYMBOL R.H. EXAMINER	
		02951	00005
0250	DS 1,,	02952	00001
0251	DAS 1,,	02955	00001
0252	DORG *-1,	02954	
0253	CTA1T DS 127*14+1,,	04732	01779
0254	DORGCTA1T-102*14	03304	
0255	DC 1,0,,	03304	00001
0256	DSA WST	03309	00005 K4896
0257	DAC 4,WST ,,	03311	00004
0258	DC 1,0,,	03318	00001
0259	DC 5,-38010,,	03323	00005
0260	DAC 4,WNTY,,	03325	00004
0261	DC 1,0,,	03332	00001
0262	DC 5,-38020,,	03337	00005
0263	DAC 4,WNPT,,	03339	00004
0264	DC 1,0,,	03346	00001
0265	DC 5,-38040,,	03351	00005
0266	DAC 4,WNCD,,	03353	00004
0267	DC 1,0,,	03360	00001
0268	DC 5,-38000,,	03365	00005
0269	DAC 4,WN ,,	03367	00004
0270	DC 1,0,,	03374	00001
0271	DC 5,-39010,,	03379	00005

0272	DAC 4,WATY,,	03381	00004	
0273	DC 1,0,,	03388	00001	
0274	DC 5,-39020,,	03393	00005	
0275	DAC 4,WAPT,,	03395	00004	
0276	DC 1,0,,	03402	00001	
0277	DC 5,-39040,,	03407	00005	
0278	DAC 4,WACD,,	03409	00004	
0279	DC 1,0,,	03416	00001	
0280	DC 5,-39000,,	03421	00005	
0281	DAC 4,WA ..	03423	00004	
0282	DC 1,0,,	03430	00001	
0283	DSA TYP	03435	00005	K4856
0284	DAC 4,TYP ..	03437	00004	
0285	DC 1,0,,	03444	00001	
0286	DC 5,-31000,,	03449	00005	
0287	DAC 4,TR ..	03451	00004	
0288	DC 1,0,,	03458	00001	
0289	DC 5,-72000,,	03463	00005	
0290	DAC 4,TNS ..	03465	00004	
0291	DC 1,0,,	03472	00001	
0292	DC 5,-73000,,	03477	00005	
0293	DAC 4,TNF ..	03479	00004	
0294	DC 1,0,,	03486	00001	
0295	DC 5,-16100,,	03491	00005	
0296	DAC 4,TFM ..	03493	00004	
0297	DC 1,0,,	03500	00001	
0298	DC 5,-26000,,	03505	00005	
0299	DAC 4,TF ..	03507	00004	
0300	DC 1,0,,	03514	00001	
0301	DC 5,-15000,,	03519	00005	
0302	DAC 4,TDM ..	03521	00004	
0303	DC 1,0,,	03528	00001	
0304	DC 5,-25000,,	03533	00005	
0305	DAC 4,TD ..	03535	00004	
0306	DC 1,0,,	03542	00001	
0307	DC 5,-34018,,	03547	00005	
0308	DAC 4,TBTY..	03549	00004	
0309	DC 1,0,,	03556	00001	
0310	DSA SUP	03561	00005	K4876
0311	DAC 4,SUP ..	03563	00004	
0312	DC 1,0,,	03570	00001	
0313	DC 5,-34011,,	03575	00005	
0314	DAC 4,SPTY..	03577	00004	
0315	DC 1,0,,	03584	00001	
0316	DC 5,-12100,,	03589	00005	
0317	DAC 4,SM ..	03591	00004	
0318	DC 1,0,,	03598	00001	
0319	DSA SKP	03603	00005	K4072
0320	DAC 4,SKP ..	03605	00004	
0321	DC 1,0,,	03612	00001	
0322	DC 5,-32000,,	03617	00005	
0323	DAC 4,SF ..	03619	00004	
0324	DC 1,0,,	03626	00001	
0325	DC 5,-22000,,	03631	00005	
0326	DAC 4,S ..	03633	00004	
0327	DC 1,0,,	03640	00001	

0328	DC	5,-36010,,	03645	00005	
0329	DAC	4,RNTY,,	03647	00004	
0330	DC	1,0,,	03654	00001	
0331	DC	5,-36030,,	03659	00005	
0332	DAC	4,RNPT,,	03661	00004	
0333	DC	1,0,,	03668	00001	
0334	DC	5,-36050,,	03673	00005	
0335	DAC	4,RNCD,,	03675	00004	
0336	DC	1,0,,	03682	00001	
0337	DC	5,-36000,,	03687	00005	
0338	DAC	4,RN,,	03689	00004	
0339	DC	1,0,,	03696	00001	
0340	DC	5,-34012,,	03701	00005	
0341	DAC	4,RCTY,,	03703	00004	
0342	DC	1,0,,	03710	00001	
0343	DC	5,-37010,,	03715	00005	
0344	DAC	4,RATY,,	03717	00004	
0345	DC	1,0,,	03724	00001	
0346	DC	5,-37030,,	03729	00005	
0347	DAC	4,RAPT,,	03731	00004	
0348	DC	1,0,,	03738	00001	
0349	DC	5,-37050,,	03743	00005	
0350	DAC	4,RACD,,	03745	00004	
0351	DC	1,0,,	03752	00001	
0352	DC	5,-37000,,	03757	00005	
0353	DAC	4,RA,,	03759	00004	
0354	DC	1,0,,	03766	00001	
0355	DC	5,-41000,,	03771	00005	
0356	DAC	4,NOP,,	03773	00004	
0357	DC	1,0,,	03780	00001	
0358	DC	5,-13100,,	03785	00005	
0359	DAC	4,MM,,	03787	00004	
0360	DC	1,0,,	03794	00001	
0361	DC	5,-71000,,	03799	00005	
0362	DAC	4,MF,,	03801	00004	
0363	DC	1,0,,	03808	00001	
0364	DC	5,-23000,,	03813	00005	
0365	DAC	4,M,,	03815	00004	
0366	DC	1,0,,	03822	00001	
0367	DC	5,-18100,,	03827	00005	
0368	DAC	4,LDM,,	03829	00004	
0369	DC	1,0,,	03836	00001	
0370	DC	5,-28000,,	03841	00005	
0371	DAC	4,LD,,	03843	00004	
0372	DC	1,0,,	03850	00001	
0373	DC	5,-34000,,	03855	00005	
0374	DAC	4,K,,	03857	00004	
0375	DC	1,0,,	03864	00001	
0376	DC	5,-48000,,	03869	00005	
0377	DAC	4,H,,	03871	00004	
0378	DC	1,0,,	03878	00001	
0379	DSA	DZE	03883	00005	+4922
0380	DAC	4,DZE,,	03885	00004	
0381	DC	1,0,,	03892	00001	
0382	DSA	DSB	03897	00005	+7560
0383	DAC	4,DSB,,	03899	00004	
0384	DC	1,0,,	03906	00001	
0385	DSA	DSA	03911	00005	+6896

0386	DAC 4,DSA ..	03913	00004
0387	DC 1,0,,	03920	00001
0388	DSA DS	03925	00005 +8130
0389	DAC 4,DS ..	03927	00004
0390	DC 1,0,,	03934	00001
0391	DSA DRG	03939	00005 +6648
0392	DAC 4,DORG,,	03941	00004
0393	DC 1,0,,	03948	00001
0394	DSA DOP	03953	00005 +6312
0395	DAC 4,DOP ..	03955	00004
0396	DC 1,0,,	03962	00001
0397	DC 5,-35010,,	03967	00005
0398	DAC 4,DNTY,,	03969	00004
0399	DC 1,0,,	03976	00001
0400	DC 5,-35020,,	03981	00005
0401	DAC 4,DNPT,,	03983	00004
0402	DC 1,0,,	03990	00001
0403	DC 5,-35040,,	03995	00005
0404	DAC 4,DNCD,,	03997	00004
0405	DC 1,0,,	04004	00001
0406	DSA DNB	04009	00005 +4942
0407	DAC 4,DNB ..	04011	00004
0408	DC 1,0,,	04018	00001
0409	DSA DNA	04023	00005 +6872
0410	DAC 4,DNA ..	04025	00004
0411	DC 1,0,,	04032	00001
0412	DC 5,-35000,,	04037	00005
0413	DAC 4,DN ..	04039	00004
0414	DC 1,0,,	04046	00001
0415	DSA DMC	04051	00005 +6332
0416	DAC 4,DMAC,,	04053	00004
0417	DC 1,0,,	04060	00001
0418	DC 5,-19100,,	04065	00005
0419	DAC 4,DM ..	04067	00004
0420	DC 1,0,,	04074	00001
0421	DSA DIN	04079	00005 +6290
0422	DAC 4,DIN ..	04081	00004
0423	DC 1,0,,	04088	00001
0424	DSA DND	04093	00005 +5576
0425	DAC 4,DEND,,	04095	00004
0426	DC 1,0,,	04102	00001
0427	DSA DC	04107	00005 +8150
0428	DAC 4,DC ..	04109	00004
0429	DC 1,0,,	04116	00001
0430	DSA DAS	04121	00005 +8172
0431	DAC 4,DAS ..	04123	00004
0432	DC 1,0,,	04130	00001
0433	DSA DAC	04135	00005 +8192
0434	DAC 4,DAC ..	04137	00004
0435	DC 1,0,,	04144	00001
0436	DC 5,-29000,,	04149	00005
0437	DAC 4,D ..	04151	00004
0438	DC 1,0,,	04158	00001
0439	DC 5,-14100,,	04163	00005
0440	DAC 4,CM ..	04165	00004
0441	DC 1,0,,	04172	00001

0442	DC	5,-33000,,	04177	00005
0443	DAC	4,CF,,	04179	00004
0444	DC	1,0,,	04186	00001
0445	DC	5,-24000,,	04191	00005
0446	DAC	4,C,,	04193	00004
0447	DC	1,0,,	04200	00001
0448	DC	5,-46120,,	04205	00005
0449	DAC	4,BZ,,	04207	00004
0450	DC	1,0,,	04214	00001
0451	DC	5,-46140,,	04219	00005
0452	DAC	4,BV,,	04221	00004
0453	DC	1,0,,	04228	00001
0454	DC	5,-17100,,	04233	00005
0455	DAC	4,BTM,,	04235	00004
0456	DC	1,0,,	04242	00001
0457	DC	5,-27000,,	04247	00005
0458	DAC	4,BT,,	04249	00004
0459	DC	1,0,,	04256	00001
0460	DC	5,-46110,,	04261	00005
0461	DAC	4,BP,,	04263	00004
0462	DC	1,0,,	04270	00001
0463	DC	5,-47120,,	04275	00005
0464	DAC	4,BNZ,,	04277	00004
0465	DC	1,0,,	04284	00001
0466	DC	5,-47140,,	04289	00005
0467	DAC	4,BNY,,	04291	00004
0468	DC	1,0,,	04298	00001
0469	DC	5,-45000,,	04303	00005
0470	DAC	4,BNR,,	04305	00004
0471	DC	1,0,,	04312	00001
0472	DC	5,-47110,,	04317	00005
0473	DAC	4,BNP,,	04319	00004
0474	DC	1,0,,	04326	00001
0475	DC	5,-46130,,	04331	00005
0476	DAC	4,BNN,,	04333	00004
0477	DC	1,0,,	04340	00001
0478	DC	5,-47090,,	04345	00005
0479	DAC	4,BNLC,,	04347	00004
0480	DC	1,0,,	04354	00001
0481	DC	5,-46130,,	04359	00005
0482	DAC	4,BNL,,	04361	00004
0483	DC	1,0,,	04368	00001
0484	DC	5,-47000,,	04373	00005
0485	DAC	4,BNI,,	04375	00004
0486	DC	1,0,,	04382	00001
0487	DC	5,-47110,,	04387	00005
0488	DAC	4,BNH,,	04389	00004
0489	DC	1,0,,	04396	00001
0490	DC	5,-44000,,	04401	00005
0491	DAC	4,BNF,,	04403	00004
0492	DC	1,0,,	04410	00001
0493	DC	5,-47120,,	04415	00005
0494	DAC	4,BNE,,	04417	00004
0495	DC	1,0,,	04424	00001
0496	DC	5,-47040,,	04429	00005
0497	DAC	4,BNC4,,	04431	00004

0498	DC	1,0,,	04438	00001
0499	DC	5,-47030,,	04443	00005
0500	DAC	4,BNC3,,	04445	00004
0501	DC	1,0,,	04452	00001
0502	DC	5,-47020,,	04457	00005
0503	DAC	4,BNC2,,	04459	00004
0504	DC	1,0,,	04466	00001
0505	DC	5,-47010,,	04471	00005
0506	DAC	4,BNC1,,	04473	00004
0507	DC	1,0,,	04480	00001
0508	DC	5,-47190,,	04485	00005
0509	DAC	4,BNA,,	04487	00004
0510	DC	1,0,,	04494	00001
0511	DC	5,-47130,,	04499	00005
0512	DAC	4,BN,,	04501	00004
0513	DC	1,0,,	04508	00001
0514	DC	5,-46090,,	04513	00005
0515	DAC	4,BLC,,	04515	00004
0516	DC	1,0,,	04522	00001
0517	DC	5,-47130,,	04527	00005
0518	DAC	4,BL,,	04529	00004
0519	DC	1,0,,	04536	00001
0520	DC	5,-46000,,	04541	00005
0521	DAC	4,B1,,	04543	00004
0522	DC	1,0,,	04550	00001
0523	DC	5,-46110,,	04555	00005
0524	DAC	4,BH,,	04557	00004
0525	DC	1,0,,	04564	00001
0526	DC	5,-46120,,	04569	00005
0527	DAC	4,BE,,	04571	00004
0528	DC	1,0,,	04578	00001
0529	DC	5,-43000,,	04583	00005
0530	DAC	4,BD,,	04585	00004
0531	DC	1,0,,	04592	00001
0532	DC	5,-46040,,	04597	00005
0533	DAC	4,BC4,,	04599	00004
0534	DC	1,0,,	04606	00001
0535	DC	5,-46030,,	04611	00005
0536	DAC	4,BC3,,	04613	00004
0537	DC	1,0,,	04620	00001
0538	DC	5,-46020,,	04625	00005
0539	DAC	4,BC2,,	04627	00004
0540	DC	1,0,,	04634	00001
0541	DC	5,-46010,,	04639	00005
0542	DAC	4,BC1,,	04641	00004
0543	DC	1,0,,	04648	00001
0544	DC	5,-42000,,	04653	00005
0545	DAC	4,BB,,	04655	00004
0546	DC	1,0,,	04662	00001
0547	DC	5,-46190,,	04667	00005
0548	DAC	4,BA,,	04669	00004
0549	DC	1,0,,	04676	00001
0550	DC	5,-49000,,	04681	00005
0551	DAC	4,B,,	04683	00004
0552	DC	1,0,,	04690	00001
0553	DSA	AST	04695	00005 +1162

0554	DAC	4,AST	,,	04697	00004
0555	DC	1,0	,,	04704	00001
0556	DC	5,-11100	,,	04709	00005
0557	DAC	4,AM	,,	04711	00004
0558	DC	1,0	,,	04718	00001
0559	DC	5,-21000	,,	04723	00005
0560	DAC	4,A	,,	04725	00004
0561	DC	1,0	,,	04732	00001
0562	DS	5	,,	04737	00005
0563	CTB	CM	CTA1C,CTA1T-126*14	04738	14 02888 +2968
0564		BL	CTB1 ,,,	BRANCH IF TABLE FULL	
				04750	47 04890 01300
0565	TF	CTB1C,CTA1C	,,	STORE LIMIT COUNTER	
				04762	26 04915 02888
0566	SM	CTA1C,14,10	,,	04774	12 02888 000J4
0567	TF	CTB1P,CTA1P	,,	04786	26 04920 02941
0568	SM	CTB1P,14,10	,,	SET SYMBOL LH POSITION	
				04798	12 04920 000J4
0569	TD	CTA1P,CTB1R	,6,	SET RM IN TABLE	
				04810	25 0294J 04910
0570	TD	CTA2S,CTB1R	,,	SET RM AFTER SYMBOL	
				04822	25 02880 04910
0571	TR	CTA1C,CTB1C	,611,	MAKE ROOM IN TABLE	
				04834	31 0288Q 0491N
0572	BNR	CTB1 ,CTB1P	,11,	TEST THAT SHIFT OCCURED	
				04846	45 04890 0492+
0573	TR	CTB1P,CTA1R	,6,	INSERT NEW OPERATION AND VALUE	
				04858	31 0492+ 02866
0574	TDM	CTA1P,0,6	,,	CLEAR RH RM	
				04870	15 0294J 00000
0575	B	CTB-1	,,6,	04882	49 0473P 00000
0576	DORG	*-3	,,	04890	
0577	CTB1	TDM	CTB1F,1,,	ERROR OR FULL	
				04890	15 04909 00001
0578	B	CTB-1	,,6,	04902	49 0473P 00000
0579	DORG	*-4	,,	04909	
0580	CTB1F	DC	1,0,,	ERROR OR FULL INDICATOR	
				04909	00001
0581	CTB1R	DC	1,@,,	04910	00001
0582	CTB1C	DS	5,,	OLD LIMIT COUNTER	
				04915	00005
0583	CTC1P	DS	5,,	SYMBOL LH POSITION	
				04920	00005
0584	DZE	TDM	CPR4R+7,0,,	04922	15 02526 00000
0585	B	DNB12	,,,	04934	49 04966 00000
0586	DORG	*-3	,,	04942	
0587	DNB	TDM	CPR4R+7,,,	04942	15 02526 00000
0588	DNB	1,*	,,	04953	00001
0589	SF	CPR4R+7	,,,	04954	32 02526 00000
0590	DNB12	TDM	CPR1P,1,,	04966	15 02399 00001
0591	BTM	CPR,*+12	,,	04978	17 01778 +4990
0592	TDM	CPR1P,1	,,	04990	15 02399 00001
0593	TDM	CPR4R+6	,,,	05002	15 02525 00000
0594	DC	1,@,*	,,	05013	00001
0595	TFM	SMB1E,RCD+30	,,	05014	16 24259 +0789
0596	BTM	EVA	,*+12,,	05026	17 12152 +5038

0597		BD	DNB1	,EVATR,,	05038	43	05062	13563
0598		BD	DNB2	,EVATL,,	05050	43	05074	13562
0599	DNB1	BTM	DSP	,LPA,,	05062	17	11700	J5100
0600	DNB2	BNR	DNB8	,SMB1T,,	05074	45	05098	24853
0601		SM	SMB1E	,2,10,,	05086	12	24259	000+2
0602	DNB8	TF	DNB1A	,EVA1T,,	05098	26	05573	13571
0603		BTM	EVA	,*+12,,	05110	17	12152	+5122
0604		BD	DNB3	,EVATD,,	05122	43	05146	13564
0605		BD	DNB9	,EVATL,,	05134	43	05158	13562
0606	DNB3	BTM	DSP	,LPA,,	05146	17	11700	J5100
0607	DNB9	BD	DNB4	,EVATS,,	05158	43	05226	13565
0608		TDM	DNB1R	,1,,	05170	15	05225	00001
0609		TDM	CPR1P	,1,,	05182	15	02399	00001
0610		A	ILC	,DNB1A,,	05194	21	16282	05573
0611		TF	LOC	,ILC,,	05206	26	16291	16282
0612		B	DNB5	,,	05218	49	05250	00000
0613	DNB1R	DS	,*-4,	,,	05225		00000	
0614		DORG	*-3,	,,	05226			
0615	DNB4	TF	LOC	,EVA1T,,	05226	26	16291	13571
0616		TD	DNB1R	,EVATR,,	05238	25	05225	13563
0617	DNB5	BD	DNB6	,LPA2T,,	05250	43	05286	16283
0618		TD	LLA1R	,DNB1R,,	05262	25	14595	05225
0619		BTM	LLA	,LPA,,	05274	17	14564	J5100
0620	DNB6	TD	LLB1R	,DNB1R,,	05286	25	14883	05225
0621		BTM	LLB	,*+12	05298	17	14852	+5310
0622		TF	CPR4R+5	,LOC,,	05310	26	02524	16291
0623		AM	CPR4R+5	,1,10,	05322	11	02524	000+1
0624		S	CPR4R+5	,DNB1A,,	05334	22	02524	05573
0625		BD	DNB7	,DNB1R,,	05346	43	05382	05225
0626		SF	CPR4R+5	,,,	05358	32	02524	00000
0627		SF	LOC	,,,	05370	32	16291	00000
0628	DNB7	TDM	CPR4R	,,,	05382	15	02519	00000
0629		DC	1,@,*	,,	05393		00001	
0630		CF	LOC-4	,,,	05394	33	16287	00000
0631		TF	CPR4R+12	,DNB1A,,	05406	26	02531	05573
0632		CF	DNB1A-4	,,,	05418	33	05569	00000
0633		TR	CPR4R+13	,PTC1B-47,,	05430	31	02532	17825
0634		TR	CPR4R+61	,PTC1B-14,,	05442	31	02580	17858
0635		TF	CPR4R+79	,CPR3T,,	05454	26	02598	02404
0636		WNCD	CPR4R	,,,	05466	38	02519	00400
0637		AM	CPR3T	,1,10,	05478	11	02404	000+1
0638		BD	LPA	,LPA1S,,	05490	43	15100	15315
0639		BTM	CDP	,*+12,	05502	17	01620	+5514
0640		TBTY	,,,	,,	05514	34	00000	00108
0641		WNTY	LOC-4	,,,	05526	38	16287	00100
0642		SPTY	,,,	,,	05538	34	00000	00101
0643		WNTY	DNB1A-4	,,,	05550	38	05569	00100
0644		B	LPA	,,,	05562	49	15100	00000
0645	DNB1A	DS	,*	,,	05573		00000	
0646		DC	1,@,	,,	05574		00001	
0647	DND	BD	DND4	,LPA2T,,	05576	43	05896	16283
0648		MM	ILC	,5,10,	05588	13	16282	000+5
0649		BD	DND1	,99,,	05600	43	05624	00099
0650		AM	ILC	,1,10,	05612	11	16282	000+1
0651	DND1	AM	ILC	,1,10,	05624	11	16282	000+1
0652		TF	PTC4R+23	,ILC,,	05636	26	17897	16282

0653	MM	DTB1N,5,9,	05648	13	11056	00+05
0654	TFM	ILC,99999,,	05660	16	16282	R9999
0655	BE	DND12,,,	05672	46	05788	01200
0656	TF	ILC,99,,	05684	26	16282	00099
0657	BD	DND2 ,99	05696	43	05728	00099
0658	SM	ILC,1,10,	05708	12	16282	000+1
0659	B	DND3	05720	49	05740	00000
0660	DORG	*-3	05728			
0661	DND2	AM 99,1,10,	05728	11	00099	000+1
0662	DND3	BTM DTC,*+12,,	05740	17	11074	+5752
0663	A	PTC4R+5,99,,	05752	21	17879	00099
0664	A	PTC4R+23,99,,	05764	21	17897	00099
0665	BTM	ARS,*+12,,	05776	17	00946	+5788
0666	DND12	BTM PTC,*+12,,	05788	17	17498	+5800
0667	TDM	LPA2T,1,,	05800	15	16283	00001
0668	TDM	LPA1V,0,,	05812	15	16286	00000
0669	TDM	LPA1S,0,,	05824	15	15315	00000
0670	WATY	DND1A,,,	05836	39	05869	00100
0671	H	,,,	05848	48	00000	00000
0672	B	LPA,,,	05860	49	15100	00000
0673	DORG	*-3	05868			
0674	DND1A	DAC 14,END OF PASS 1@,,	05869		00014	
0675	DND4	TDM CPR1P,1,,	05896	15	02399	00001
0676	BTM	CPR,*+12,,	05908	17	01778	+5920
0677	TFM	SMB1E,RCD+30,,	05920	16	24259	+0789
0678	BTM	SMB,*+12,,	05932	17	24236	+5944
0679	BD	DND5 ,SMB1D+1,,				
0680	BD	DND5 ,SMB1D+7,,				
0681	BD	LPA-1,LPA1S,6,				
0682	BTM	CDP ,LPA-1,711,				
0683	DND5	TDM CPR4R,,,				
0684	DC	1,@,*,				
0685	TR	CPR4R+1,DND1R-4,,				
0686	TR	CPR4R+19,PTC1B-47,,				
0687	TR	CPR4R+67,PTC1B-8,,				
0688	BD	DND9 ,SMB1D+6,,				
0689	TFM	SMB1E,RCD+30,,				
0690	BTM	EVA,*+12,				
0691	BD	DND7 ,EVATR,,				
0692	DND6	BTM DSP ,LPA-1,711,				
0693	DND7	TF CPR4R+5,EVA1T,,				
0694	DND8	TF CPR4R+79,CPR3T,,				
0695	WNCD	CPR4R,,,				
0696	AM	CPR3T,1,10,				
0697	BD	LPA-1,LPA1S,6,				
0698	BTM	CDP ,*+12,,				
0699	TBTY	,,,				
0700	TF	LOC ,CPR4R+5,,				
0701	CF	LOC-4,,,				
0702	WNTY	LOC-4,,,				
0703	B	LPA-1,,6,				
0704	DORG	*-4				
0705	DND9	TF CPR4R+17,SMB2S-1,,				
			05944	43	05992	24825
			OR IF ARITH			
			05956	43	05992	24831
			05968	43	1509R	15315
			05980	17	01620	J509R
			05992	15	02519	00000
			06003		00001	
			06004	31	02520	06271
			06016	31	02538	17825
			06028	31	02586	17864
			BRANCH IF DOLLAR			
			06040	43	06228	24830
			06052	16	24259	+0789
			06064	17	12152	+6076
			06076	43	06100	13563
			06088	17	11700	J509R
			06100	26	02524	13571
			06112	26	02598	02404
			06124	38	02519	00400
			06136	11	02404	000+1
			06148	43	1509R	15315
			06160	17	01620	+6172
			06172	34	00000	00108
			06184	26	16291	02524
			06196	33	16287	00000
			06208	38	16287	00100
			06220	49	1509R	00000
			06227			
			06228	26	02536	24851

0706	BTM	SMB	,*+12,,	06240	17	24236	+6252
0707	BD	DND8	,SMB1D+5,,	COMMA OR RECORD MARK			
				06252	43	06112	24829
0708	B	DND6	,,,	06264	49	06088	00000
0709	DORG	*-4		06271			
0710	DND1R	DC	5,-0,,	06275		00005	
0711		DC	13,@,,	06288		00013	
0712	DIN	TFM	DNP1F,0,10,	06290	16	06311	000+0
0713		B	DNP1,,,	06302	49	06344	00000
0714	DNP1F	DS	,*-2,,	06311		00000	
0715		DORG	*-1,,	06312			
0716	DOP	TFM	DNP1F,1,10,	06312	16	06311	000+1
0717		B	DNP1,,,	06324	49	06344	00000
0718		DORG	*-3,,	06332			
0719	DMC	TFM	DNP1F,11,10,	06332	16	06311	000J1
0720	DNP1	BD	DNP6,LPA2T,,	06344	43	06600	16283
0721		TDM	RCD+18,,,	06356	15	00777	00000
0722		DC	1,@,*	06367		00001	
0723		TR	CTA4S-1,RCD+9,,	06368	31	02872	00768
0724		CF	CTA4S+1,,,	06380	33	02874	00000
0725		CF	CTA4S+3,,,	06392	33	02876	00000
0726		CF	CTA4S+5,,,	06404	33	02878	00000
0727	BTM	CTA	,*+12,,	06416	17	02642	+6428
0728	BD	DNP4	,CTA1S,,	06428	43	06624	02936
0729	BD	DNP2	,DNP1F-1,,	06440	43	06556	06310
0730	TD	CTA1V-4	,RCD+30,,	06452	25	02867	00789
0731	TD	CTA1V-3	,RCD+32,,	06464	25	02868	00791
0732	TD	CTA1V-2	,RCD+34,,	06476	25	02869	00793
0733	TD	CTA1V-1	,RCD+36,,	06488	25	02870	00795
0734	TD	CTA1V	,RCD+38,,	06500	25	02871	00797
0735	SF	CTA1V-4	,,,	06512	32	02867	00000
0736	BD	DNP3	,DNP1F	06524	43	06568	06311
0737	SF	CTA1V	,,,	06536	32	02871	00000
0738	B	DNP3	,,,	06548	49	06568	00000
0739		DORG	*-3,,	06556			
0740	DNP2	TFM	CTA1V,MAC,,	06556	16	02871	J6500
0741	DNP3	BTM	CTB,*+12,,	06568	17	04738	+6580
0742		BD	DNP5,CTB1F,,	06580	43	06636	04909
0743		B	LPA,,	06592	49	15100	00000
0744		DORG	*-3,,	06600			
0745	DNP6	BD	LPA,LPA1S,,	06600	43	15100	15315
0746		BTM	CDP,LPA,,	06612	17	01620	J5100
0747	DNP4	BTM	LLP,LPA,,	06624	17	11824	J5100
0748	DNP5	BTM	LLE,LPA,,	06636	17	11904	J5100
0749	DRG	TFM	SMB1E,RCD+30,,	SET EXTRACTOR TO OPERAND FIELD			
				06648	16	24259	+0789
0750	BTM	EVA	,*+12,,	EVALUATE OPERAND			
				06660	17	12152	+6672
0751	BD	DRG1	,EVATR,,	BRANCH IF REL			
				06672	43	06696	13563
0752	BTM	REP	,LPA,,	RELOCATION ERROR, IGNORE CARD			
				06684	17	12088	J5100
0753	DRG1	TF	ILC,EVA1T,,	SET ILC			
0754		SM	ILC,1,10,	06696	26	16282	13571
				SET LOC			
				06708	12	16282	000+1
0755	TF	LOC	,EVA1T,,	SET LOC			
				06720	26	16291	13571

0756	BD DRG2 ,LPA2T,,	BRANCH IF PASS 2			
		06732	43	06768	16283
0757	TDM LLA1R,1,,	06744	15	14595	00001
0758	BTM LLA ,LPA,,	PROCESS LABEL PASS 1			
		06756	17	14564	J5100
0759 DRG2	TDM LLB1R,1,,	06768	15	14883	00001
0760	BTM LLB ,*+12,,	PROCESS LABEL PASS 2			
		06780	17	14852	+6792
0761	TDM CPR1P,1,,	SET PUNCH OUT DIGIT			
		06792	15	02399	00001
0762	BD LPA ,LPA1S,,	06804	43	15100	15315
0763	BTM CDP ,*+12,,	TYPE CARD			
		06816	17	01620	+6828
0764	TBTY,,,	06828	34	00000	00108
0765	CF LOC -4	06840	33	16287	00000
0766	WNTYLOC-4,,,	TYPE LOC			
		06852	38	16287	00100
0767	B LPA ,,,	06864	49	15100	00000
0768	DORG *-4,	06871			
0769 DNA	TDM DSA1F,0,,	06872	15	06895	00000
0770	B DSA8,,,	06884	49	06908	00000
0771 DSA1F	DS ,*,	06895		00000	
0772 DSA	TDM DSA1F,1,,	06896	15	06895	00001
0773 DSA8	TFM DSA1C,1,9,	06908	16	07109	00+01
0774	TFM DSA1S,CPR4R,,	06920	16	07553	+2519
0775	TF LOC ,ILC,,	06932	26	16291	16282
0776	AM LOC ,5,10,	06944	11	16291	000+5
0777	BD DSA3 ,LPA2T,,	06956	43	07110	16283
0778	TDM LLA1R,1,,	06968	15	14595	00001
0779	BTM LLA ,*+12,,	06980	17	14564	+6992
0780	TFM SMB1E,RCD+30,,	06992	16	24259	+0789
0781 DSA1	BTM DSS ,*+12,,	07004	17	09198	+7016
0782	BD DSA2 ,DSS1M,,	07016	43	07076	09411
0783	AM DSA1C,1,10,	07028	11	07109	000+1
0784	CM DSA1C,12,10	07040	14	07109	000J2
0785	BL DSA1 ,,,	07052	47	07004	01300
0786	BTM TMP ,LPA,,	07064	17	11312	J5100
0787 DSA2	MM DSA1C,5,10,	07076	13	07109	000+5
0788	A ILC ,99,,	07088	21	16282	00099
0789	B LPA ,,,	07100	49	15100	00000
0790 DSA1C	DS ,*-2,	07109		00000	
0791	DORG *-1,	07110			
0792 DSA3	TDM LLB1R,1,,	07110	15	14883	00001
0793	BTM LLB ,*+12,,	07122	17	14852	+7134
0794	TFM SMB1E,RCD+30,,	07134	16	24259	+0789
0795 DSA4	BTM EVA ,*+12,,	07146	17	12152	+7158
0796	BD DSA5 ,EVATL,,	07158	43	07182	13562
0797	BTM DSP ,LPA,,	07170	17	11700	J5100
0798 DSA5	TF DSA1V,EVA1T,,	07182	26	07558	13571
0799	BD DSA9,DSA1F,,	07194	43	07218	06895
0800	SF DSA1V,,,	07206	32	07558	00000
0801 DSA9	SF DSA1V+1,,,	07218	32	07559	00000
0802	BD DSA6 ,EVATR,,	07230	43	07254	13563
0803	CF DSA1V+1,,,	07242	33	07559	00000
0804 DSA6	TR DSA1S,DSA1V-4,6,	07254	31	0755L	07554
0805	BNR DSA7,SMB1T,,	07266	45	07518	24853

0806	MM	DSA1C,6,10	07278	13	07109	000+6
0807	TF	CPR3D,99,,	07290	26	02416	00099
0808	TF	PNS1P,99,,	07302	26	17343	00099
0809	TF	CPR3A,ILC,,	07314	26	02411	16282
0810	AM	CPR3A,1,10,	07326	11	02411	000+1
0811	TDM	CPR1R,1,,	07338	15	02400	00001
0812	BTM	CPR ,*+12,,	07350	17	01778	+7362
0813	MM	DSA1C,50,9,	07362	13	07109	00+50
0814	A	ILC .98,,	07374	21	16282	00098
0815	BD	LPA ,LPA1S,,	07386	43	15100	15315
0816	CF	LOC-4,,,	07398	33	16287	00000
0817	TDM	99,,,	07410	15	00099	00000
0818	DC	1,@,*	07421		00001	
0819	CF	94,,,	07422	33	00094	00000
0820	BTM	CDP ,*+12,,	07434	17	01620	+7446
0821	TBTY	,,,	07446	34	00000	00108
0822	WNTYLOC	-4,,,	07458	38	16287	00100
0823	SPTY	,,,	07470	34	00000	00101
0824	WNTY	94,,,	07482	38	00094	00100
0825	TDM	PNS1C,0,,	07494	15	17117	00000
0826	BTM	PNS,LPA,,	07506	17	17050	J5100
0827	DSA7	AM DSA1C,1,10,	07518	11	07109	000+1
0828	AM	DSA1S,6,10,	07530	11	07553	000+6
0829	B	DSA4 ,,,	07542	49	07146	00000
0830	DSA1S	DS ,*	07553		00000	
0831	DSA1V	DS 5,,	07558		00005	
0832	DC	1,@,,	07559		00001	
0833	DSB	TFM SMB1E,RCD+30,,	07560	16	24259	+0789
0834	BTM	EVA ,*+12,,	07572	17	12152	+7584
0835	BD	DSB1 ,EVATR,,	07584	43	07608	13563
0836	BD	DSB2 ,EVATL,,	07596	43	07620	13562
0837	DSB1	BTM DSP ,LPA,,	07608	17	11700	J5100
0838	DSB2	BNR DSB3 ,SMB1T,,	07620	45	07644	24853
0839	SM	SMB1E,2,10,	07632	12	24259	000+2
0840	DSB3	TF DSB1A,EVA1T,,	07644	26	07907	13571
0841	BTM	EVA ,*+12,,	07656	17	12152	+7668
0842	BD	DSB4 ,EVATR,,	07668	43	07692	13563
0843	BD	DSB5 ,EVATL,,	07680	43	07704	13562
0844	DSB4	BTM DSP ,LPA,,	07692	17	11700	J5100
0845	DSB5	BNR DSB6 ,SMB1T,,	07704	45	07728	24853
0846	SM	SMB1E,2,10,	07716	12	24259	000+2
0847	DSB6	TF DSB1B,EVA1T,,	07728	26	08123	13571
0848	BTM	EVA ,*+12,,	07740	17	12152	+7752
0849	BD	DSB7 ,EVATD,,	07752	43	07776	13564
0850	BD	DSB8 ,EVATL,,	07764	43	07788	13562
0851	DSB7	BTM DSP ,LPA,,	07776	17	11700	J5100
0852	DSB8	M DSB1A,DSB1B	07788	23	07907	08123
0853	SF	95,,,	07800	32	00095	00000
0854	TF	DSB1C,99,,	07812	26	08128	00099
0855	BD	DSB9 ,EVATS,,	07824	43	07908	13565
0856	TDM	DSB1R,1,,	07836	15	07955	00001
0857	TDM	CPR1P,1,,	07848	15	02399	00001
0858	TF	LOC ,ILC,,	07860	26	16291	16282
0859	A	LOC ,DSB1A,,	07872	21	16291	07907
0860	A	ILC,DSB1C,,	07884	21	16282	08128
0861	B	DSB12,,,	07896	49	07932	00000

0862	DSB1A	DS	,*		07907	00000		
0863	DSB9	TD	DSB1R,EVATR,,		07908	25	07955	13563
0864		TF	LOC,EVA1T,,		07920	26	16291	13571
0865	DSB12	BD	DSB11,LPA2T,,		07932	43	07968	16283
0866		TDM	LLA1R,,,		07944	15	14595	00000
0867	DSB1R	DS	,*		07955		00000	
0868		BTM	LLA,LPA,,		07956	17	14564	J5100
0869	DSB11	TD	LLB1R,DSB1R,,		07968	25	14883	07955
0870		BTM	LLB,*+12,,		07980	17	14852	+7992
0871		BD	LPA,LPA1S,,		07992	43	15100	15315
0872		BD	DSB13,DSB1R		08004	43	08028	07955
0873		SF	LOC,,,		08016	32	16291	00000
0874	DSB13	CF	LOC-4,,,		08028	33	16287	00000
0875		BTM	CDP,*+12,,		08040	17	01620	+8052
0876		TBTY	,,,		08052	34	00000	00108
0877		WNTYLOC	-4,,,		08064	38	16287	00100
0878		SPTY	,,,		08076	34	00000	00101
0879		CF	DSB1C-4,,,		08088	33	08124	00000
0880		WNTYDSB1C	-4,,,		08100	38	08124	00100
0881		B	LPA,,,		08112	49	15100	00000
0882	DSB1B	DS	,*		08123		00000	
0883	DSB1C	DS	5,,		08128		00005	
0884		DC	1,@,,		08129		00001	
0885	DS	TFM	DSC1S,11,10,		08130	16	08171	000J1
0886		B	DSC1,,,		08142	49	08204	00000
0887	DSC1R	DS	*-4,		NON	ZERO	IF	ADDRESS
					08149		00000	OPERAND
					REL			
0888		DORG	*-3,		08150			
0889	DC	TFM	DSC1S,10,10,		08150	16	08171	000J0
0890		B	DSC1,,,		08162	49	08204	00000
0891	DSC1S	DS	*-2,		08171		00000	
0892		DORG	*-1,		08172			
0893	DAS	TFM	DSC1S,1,10,		08172	16	08171	000+1
0894		B	DSC1,,,		08184	49	08204	00000
0895		DORG	*-3,		08192			
0896	DAC	TFM	DSC1S,0,10,		08192	16	08171	000+0
0897	DSC1	TFM	SMB1E,RCD+30,,		08204	16	24259	+0789
0898		BTM	EVA,*+12,,		08216	17	12152	+8228
0899		BD	DSC2,EVATR,,		08228	43	08252	13563
0900		BD	DSC3,EVATL,,		08240	43	08264	13562
0901	DSC2	BTM	DSP,LPA,,		08252	17	11700	J5100
0902	DSC3	BNR	DSC4,SMB1T,,		08264	45	08288	24853
0903		SM	SMB1E,2,10,		08276	12	24259	000+2
0904	DSC4	TF	DSC1C,EVA1T,,		08288	26	09191	13571
0905		BD	DSC8,DSC1S-1,		08300	43	08516	08170
0906		MM	DSC1C,2,10,		08312	13	09191	000+2
0907		SF	95,,,		08324	32	00095	00000
0908		TF	DSC1C,99,,		08336	26	09191	00099
0909		BD	DSC6,DSC1S,,		08348	43	08468	08171
0910		TF	DSC1W,SMB1E,,		08360	26	08719	24259
0911		A	DSC1W,DSC1C,,		08372	21	08719	09191
0912		CM	DSC1W,RCD+150,,		08384	14	08719	+0909
0913		BL	DSC5,,,		08396	47	08420	01300
0914		BTM	TMP,LPA,,		08408	17	11312	J5100
0915	DSC5	TF	SCA1N,DSC1C,,		08420	26	23259	09191
0916		BTM	SCA,*+12,,		08432	17	23076	+8444

0917	DSC11	BNR	DSC6	,SMB1T,,	08444	45	08468	24853
0918		SM	SMB1E	,2,10,	08456	12	24259	000+2
0919	DSC6	BTM	EVA	,*+12,,	08468	17	12152	+8480
0920		BD	DSC7	,EVATD,,	08480	43	08504	13564
0921		BD	DSC12	,EVATL,,	08492	43	08588	13562
0922	DSC7	BTM	DSP	,LPA,,	08504	17	11700	J5100
0923	DSC8	BD	DSC6	,DSC1S,,	08516	43	08468	08171
0924		CM	DSC1C	,68,,	08528	14	09191	+0068
0925		BNH	DSC9	,,,	08540	47	08564	01100
0926		BTM	FLP	,LPA,,	08552	17	11374	J5100
0927	DSC9	TF	SCD1F	,DSC1C,,	08564	26	23977	09191
0928		BTM	SCD	,DSC11,,	08576	17	23332	+8444
0929	DSC12	BD	DSC15	,EVATS,,	08588	43	08752	13565
0930		TDM	DSC1R	,1,,	08600	15	08149	00001
0931		BD	DSC14	,DSC1S-1,,	08612	43	08720	08170
0932		MM	ILC	,5,10,	08624	13	16282	000+5
0933		BD	DSC13	,99,,	08636	43	08672	00099
0934		AM	ILC	,1,10,	08648	11	16282	000+1
0935		TDM	CPR1P	,1,,	08660	15	02399	00001
0936	DSC13	TF	LOC	,ILC,,	08672	26	16291	16282
0937		AM	LOC	,2,10,	08684	11	16291	000+2
0938		A	ILC	,DSC1C,,	08696	21	16282	09191
0939		B	DSC16	,,,	08708	49	08788	00000
0940	DSC1W	DS	*	,,	08719		00000	
0941	DSC14	A	ILC	,DSC1C,,	08720	21	16282	09191
0942		TF	LOC	,ILC,,	08732	26	16291	16282
0943		B	DSC16	,,,	08744	49	08788	00000
0944		DORG	*-3	,,	08752			
0945	DSC15	TF	LOC	,EVA1T,,	08752	26	16291	13571
0946		TDM	CPR1P	,1,,	08764	15	02399	00001
0947		TD	DSC1R	,EVATR,,	08776	25	08149	13563
0948	DSC16	BD	DSC17	,LPA2T,,	08788	43	08824	16283
0949		TD	LLA1R	,DSC1R,,	08800	25	14595	08149
0950		BTM	LLA	,LPA,,	08812	17	14564	J5100
0951	DSC17	TD	LLB1R	,DSC1R,,	08824	25	14883	08149
0952		BTM	LLB	,*+12,,	08836	17	14852	+8848
0953		BD	DSC19	,DSC1S,,	08848	43	08976	08171
0954		TF	CPR3A	,LOC,,	08860	26	02411	16291
0955		TF	CPR3D	,DSC1C,,	08872	26	02416	09191
0956		TDM	CPR1R	,0,,	08884	15	02400	00000
0957		BD	DSC24	,DSC1S-1,,	08896	43	09156	08170
0958		SM	CPR3A	,1,10,	08908	12	02411	000+1
0959	DSC18	BD	DSC22	,DSC1R,,	08920	43	08944	08149
0960		SF	CPR3A	,,,	08932	32	02411	00000
0961	DSC22	BTM	CPR	,*+12,,	08944	17	01778	+8956
0962		TD	CPR1P	,EVATS,,	08956	25	02399	13565
0963		B	DSC21	,,,	08968	49	08988	00000
0964		DORG	*-3	,,	08976			
0965	DSC19	TDM	CPR1P	,1,,	08976	15	02399	00001
0966	DSC21	BD	LPA	,LPA1S,,	08988	43	15100	15315
0967		BD	DSC23	,DSC1R,,	09000	43	09024	08149
0968		SF	LOC	,,,	09012	32	16291	00000
0969	DSC23	TDM	PNS1C	,1,,	09024	15	17117	00001
0970		TF	PNS1P	,DSC1C,,	09036	26	17343	09191
0971		BTM	CDP	,*+12,,	09048	17	01620	+9060
0972		CF	LOC	-4,,	09060	33	16287	00000

0973 TBTY , , ,
0974 WNTYLOC -4 , , ,
0975 CF DSC1C -4 , , ,
0976 SPTY , , ,
0977 WNTYDSC1C -4 , , ,
0978 BD LPA , DSC1S , ,
0979 BTM PNS , LPA , ,
0980 DSC24 AM CPR3A , 1 , 10 ,
0981 S CPR3A , DSC1C
0982 B DSC18 , , ,
0983 DORG *-4 ,
0984 DSC1C DS 5 , ,
0985 DC 1 , 0 , ,
0986 DS 5 , ,
0987 DSS TFM DSS1D , 0 , ,

0988 DSS2 BTM SMB , *+12 , ,

0989 BD DSS1 , SMB1D+4 , ,

0990 B DSS6 , , ,
0991 DORG *-3
0992 DSS1 BD DSS3 , SMB1D+6 , ,

0993 BD DSS4 , SMB1D+5 , ,

0994 TDM DSS1A , 1 , ,

0995 B DSS2 , , ,
0996 DORG *-3
0997 DSS3 TDM DSS1D , 1 , ,

0998 BD DSS6 , DSS1A , ,

0999 BTM DTA , *+12 , ,

1000 BD DSS2 , DTA1S , ,

1001 BTM DTB , *+12 , ,

1002 BD DSS6 , DTB1F , ,

1003 B DSS2 , , ,

1004 DORG *-3
1005 DSS4 TDM DSS1L , 1 , ,

1006 DSS5 BNR DSS-1 , SMB1T , 6 ,

1007 TDM DSS1M , 1 , ,

1008 B DSS-1 , .6 ,

1009 DORG *-3
1010 DSS1L DS 1 , ,

09072 34 00000 00108
09084 38 16287 00100
09096 33 09187 00000
09108 34 00000 00101
09120 38 09187 00100
09132 43 15100 08171
09144 17 17050 J5100
09156 11 02411 000+1
09168 22 02411 09191
09180 49 08920 00000
09187
09191 00005
09192 00001
09197 00005
CLEAR INDICATORS
09198 16 09413 +0000
OBTAIN SYMBOL
09210 17 24236 +9222
BRANCH IF LEGAL
09222 43 09242 24828
09234 49 09414 00000
09242
BRANCH IF DOLLAR
09242 43 09286 24830
BRANCH IF COMMA OR RM
09254 43 09366 24829
CUM ARITH
09266 15 09412 00001
09278 49 09210 00000
09286
DOLLAR
09286 15 09413 00001
ERROR IF CUM ARITH
09298 43 09414 09412
LOOK UP DOLLAR TABLE
09310 17 09444 +9322
IGNORE IF ALREADY IN TABLE
09322 43 09210 09714
INSERT IN TABLE
09334 17 10872 +9346
ERROR OR FULL
09346 43 09414 11057
SEEK NEXT SYMBOL
09358 49 09210 00000
09366
SET LEGAL
09366 15 09410 00001
EXIT IF NO RM
09378 45 0919P 24853
RM TERMINATION
09390 15 09411 00001
EXIT
09402 49 0919P 00000
09410
LEGAL
09410 00001

1011	DSS1M DS	1,,	RM TERMINATION		
			09411	00001	
1012	DSS1A DS	1,,	CUM ARITH		
			09412	00001	
1013	DSS1D DS	1,,	DOLLAR		
			09413	00001	
1014	DSS6 BTM DSP,*+12,,		ERROR. OPERAND ERROR		
			09414	17 11700 +9426	
1015	BTM SCM,DSS5,,		SEEK TERMINATION COMMA OR RM		
			09426	17 23996 +9378	
1016	DS	5,,	09442	00005	
1017	DTA TR	DTA2A,DTA1A,,	SET INDICATOR AND DIRECTORS INITIALLY		
			09444	31 09713 09660	
1018	DTA1 AM	DTA1D,5,10,	ADD FIVE TO POWER TWO DIRECTOR		
			09456	11 09724 000+5	
1019	C	DTA1E,DTA1C,,	COMPARE EXAMINER WITH LIMIT		
			09468	24 09729 09666	
1020	BNH	DTA2 ,,,	09480	47 09540 01100	
1021	C	SMB2S,DTA1E,11,	COMPARE SYMBOL WITH TABLE ENTRY		
			09492	24 24852 0972R	
1022	BH	DTA2 ,,,	09504	46 09540 01100	
1023	TF	DTA1P,DTA1E,,	TRANSFER EXAMINER TO SYMBOL POSITION		
			09516	26 09719 09729	
1024	BE	DTA5 ,,,	09528	46 09612 01200	
1025	DTA2 BNR	DTA3 ,DTA1D,11,	09540	45 09560 0972M	
1026	B	DTA-1,,6,	EXIT IF SYMBOL NOT PRESENT		
			09552	49 0944L 00000	
1027	DORG	*-3	09560		
1028	DTA3 BH	DTA4 ,,,	09560	46 09592 01100	
1029	A	DTA1E,DTA1D,11,	INCREASE SYMBOL EXAMINER		
			09572	21 09729 0972M	
1030	B	DTA1 ,,,	09584	49 09456 00000	
1031	DORG	*-3	09592		
1032	DTA4 S	DTA1E,DTA1D,11,	DECREASE SYMBOL EXAMINER		
			09592	22 09729 0972M	
1033	B	DTA1 ,,,	09604	49 09456 00000	
1034	DORG	*-3	09612		
1035	DTA5 TDM	DTA1S,1,,	SYMBOL PRESENT IN TABLE		
			09612	15 09714 00001	
1036	SM	DTA1E,13,10,	SET TO EXTRACT VALUE		
			09624	12 09729 000J3	
1037	TF	DTA1V,DTA1E,11,	09636	26 09712 0972R	
1038	B	DTA-1,,6,	09648	49 0944L 00000	
1039	DC	2,0,,	09661	00002	
1040	DTA1A DS	*-1,	09660	00000	
1041	DTA1C DSA	DTA1T,DTA2D-5,DTA1T-31*18	09666	00005 J0866	
			09671	00005 +9677	
			09676	00005 J0308	
1042	DC	1,@,,	09677	00001	
1043	DTA2D DSA	16*18,8*18,4*18,2*18,1*18	09682	00005 +0288	
			09687	00005 +0144	
			09692	00005 +0072	
			09697	00005 +0036	
			09702	00005 +0018	

1044	DC	5,@,,	09707	00005
1045	DTA1V	DS 5,,	SYMBOL VALUE	
			09712	00005
1046	DTA2A	DS 1,,	09713	00001
1047	DTA1S	DS 1,,	SYMBOL PRESENT IF DIGIT	
			09714	00001
1048	DTA1P	DS 5,,	SYMBOL R.H.POSITION	
			09719	00005
1049	DTA1D	DS 5,,	POWER TWO DIRECTOR	
			09724	00005
1050	DTA1E	DS 5,,	SYMBOL R.H.EXAMINER	
			09729	00005
1051	DS	1,,	09730	00001
1052	DAS	1,,	09733	00001
1053	DORG	*-1,,	09732	
1054	DTA1T	DS 63*18+1,,	10866	01135
1055	DS	5,,	10871	00005
1056	DTB	CM DTA1C,DTA1T-62*18,,	10872	14 09666 +9750
1057	BL	DTB1 ,,,	BRANCH IF TABLE FULL	
			10884	47 11036 01300
1058	TF	DTB1C,DTA1C,,	STORE LIMIT COUNTER	
			10896	26 11063 09666
1059	SM	DTA1C,18,10,	10908	12 09666 000J8
1060	TF	DTB1P,DTA1P,	10920	26 11068 09719
1061	SM	DTB1P,18,10,	SET SYMBOL L.H.POSITION	
			10932	12 11068 000J8
1062	TD	DTA1P,DTB1R,6,	SET RM IN TABLE	
			10944	25 0971R 11058
1063	TD	SMB2S,DTB1R,,	SET RM AFTER SYMBOL	
			10956	25 24852 11058
1064	TR	DTA1C,DTB1C,611,	MAKE ROOM IN TABLE	
			10968	31 09660 1106L
1065	BNR	DTB1 ,DTB1P,11,	10980	45 11036 1106Q
1066	TR	DTB1P,SMB1R,6,	INSERT NEW SYMBOL	
			10992	31 1106Q 24834
1067	TDM	DTA1P,0,6	11004	15 0971R 00000
1068	AM	DTB1N,1,,	ADD 1 TO SYMBOL COUNT	
			11016	11 11056 +0001
1069	B	DTB-1,,6,	11028	49 1087J 00000
1070	DORG	*-3	11036	
1071	DTB1	TDM DTB1F,1,,	11036	15 11057 00001
1072	B	DTB-1,,6,	11048	49 1087J 00000
1073	DORG	*-4	11055	
1074	DTB1N	DC 2,0,,	11056	00002
1075	DTB1F	DC 1,0,,	11057	00001
1076	DTB1R	DC 1,@,,	11058	00001
1077	DTB1C	DS 5	11063	00005
1078	DTB1P	DS 5	11068	00005
1079	DS	5,,	11073	00005
1080	DTC	TF DTC1N,DTB1N,,	11074	26 11180 11056
1081	TFM	DTC1S,DTA1T-13,,	11086	16 11140 J0853
1082	TFM	DTC1V,4,711,	11098	16 11145 +000M
1083	DTC1	SM DTC1N,1,10,	11110	12 11180 000+1
1084	BL	DTC-1,,6,	11122	47 1107L 01300
1085	TFM	,,,	11134	16 00000 +0000
1086	DTC1S	DS 0,*-5,	11140	00000

1087	DTC1V	DS	0,*	11145	00000		
1088		SM	DTC1S,18,10,	11146	12	11140	000J8
1089		SM	DTC1V,5,10,	11158	12	11145	000+5
1090		B	DTC1 ,,,	11170	49	11110	00000
1091		DORG	*-2	11179			
1092	DTC1N	DS	2,,	11180		00002	
1093		DS	5,,	11185		00005	
1094	ERP	TDM	LPA1X,1,,				SET ERROR INDICATOR
				11186	15	16284	00001
1095		BTM	CDP ,*+12,,				PRINT CARD IF NOT ALREADY PRINTED
				11198	17	01620	J1210
1096		TBTY	,,,				TABULATE TYPEWRITER
				11210	34	00000	00108
1097		WATYERP1A	,,,				PRINT ERROR MESSAGE
				11222	39	11255	00100
1098		RCTY	,,,				RETURN CARRIAGE
				11234	34	00000	00102
1099		B	ERP-1,,6,	11246	49	1118N	00000
1100		DORG	*-4,	11253			
1101	ERP1A	DAS	26,,				FOR ERROR MESSAGE
				11255		00026	
1102		DS	5,,	11310		00005	
1103	TMP	TR	ERP1A-1,TMP1A-1,,	11312	31	11254	11336
1104		BT	ERP ,TMP-1,,	11324	27	11186	11311
1105	TMP1A	DAC	16,TOO MANY DIGITS@,,	11337		00016	
1106		DS	5,,	11372		00005	
1107	FLP	TR	ERP1A-1,FLP1A-1,,	11374	31	11254	11398
1108		BT	ERP- ,FLP-1,,	11386	27	11186	11373
1109	FLP1A	DAC	21,INVALID FIELD LENGTH@,,				
				11399		00021	
1110		DS	5,,	11444		00005	
1111	CEP	TR	ERP1A-1,CEP1A-1,,	11446	31	11254	11470
1112		BT	ERP ,CEP-1,,	11458	27	11186	11445
1113	CEP1A	DAC	21,PROGRAMME CARD ERROR@,,				
				11471		00021	
1114		DS	5,,	11516		00005	
1115	EVP	TR	ERP1A-1,EVP1A-1,,	11518	31	11254	11542
1116		BT	ERP ,EVP-1,,	11530	27	11186	11517
1117	EVP1A	DAC	14,COMMA MISSING@,,	11543		00014	
1118		DS	5,,	11574		00005	
1119	SCP	TR	ERP1A-1,SCP1A-1,,	11576	31	11254	11600
1120		BT	ERP ,SCP-1,,	11588	27	11186	11575
1121	SCP1A	DAC	18,ILLEGAL CHARACTER@,,	11601		00018	
1122		DS	5,,	11640		00005	
1123	LBP	TR	ERP1A-1,LBP1A-1,,	11642	31	11254	11666
1124		BT	ERP ,LBP-1,,	11654	27	11186	11641
1125	LBP1A	DAC	14,ILLEGAL LABEL@,,	11667		00014	
1126		DS	5,,	11698		00005	
1127	DSP	TR	ERP1A-1,DSP1A-1,,	11700	31	11254	11724
1128		BT	ERP ,DSP-1,,	11712	27	11186	11699
1129	DSP1A	DAC	14,OPERAND ERROR@,,	11725		00014	
1130		DS	5,,	11756		00005	
1131	LPP	TR	ERP1A-1,LPP1A-1,,	11758	31	11254	11782
1132		BT	ERP ,LPP-1,,	11770	27	11186	11757
1133	LPP1A	DAC	18,ILLEGAL OPERATION@,,	11783		00018	
1134		DS	5,,	11822		00005	

1135	LLP	TR	ERP1A-1,LLP1A-1,,	11824	31	11254	11848
1136		BT	ERP ,LLP-1,,	11836	27	11186	11823
1137	LLP1A	DAC	25,LABEL PREVIOUSLY DEFINED@,,	11849		00025	
1138		DS	5,,	11902		00005	
1139	LLE	TR	ERP1A-1,LLE1A-1,,	11904	31	11254	11928
1140		BT	ERP ,LLE-1,,	11916	27	11186	11903
1141	LLE1A	DAC	18,SYMBOL TABLE FULL@,,	11929		00018	
1142		DS	5,,	11968		00005	
1143	LEP	TR	ERP1A-1,LEP1A-1,,	11970	31	11254	11994
1144		BT	ERP ,LEP-1,,	11982	27	11186	11969
1145	LEP1A	DAC	12,PHASE ERROR@,,	11995		00012	
1146		DS	5,,	12022		00005	
1147	UDP	TR	ERP1A-1,UDP1A-1,,	12024	31	11254	12048
1148		BT	ERP ,UDP-1,,	12036	27	11186	12023
1149	UDP1A	DAC	17,UNDEFINED SYMBOL@,,	12049		00017	
1150		DS	5,,	12086		00005	
1151	REP	TR	ERP1A-1,REP1A-1,,	12088	31	11254	12112
1152		BT	ERP ,REP-1,,	12100	27	11186	12087
1153	REP1A	DAC	17,RELOCATION ERROR@,,	12113		00017	
1154		DS	5	12150		00005	
1155	EVA	TR	EVASR,SMB1B+22,,				CLEAR INDICATORS
				12152	31	13557	24814
1156		TF	EVA1T,SMB1B+5,,				SET ZERO AND FLAG TOTAL FIELD
				12164	26	13571	24797
1157		TF	EVA2T,SMB1B+5,,				SET ZERO AND FLAG TOTALR FIELD
				12176	26	13577	24797
1158	EVA1	BTM	SMB,*+12,,				OBTAIN NEW SYMBOL
				12188	17	24236	J2200
1159		BD	EVA3,SMB1D+4,,				PROCEDE IF LEGAL
				12200	43	12240	24828
1160		B	EVA31,,,				ERROR
				12212	49	13276	00000
1161		DORG	*-3	12220			
1162	EVA2	TDM	EVATS,1,,	12220	15	13565	00001
1163		B	EVA4,,,	12232	49	12252	00000
1164		DORG	*-3	12240			
1165	EVA3	BD	EVA2,SMB1D+1,,	12240	43	12220	24825
1166	EVA4	BD	EVA5,SMB1D+6,,				DOLLAR
				12252	43	12380	24830
1167		BD	EVA7,SMB1D+2,,				NOT NUMBER
				12264	43	12484	24826
1168		TD	EVA1S,SMB1S+11,,				OBTAIN DECIMAL NUMBER
				12276	25	13595	24851
1169		TD	EVA1S-1,SMB1S+9,,	12288	25	13594	24849
1170		TD	EVA1S-2,SMB1S+7,,	12300	25	13593	24847
1171		TD	EVA1S-3,SMB1S+5,,	12312	25	13592	24845
1172		TD	EVA1S-4,SMB1S+3,,	12324	25	13591	24843
1173		TD	EVA1S-5,SMB1S+1,,	12336	25	13590	24841
1174		SF	EVA1S-5,,,	12348	32	13590	00000
1175		TDM	EVASR,0,,	12360	15	13557	00000
1176		B	EVA11	12372	49	12588	00000
1177		DORG	*-3	12380			
1178	EVA5	BD	EVA31,EVATC,,				ERROR IF CUM ARITH
				12380	43	13276	13561
1179		BTM	DTA,*+12,,				SEEK DOLLAR SYMBOL VALUE
				12392	17	09444	J2404

1180	BD	EVA6,DTA1S,,	SYMBOL PRESENT 12404 43 12428 09714
1181	BTM	LEP,EVA31,,	PHASE ERROR 12416 17 11970 J3276
1182	EVA6	TF EVA1T,DTA1V,,	SET SYMBOL VALUE IN TOTAL 12428 26 13571 09712
1183	BTM	SMB,*+12,,	OBTAIN NEXT SYMBOL 12440 17 24236 J2452
1184	BD	EVA31,SMB1D+1,,	ERROR IF NOT BLANK 12452 43 13276 24825
1185	BD	EVA32,SMB1D+5,,	PROCEED IF BLANK COMMA OR BLANK R.M. 12464 43 13300 24829
1186	B	EVA31,,,	ERROR 12476 49 13276 00000
1187		DORG *-3	12484
1188	EVA7	BD EVA8 ,SMB1D+3,,	ASTERISK 12484 43 12532 24827
1189	BTM	RTA,*+12,,	SEEK SYMBOL VALUE 12496 17 17960 J2508
1190	BD	EVA9,RTA1S,,	SYMBOL PRESENT 12508 43 12564 18273
1191	BTM	UDP,EVA31,,	UNDEFINED SYMBOL PRINT, ERROR 12520 17 12024 J3276
1192	EVA8	TF EVA1S,ILC,,	OBTAIN ASTERISK VALUE 12532 26 13595 16282
1193	TDM	EVASR,1,,	RELATIVE VALUE 12544 15 13557 00001
1194	B	EVA11	12556 49 12588 00000
1195		DORG *-3	12564
1196	EVA9	TF EVA1S,RTA1V,,	SET SYMBOL VALUE 12564 26 13595 18271
1197	TD	EVASR,RTA1R,,	SET SYMBOL TYPE 12576 25 13557 18274
1198	EVA11	TDM EVATC,1,,	SET DIGIT IN CUM ARITH 12588 15 13561 00001
1199	BD	EVA21,EVAPF,,	BRANCH IF PROD OCCUPIED 12600 43 12872 13558
1200	BD	EVA17,SMB1D+8,,	BRANCH IF SYMBOL MULT 12612 43 12784 24832
1201	BD	EVA15,EVATM,,	BRANCH IF TOTAL MINUS 12624 43 12732 13560
1202	A	EVA1T,EVA1S,,	ADD SYMBOL TO TOTAL 12636 21 13571 13595
1203	BD	EVA14,EVASR,,	BRANCH IF SYMBOL REL 12648 43 12712 13557
1204	EVA12	BD EVA13,SMB1D+7,,	BRANCH IF SYMBOL ARITH 12660 43 12692 24831
1205	BD	EVA33,SMB1D+5,,	BRANCH IF COMMA OR RM 12672 43 13344 24829
1206	B	EVA31,,,	ERROR 12684 49 13276 00000
1207		DORG *-3	12692
1208	EVA13	TD EVATM,SMB1D+9,,	SYMBOL MINUS TO TOTAL MINUS 12692 25 13560 24833
1209	B	EVA1,,,	READ NEW SYMBOL 12704 49 12188 00000

1210	DORG *-3			12712			
1211	EVA14	AM	EVA2T,1,10,	ADD 1 TO TOTAL			
				12712	11	13577	000+1
1212	B	EVA12,,,		12724	49	12660	00000
1213	DORG *-3			12732			
1214	EVA15	S	EVA1T,EVA1S,,	SUBTRACT SYMBOL FROM TOTAL			
				12732	22	13571	13595
1215	BD	EVA16,EVASR,,		BRANCH IF SYMBOL REL			
				12744	43	12764	13557
1216	B	EVA12,,,		12756	49	12660	00000
1217	DORG *-3			12764			
1218	EVA16	SM	EVA2T,1,10,	SUBTRACT 1 FROM TOTALR			
				12764	12	13577	000+1
1219	B	EVA12,,,		12776	49	12660	00000
1220	DORG *-3			12784			
1221	EVA17	TD	EVAPR,EVASP,,	SYMBOL REL TO PROD REL			
				12784	25	13559	13557
1222	TF	EVA1P,EVA1S,,		SYMBOL VALUE TO PROD			
				12796	26	13583	13595
1223	BD	EVA19,EVASR,,		BRANCH IF SYMBOL REL			
				12808	43	12852	13557
1224	TF	EVA2P,EVA1S,,		SYMBOL VALUE TO PRODR			
				12820	26	13589	13595
1225	EVA18	TDM	EVAPF,1,,	SET DIGIT IN PROD OCCUPIED			
				12832	15	13558	00001
1226	B	EVA1,,,		OBTAIN NEW SYMBOL			
				12844	49	12188	00000
1227	DORG *-3			12852			
1228	EVA19	TFM	EVA2P,1,10,	1 TO PRODR			
				12852	16	13589	000+1
1229	B	EVA18,,,		12864	49	12832	00000
1230	DORG *-3			12872			
1231	EVA21	BD	EVA22,EVASR,,	BRANCH IF SYMBOL REL			
				12872	43	12892	13557
1232	B	EVA23		12884	49	12916	00000
1233	DORG *-3			12892			
1234	EVA22	BD	EVA31,EVAPR,,	ERROR IF ALSO PROD REL			
				12892	43	13276	13559
1235	TDM	EVAPR,1,,		12904	15	13559	00001
1236	EVA23	M	EVA1P,EVA1S,,	MULTIPLY PROD BY SYMBOL VALUE			
				12916	23	13583	13595
1237	SF	94,,,		12928	32	00094	00000
1238	BD	EVA29,SMB1D+8,,		BRANCH IF SYMBOL MULT			
				12940	43	13196	24832
1239	TDM	EVAPF,0,,		CLEAR PROD OCCUPIED			
				12952	15	13558	00000
1240	BD	EVA26,EVATM,,		BRANCH IF TOTAL MINUS			
				12964	43	13084	13560
1241	A	EVA1T,99,,		12976	21	13571	00099
1242	BD	EVA24,EVAPR,,		BRANCH IF DIGIT IN PROD REL			
				12988	43	13008	13559
1243	B	EVA12,,,		13000	49	12660	00000
1244	DORG *-3			13008			
1245	EVA24	BD	EVA25,EVASR,,	BRANCH IF DIGIT IN SYMB REL			
				13008	43	13064	13557
1246	M	EVA2P,EVA1S,,		MULT PRODR BY SYMBOL VALUE			
				13020	23	13589	13595

1247	SF	94,,,	13032	32	00094	00000
1248	A	EVA2T,99,,	ADD TO TOTALR			
			13044	21	13577	00099
1249	B	EVA12,,,	13056	49	12660	00000
1250	DORG	*-3	13064			
1251	EVA25	A EVA2T,EVA2P,,	ADD PRODR TO TOTALR			
			13064	21	13577	13589
1252	B	EVA12,,,	13076	49	12660	00000
1253	DORG	*-3	13084			
1254	EVA26	S EVA1T,99,,	SUBTRACT FROM TOTAL			
			13084	22	13571	00099
1255	BD	EVA27,EVAPR,,	BRANCH IF PROD REL			
			13096	43	13116	13559
1256	B	EVA12,,,	13108	49	12660	00000
1257	DORG	*-3	13116			
1258	EVA27	BD EVA28,EVASR,,	BRANCH IF SYMBOL REL			
			13116	43	13172	13557
1259	M	EVA2P,EVA1S,,	MULT PRODR BY SYMBOL VALUE			
			13128	23	13589	13595
1260	SF	94,,,	13140	32	00094	00000
1261	S	EVA2T,99,,	SUBTRACT FROM TOTALR			
			13152	22	13577	00099
1262	B	EVA12	13164	49	12660	00000
1263	DORG	*-3	13172			
1264	EVA28	S EVA2T,EVA2P,,	SUBTRACT PRODR FROM TOTALR			
			13172	22	13577	13589
1265	B	EVA12	13184	49	12660	00000
1266	EVA29	TF EVA1P,99,,	TRANSFER PROD BY SYMBOL TO PROD			
			13196	26	13583	00099
1267	BD	EVA1,EVASR,,	BRANCH IF SYMBOL REL			
			13208	43	12188	13557
1268	M	EVA2P,EVA1S,,	MULT PRODR BY SYMBOL VALUE			
			13220	23	13589	13595
1269	SF	94,,,	13232	32	00094	00000
1270	TF	EVA2P,99,,	TRANSFER TO PRODR			
			13244	26	13589	00099
1271	B	EVA1,,,	OBTAIN NEW SYMBOL			
			13256	49	12188	00000
1272	DORG	*-3	13264			
1273	EVA37	BTM REP,*+12,,	RELOCATION ERROR PRINT			
			13264	17	12088	J3276
1274	EVA31	BD EVA35,SMB1D+5,,	FOR ERRORS. TEST IF END OF EXPRESSION			
			13276	43	13392	24829
1275	BTM	SMB,*-12,,	OBTAIN NEW SYMBOL AND TEST AGAIN			
			13288	17	24236	J3276
1276	EVA32	TDM EVATD,1,,	FOR DOLLAR SYMBOL			
			13300	15	13564	00001
1277	TDM	EVATR,1,,	SET TOTAL DOLLAR,REL AND NOT BLANK			
			13312	15	13563	00001
1278	TDM	EVATS,1,,	13324	15	13565	00001
1279	B	EVA34,,,	13336	49	13356	00000
1280	DORG	*-3	13344			
1281	EVA33	BD EVA36,EVATS,,	BRANCH IF TOTAL NOT BLANK			
			13344	43	13416	13565
1282	EVA34	SF EVA1T-4,,,	SET FLAG ON 5TH DIGIT OF TOTAL			
			13356	32	13567	00000

1283	TDM	EVATL,1,,	SET TOTAL LEGAL
			13368 15 13562 00001
1284	BD	EVA-1,EVATS,6,	EXIT IF TOTAL NOT BLANK
			13380 43 1215J 13565
1285	EVA35	TFM EVA1T,0,,	CLEAR AND SET FIVE DIGIT FIELD
			13392 16 13571 +0000
1286	B	EVA-1,,6,	EXIT
			13404 49 1215J 00000
1287	EVA36	CM EVA2T,0,10,	13416 14 13577 000+0
1288	BE	EVA38,,,	BRANCH IF ABSOLUTE EXPRESSION
			13428 46 13476 01200
1289	CM	EVA2T,1,10,	13440 14 13577 000+1
1290	BNE	EVA37,,,	BRANCH IF RELOCATION ERROR
			13452 47 13264 01200
1291	TDM	EVATR,1,,	EXPRESSION RELOCATABLE
			13464 15 13563 00001
1292	EVA38	BNF EVA39,EVA1T,,	BRANCH IF NEGATIVE OR NEGATIVE ZERO
			13476 44 13508 13571
1293	A	EVA1T,EVACS,,	ADD CORE STORAGE SIZE
			13488 21 13571 13556
1294	B	EVA38,,,	13500 49 13476 00000
1295	DORG	*-3,	13508
1296	EVA39	C EVA1T,EVACS,,	COMPARE TOTAL WITH CORE STORAGE SIZE
			13508 24 13571 13556
1297	BL	EVA34,,,	PROCEED IF WITHIN CORE STORAGE SIZE
			13520 47 13356 01300
1298	S	EVA1T,EVACS,,	OTHERWISE SUNTRACT CORE STORAGE SIZE
			13532 22 13571 13556
1299	B	EVA39	13544 49 13508 00000
1300	DORG	*-4	13551
1301	EVACS	DC 6,60000,,	CORE STORAGE SIZE
			13556 00006
1302	EVASR	DS 1,,	SYMBOL REL INDICATOR
			13557 00001
1303	EVAPF	DS 1,,	PRODUCT OCCUPIED INDICATOR
			13558 00001
1304	EVAPR	DS 1,,	PRODUCT REL INDICATOR
			13559 00001
1305	EVATM	DS 1,,	TOTAL MINUS INDICATOR
			13560 00001
1306	EVATC	DS 1,,	TOTAL CUM ARITH INDICATOR
			13561 00001
1307	EVATL	DS 1,,	TOTAL LEGAL INDICATOR
			13562 00001
1308	EVATR	DS 1,,	TOTAL REL INDICATOR
			13563 00001
1309	EVATD	DS 1,,	TOTAL DOLLAR INDICATOR
			13564 00001
1310	EVATS	DS 1,,	TOTAL NOT BLANK INDICATOR
			13565 00001
1311	EVA1T	DS 6,,	6 DIGIT TOTAL FIELD
			13571 00006
1312	EVA2T	DS 6,,	6 DIGIT TOTALR FIELD
			13577 00006
1313	EVA1P	DS 6,,	6 DIGIT PROD FIELD
			13583 00006

1314	EVA2P DS	6,,	6 DIGIT PRODR FIELD				
			13589	00006			
1315	EVA1S DS	6,,	5 OR 6 DIGIT SYMBOL VALUE FIELD				
			13595	00006			
1316	DS	5	13600	00005			
1317	EVF	TDM EVF1P,0,,	CLEAR FLAGS PRESENT INDICATOR				
			13602	15	13612	00000	
1318	EVF1P DS	0,*-1,	FLAGS PRESENT INDICATOR				
			13612	00000			
1319	EVF7F DS	0,*-2,	FLAG 7 INDICATOR				
			13611	00000			
1320	BNR	EVF4,SMB1T,,	13614	45	13634	24853	
1321	B	EVF1,,,	13626	49	13682	00000	
1322	DORG	*-3	13634				
1323	EVF4	TF SMB1T,SMB1E,11,	TRANSFER CHARACTER TO STORE				
			13634	26	24853	2425R	
1324	AM	SMB1E,2,10,	13646	11	24259	000+2	
1325	BNR	EVF3,SMB1T,,	13658	45	13722	24853	
1326	BD	EVF-1,EVF1P,6,	13670	43	1360J	13612	
1327	EVF1	BD EVF2,EVF7F,,	13682	43	13702	13611	
1328	B	EVF-1,,6,	13694	49	1360J	00000	
1329	DORG	*-3	13702				
1330	EVF2	SF CPR4R+9,,,	SET	13702	32	02528	00000 ELD INSTRUCTIO ,
1331	B	EVF-1,,6,	13714	49	1360J	00000	
1332	DORG	*-3	13722				
1333	EVF3	BD EVF6,EVF1P,,	13722	43	13830	13612	
1334	CM	SMB1T,0,10,	13734	14	24853	000+0	
1335	BE	EVF4,,,	IGNORE BLANKS				
			13746	46	13634	01200	
1336	CM	SMB1T,23,10,	13758	14	24853	000K3	
1337	BE	EVF1,,,	EXIT IF NO FLAGS SPECIFIED				
			13770	46	13682	01200	
1338	CM	SMB1T,70,10,	13782	14	24853	000P0	
1339	BNL	EVF5,,,	13794	46	13818	01300	
1340	BTM	EVP,EVF1,,	ERROR, COMMA MISSING				
			13806	17	11518	J3682	
1341	EVF5	TDM EVF1P,1,,	13818	15	13612	00001	
1342	EVF6	CM SMB1T,71,10,	13830	14	24853	000P1	
1343	BL	EVF8,,,	13842	47	13886	01300	
1344	BE	EVF9,,,	13854	46	13922	01200	
1345	EVF7	TDM SMB2S,0,11	13866	15	24852	0000+	
1346	B	EVF16,,,	13878	49	14126	00000	
1347	DORG	*-3	13886				
1348	EVF8	CM SMB1T,70,10,	13886	14	24853	000P0	
1349	BL	EVF-1,,6,	13898	47	1360J	01300	
1350	BE	EVF7,,,	13910	46	13866	01200	
1351	EVF9	BNR EVF11,SMB1E,11,	13922	45	13942	2425R	
1352	B	EVF7	13934	49	13866	00000	
1353	DORG	*-3	13942				
1354	EVF11	CM SMB1E,71,610,	13942	14	2425R	000P1	
1355	BE	EVF14,,,	13954	46	14046	01200	
1356	BH	EVF7,,,	13966	46	13866	01100	
1357	EVF12	CM SMB1E,70,610,	13978	14	2425R	000P0	
1358	BL	EVF7,,,	13990	47	13866	01300	
1359	EVF13	TD SMB1T,SMB1E,11,	14002	25	24853	2425R	
1360	AM	SMB1E,2,10,	14014	11	24259	000+2	

1361	TDM	SMB2S,1,11,	14026	15	24852	0000J
1362	B	EVF16,,,	14038	49	14126	00000
1363		DORG *-3	14046			
1364	EVF14	TF EVF1E,SMB1E,,	14046	26	14081	24259
1365		AM EVF1E,2,10,	14058	11	14081	000+2
1366		BNR EVF15,*,,	14070	45	14090	14070
1367	EVF1E	DS 0,*	14081		00000	
1368	B	EVF13,,,	14082	49	14002	00000
1369		DORG *-3,	14090			
1370	EVF15	CM EVF1E,70,610,	14090	14	1408J	000P0
1371		BL EVF13,,,	14102	47	14002	01300
1372		BNL EVF7,,,	14114	46	13866	01300
1373	EVF16	TFM EVF1S,CPR4R,,	14126	16	14236	+2519
1374		CM SMB1T,6,10,	14138	14	24853	000+6
1375		BH EVF17,,,	14150	46	14194	01100
1376		CM SMB1T,1,10,	14162	14	24853	000+1
1377		BH EVF18,,,	14174	46	14206	01100
1378		B EVF19,,,	14186	49	14218	00000
1379		DORG *-3,	14194			
1380	EVF17	AM SMB1T,1,10,	14194	11	24853	000+1
1381	EVF18	AM SMB1T,1,10,	14206	11	24853	000+1
1382	EVF19	A EVF1S,SMB1T,,	14218	21	14236	24853
1383		SF * ,,,	14230	32	14230	00000
1384	EVF1S	DS 0,*-5,	14236		00000	
1385		B EVF4 ,,,	14242	49	13634	00000
1386		DORG *-4	14249			
1387		DS 5	14253		00005	
1388	LAB	TDM RCD+22,,,	SET RM			
1389	DC	1,@,*	14254	15	00781	00000
1390	TFM	SMB1E,RCD+10,,	14265		00001	
1391	TFM	LAB2D+4,0,,	SET EXTRACTOR FOR LABEL			
1392	BTM	SMB,*+12,,	14266	16	24259	+0769
1393	TR	LAB1D+1,SMB1D+1,,	CLEAR LABEL INDICATORS			
1394	BD	LAB1 ,LAB1D+4,,	14278	16	14526	+0000
1395	B	LAB8 ,,,	14290	17	24236	J4302
1396		DORG *-3	TRANSFER SYMBOL AND INDICATORS			
1397	LAB1	BD LAB6 ,LAB1D+6,,	14302	31	14528	24825
1398	BNR	LAB8 ,LAB1T,,	IS SYMBOL LEGAL			
1399	BD	LAB2 ,LAB1D+1,,	14314	43	14334	14531
1400	B	LAB-1,,6,	ERROR			
1401		DORG *-3	14326	49	14510	00000
1402	LAB2	BD LAB3 ,LAB1D+2,,	14334			
1403	B	LAB8 ,,,	IS SYMBOL DOLLAR			
1404		DORG *-3	14334	43	14446	14533
1405	LAB3	BD LAB8 ,LAB1D+3,,	ERROR			
			14346	45	14510	14556
			IS SYMBOL BLANK			
			14358	43	14378	14528
			14370	49	1425L	00000
			14378			
			IS SYMBOL NUMBER			
			14378	43	14398	14529
			ERROR			
			14390	49	14510	00000
			14398			
			IS SYMBOL ASTERISK			
			14398	43	14510	14530

1406	LAB4	TDM	LAB2D+2,1,,	REL TABLE	14410	15	14524	00001
1407	LAB5	TDM	LAB2D+1,1,,	SYMBOL PRESENT	14422	15	14523	00001
1408		B	LAB-1,,6,	EXIT	14434	49	1425L	00000
1409	LAB6	TDM	LAB2D+3,1,,	DOLLAR	14446	15	14525	00001
1410		BD	LAB7 ,LAB1D+1,,	IS SYMBOL BLANK	14458	43	14490	14528
1411		TDM	LAB1D+4,1,,	BLANK DOLLAR	14470	15	14531	00001
1412		B	LAB5 ,,,		14482	49	14422	00000
1413		DORG	*-3		14490			
1414	LAB7	BD	LAB4 ,LAB1D+2,,		14490	43	14410	14529
1415		B	LAB5 ,,,		14502	49	14422	00000
1416		DORG	*-3		14510			
1417	LAB8	BTM	LBP,LAB-1,711,	ERROR PRINT AND EXIT	14510	17	11642	J425L
1418	LAB2D	DSB	1,5,,		14522		00001	00005
1419	LAB1D	DS	1,,		14527		00001	
1420	LAB1R	DS	10,,		14537		00010	
1421	LAB1V	DS	5,,		14542		00005	
1422	LAB1S	DS	1,,		14543		00001	
1423	LAB2S	DS	12,,		14555		00012	
1424	LAB1T	DS	1,,		14556		00001	
1425		DS	2,,		14558		00002	
1426		DS	5,,		14563		00005	
1427	LLA	BTM	LAB ,*+12,,	OBTAIN LABEL	14564	17	14254	J4576
1428		BD	LLA1 ,LAB2D+1,,		14576	43	14596	14523
1429		B	LLA-1,,6,	EXIT IF NO LABEL	14588	49	1456L	00000
1430	LLA1R	DS	,-4,	LABEL REL INDICATOR	14595		00000	
1431		DORG	*-3,		14596			
1432	LLA1	BD	LLA7 ,LAB2D+2,,	EXAMINE REL TABLE INDICATOR	14596	43	14744	14524
1433	LLA2	BD	LLA3 ,LAB2D+3,,	EXAMINE DOLLAR INDICATOR	14608	43	14628	14525
1434		B	LLA-1,,6,		14620	49	1456L	00000
1435		DORG	*-3,		14628			
1436	LLA3	BD	LLA4 ,LLA1R,,	EXAMINE LABEL REL INDICATOR	14628	43	14652	14595
1437		BTM	LBP ,LLA-1,711,	ERROR, ILLEGAL LABEL	14640	17	11642	J456L
1438	LLA4	BD	LLA-1,LPA1V,6,	EXAMINE TITLE INDICATOR	14652	43	1456L	16286
1439		TF	SMB1V,LOC,,	SET VALUE	14664	26	24839	16291
1440		TDM	SMB2S,,,	SET RM	14676	15	24852	00000
1441		DC	1,@,*,		14687		00001	
1442		TR	PTC4R,SMB1R,,	SET TITLE CARD	14688	31	17874	24834
1443		TDM	LPA1V,1,,	AND INDICATOR	14700	15	16286	00001

1444	B	LLA-1,,6,	EXIT
			14712 49 1456L 00000
1445	DORG	*-3,	14720
1446	LLA5	BTM LLE ,LLA2,,	ERROR, SYMBOL TABLE FULL
			14720 17 11904 J4608
1447	LLA6	BTM LLP ,LLA8,,	ERROR, SYMBOL PREV DEFINED
			14732 17 11824 J4768
1448	LLA7	BTM RTA ,*+12,,	LOOK UP LABEL
			14744 17 17960 J4756
1449	BD	LLA6 ,RTA1S,,	BRANCH IF ALREADY DEFINED
			14756 43 14732 18273
1450	LLA8	TF SMB1V,LOC,,	SET VALUE
			14768 26 24839 16291
1451	SF	SMB1V,,,	SET FLAG
			14780 32 24839 00000
1452	BD	*+24 ,LLA1R,,	14792 43 14816 14595
1453	CF	SMB1V,,,	CLEAR FLAG IF ABSOLUTE
			14804 33 24839 00000
1454	BTM	RTB ,*+12,,	ENTER LABEL
			14816 17 22888 J4828
1455	BD	LLA5 ,RTB1F,,	BRANCH IF FULL
			14828 43 14720 23059
1456	B	LLA2 ,,,	14840 49 14608 00000
1457	DORG	*-4	14847
1458	DS	5,,	14851 00005
1459	LLB	BTM LAB ,*+12,,	OBTAIN LABEL
			14852 17 14254 J4864
1460	BD	LLB1 ,LAB2D+1,,	14864 43 14884 14523
1461	B	LLB-1,,6,	EXIT IF NO LABEL
			14876 49 1485J 00000
1462	LLB1R	DS ,*-4,	LABEL REL INDICATOR
			14883 00000
1463	DORG	*-3,	14884
1464	LLB1	BD LLB6 ,LAB2D+2,,	EXAMINE LABEL REL INDICATOR
			14884 43 14984 14524
1465	LLB2	BD LLB3 ,LAB2D+3,,	EXAMINE DOLLAR INDICATOR
			14896 43 14916 14525
1466	B	LLB-1,,6,	EXIT
			14908 49 1485J 00000
1467	DORG	*-3,	14916
1468	LLB3	BD LLB4 ,LLB1R,,	EXAMINE LABEL REL INDICATOR
			14916 43 14940 14883
1469	BTM	LBP ,LLB-1,711,	ERROR, ILLEGAL LABEL
			14928 17 11642 J485J
1470	LLB4	BD LLB5 ,LPA1V,,	EXAMINE TITLE INDICATOR
			14940 43 14972 16286
1471	TOM	LPA1V,1,,	SET TITLE INDICATOR
			14952 15 16286 00001
1472	B	LLB-1,,6,	EXIT
			14964 49 1485J 00000
1473	DORG	*-3,	14972
1474	LLB5	BTM PSC ,LLB-1,711,	PUNCH OUT SYN CARD AND EXIT
			14972 17 17354 J485J
1475	LLB6	BTM RTA ,*+12,,	LOOK UP LABEL
			14984 17 17960 J4996
1476	BD	LLB8 ,RTA1S,,	BRANCH IF PRESENT
			14996 43 15020 18273

1477	LLB7	BTM	LEP	,LLB2,,	PHASE ERROR				
						15008	17	11970	J4896
1478	LLB8	BD	LLB11	,RTA1R,,	COMPARE				
						15020	43	15076	18274
1479		BD	LLB7	,LLB1R,,	DIGITS				
						15032	43	15008	14883
1480	LLB9	C	RTA1V	,LOC,,	COMPARE VALUES				
						15044	24	18271	16291
1481		BE	LLB2	,,,		15056	46	14896	01200
1482		B	LLB7	,,,		15068	49	15008	00000
1483		DORG	*-3	,		15076			
1484	LLB11	BD	LLB9	,LLB1R,,		15076	43	15044	14883
1485		B	LLB7	,,,		15088	49	15008	00000
1486		DORG	*-4			15095			
1487		DS	5			15099		00005	
1488	LPA	BNR	LPA1	,RCT,,	BRANCH IF MACRO				
						15100	45	15316	16297
1489		RACDRCD				15112	37	00759	00500
1490		TDM	LPA1P	,0,,		15124	15	16285	00000
1491		TFM	LPA1E	,RCD+150,,		15136	16	15171	+0909
1492	LPA21	SM	LPA1E	,2,10,		15148	12	15171	000+2
1493		TF	LPA1B	,,,		15160	26	15223	00000
1494	LPA1E	DS	*	,		15171		00000	
1495		BNF	LPA22	,LPA1B-1,,		15172	44	15224	15222
1496		BD	LPA23	,LPA1B-1,,		15184	43	15236	15222
1497		BD	LPA23	,LPA1B,,		15196	43	15236	15223
1498		B	LPA21	,,,		15208	49	15148	00000
1499		DORG	*-4	,		15215			
1500	LPA1B	DS	9	,,		15223		00009	
1501	LPA22	AM	LPA1E	,2,10,		15224	11	15171	000+2
1502	LPA23	AM	LPA1E	,2,10,		15236	11	15171	000+2
1503		TFM	LPA1E	,,6,		15248	16	1517J	00000
1504		DC	2	,@,*		15259		00002	
1505		TDM	CDP1P	,1,,		15260	15	01763	00001
1506		CM	LPA1E	,RCD+70,,		15272	14	15171	+0829
1507		BNH	LPA2	,,,		15284	47	15352	01100
1508		TDM	CDP1P	,0,,		15296	15	01763	00000
1509		B	LPA2	,,,		15308	49	15352	00000
1510	LPA1S	DS	*-4	,		15315		00000	
1511		DORG	*-3			15316			
1512	LPA1	TR	RCD-1	,RCT,11,		15316	31	00758	1629P
1513		TR	RCT-4	,RCT+1,,		15328	31	16293	16298
1514		TDM	LPA1P	,1,,		15340	15	16285	00001
1515	LPA2	BD	LPA18	,LPA1S,,		15352	43	15396	15315
1516		BD	LPA24	,LPA2T,,		15364	43	15384	16283
1517		B	LPA18	,,,		15376	49	15396	00000
1518		DORG	*-3	,		15384			
1519	LPA24	RCTY		,,,		15384	34	00000	00102
1520	LPA18	CM	RCD+10	,14,10,		15396	14	00769	000J4
1521		BNE	LPA17			15408	47	15484	01200
1522		BD	LPA	,LPA1S,,		15420	43	15100	15315
1523		BD	LPA16	,LPA2T		15432	43	15452	16283
1524		B	LPA	,,,		15444	49	15100	00000
1525		DORG	*-3	,		15452			
1526	LPA16	WATYRCD	+10	,,,		15452	39	00769	00100
1527		B	LPA	,,		15464	49	15100	00000

1528 DORG *-3,
1529 LPA29 B CTA1V,,6,
1530 LPA17 TF CDP3S+4,RCD+8,,
1531 TF CTA4S+6,RCD+28,,
1532 TDM RCD+22,,,
1533 DC 1,@,*
1534 BTM CTA,*+12,,
1535 BD LPA3,CTA1S
1536 BTM LPP,*+12,,
1537 TFM CTA1V,41000,711,
1538 LPA3 BNF LPA29,CTA1V,,
1539 CF CTA1V,,,
1540 MM ILC,5,10,
1541 BD LPA4,99,,
1542 AM ILC,1,10,
1543 TDM CPR1P,1,,
1544 LPA4 AM ILC,1,10,
1545 TF LOC,ILC,,
1546 BD LPA6,LPA2T,,
1547 TDM LLA1R,1,,
1548 BTM LLA,*+12,,
1549 TFM SMB1E,RCD+30,,
1550 BTM DSS,*+12,,
1551 BD LPA5,DSS1M
1552 BTM DSS,*+12,,
1553 LPA5 AM ILC,11,10,
1554 B LPA,,,
1555 DORG *-3
1556 LPA6 TDM LLB1R,1,,
1557 BTM LLB,*+12,,
1558 TF CPR4R+1,CTA1V-3,,
1559 CF CPR4R,,,
1560 TDM CPR4R+2,,,
1561 DC 1,@,*
1562 TR CPR4R+3,LPA1A-4,,
1563 TR CPR4R+9,LPA1A-4,,
1564 TFM SMB1E,RCD+30,,
1565 BTM EVA,*+12,,
1566 BD LPA7,EVATL
1567 TR CPR4R+3,PTC1B-4,,
1568 B LPA9,,,
1569 DORG *-3
1570 LPA7 TF CPR4R+7,EVA1T,,

15472
15472 49 0287J 00000
SERIAL NO.
15484 26 01769 00767
OPERATION
15496 26 02879 00787
15508 15 00781 00000
15519 00001
15520 17 02642 J5532
15532 43 15568 02936
ILLEGAL OP CODE
15544 17 11758 J5556
15556 16 02871 M100+
15568 44 15472 02871
15580 33 02871 00000
15592 13 16282 000+5
SET ILC ODD
15604 43 15640 00099
15616 11 16282 000+1
15628 15 02399 00001
15640 11 16282 000+1
15652 26 16291 16282
BRANCH FOR 2ND PASS
15664 43 15768 16283
SET REL
15676 15 14595 00001
PROCESS LABEL PASS 1
15688 17 14564 J5700
SET TO OPERAND FIELDS
15700 16 24259 +0789
DOLLAR SEARCH P FIELD
15712 17 09198 J5724
15724 43 15748 09411
DOLLAR SEARCH Q FIELD
15736 17 09198 J5748
15748 11 16282 000J1
15760 49 15100 00000
15768
15768 15 14883 00001
PROCESS LABEL PASS 2
15780 17 14852 J5792
15792 26 02520 02868
15804 33 02519 00000
15816 15 02521 00000
15827 00001
15828 31 02522 16272
15840 31 02528 16272
15852 16 24259 +0789
EVALUATE P FIELD
15864 17 12152 J5876
15876 43 15908 13562
BLANKS IF NOT LEGAL
15888 31 02522 17868
15900 49 15964 00000
15908
15908 26 02526 13571

1571	CF	CPR4R+3 ,,,	15920	33	02522	00000
1572	BD	LPA8,EVATR,,	15932	43	15952	13563
1573	B	LPA9 ,,,	15944	49	15964	00000
1574	DORG	*-3	15952			
1575	LPA8	SF CPR4R+8 ,,,	15952	32	02527	00000
1576	LPA9	BNR LPA11,SMBIT,,	15964	45	15984	24853
1577	B	LPA13	15976	49	16084	00000
1578	DORG	*-3	15984			
1579	LPA11	BTM EVA,*+12,,	EVALUATE Q FIELD			
			15984	17	12152	J5996
1580	BD	LPA19,EVATL,,	15996	43	16028	13562
1581	TR	CPR4R+9,PTC1B-4,,	16008	31	02528	17868
1582	B	LPA13 ,,,	16020	49	16084	00000
1583	DORG	*-3	16028			
1584	LPA19	TF CPR4R+13,EVAIT,,	16028	26	02532	13571
1585	CF	CPR4R+9 ,,,	16040	33	02528	00000
1586	BD	LPA12,EVATR,,	16052	43	16072	13563
1587	B	LPA13 ,,,	16064	49	16084	00000
1588	DORG	*-3,	16072			
1589	LPA12	SF CPR4R+14 ,,,	16072	32	02533	00000
1590	LPA13	TDM EVF7F,0,,	16084	15	13611	00000
1591	BD	LPA15,CTA1V-1,,	TEST FOR Q MODIFIER			
			16096	43	16216	02870
1592	TD	EVF7F,CTA1V-2,,	16108	25	13611	02869
1593	LPA14	BTM EVF,*+12,,	FLAG REQUIREMENTS			
			16120	17	13602	J6132
1594	TDM	CPR1R,1,,	16132	15	02400	00001
1595	TF	CPR3A,LOC,,	16144	26	02411	16291
1596	TFM	CPR3D,15,10,	16156	16	02416	000J5
1597	BTM	CPR,*+12,,	16168	17	01778	J6180
1598	BD	LPA5,LPA1S,,	16180	43	15748	15315
1599	BTM	CDP,*+12,,	16192	17	01620	J6204
1600	BTM	LPW,LPA5,,	16204	17	16324	J5748
1601	LPA15	TD CPR4R+10,CTA1V-2,,	16216	25	02529	02869
1602	TD	CPR4R+11,CTA1V-1,,	16228	25	02530	02870
1603	TD	CPR4R+13,CTA1V,,	16240	25	02532	02871
1604	CF	CPR4R+14,,	16252	33	02533	00000
1605	B	LPA14 ,,,	16264	49	16120	00000
1606	DORG	*-4 ,,,	16271			
1607	LPA1A	DC 6 ,,,	16276		00006	
1608	DC	1,@,,	16277		00001	
1609	ILC	DC 5,99999,,	16282		00005	
1610	LPA2T	DC 1,,,	16283		00001	
1611	LPA1X	DC 1,,,	16284		00001	
1612	LPA1P	DC 1,,,	16285		00001	
1613	LPA1V	DC 1,,,	16286		00001	
1614	LOC	DS 5,,	16291		00005	
1615	DC	1,@,,	16292		00001	
1616	RCT	DSB 5,5,,	16297		00005	00005
1617	DC	1,@,RCT,	16297		00001	
1618	DS	5,,	16322		00005	
1619	LPW	TBTY	16324	34	00000	00108
1620	CF	LOC-4 ,,,	16336	33	16287	00000
1621	WNTYLOC	-4 ,,,	16348	38	16287	00100
1622	SPTY		16360	34	00000	00101
1623	WNTYCPR4R	,,,	16372	38	02519	00100

1624	SPTY		16384	34	00000	00101
1625	WNTYCPR4R+3,,,		16396	38	02522	00100
1626	BNF LPW1,CPR4R+8,,		16408	44	16440	02527
1627	WATYLPW1A,,,		MARK REL WITH ASTERISK			
			16420	39	16497	00100
1628	B LPW2 ,,,		16432	49	16452	00000
1629	DORG *-3		16440			
1630 LPW1	SPTY		16440	34	00000	00101
1631 LPW2	WNTYCPR4R+9,,,		16452	38	02528	00100
1632	BNF LPW-1,CPR4R+14,6,		16464	44	1632L	02533
1633	WATYLPW1A,,,		16476	39	16497	00100
1634	B LPW-1,,6,		16488	49	1632L	00000
1635	DORG *-4		16495			
1636 LPW1A	DAC 2,*@		16497		00002	
1637 MAC	TFM SMB1E,RCD+30,,		16500	16	24259	+0789
1638	TFM MAC1C,5,9,		16512	16	16607	00+05
1639 MAC1	AM MAC1C,5,10,		16524	11	16607	000+5
1640	BTM SCM ,*+12,,		16536	17	23996	J6548
1641	BNR MAC1 ,SMB1T,,		16548	45	16524	24853
1642	BD MAC2 ,MAC1C,,		16560	43	16584	16607
1643	AM MAC1C,1,10,		16572	11	16607	000+1
1644 MAC2	AM MAC1C,2,10,		16584	11	16607	000+2
1645	TDM MAC2S+36,,,		16596	15	16881	00000
1646 MAC1C	DS 3,*		16607		00003	
1647	TD MAC2S+34,MAC1C-1,,		16608	25	16879	16606
1648	TR RCT-4,MAC1A-4,,		16620	31	16293	16772
1649	TR MAC1S+9,RCD+9,,		16632	31	16802	00768
1650	TFM MAC1S+22,42,10,,		16644	16	16815	000M2
1651	TF MAC1S+36,CTA4S+6,,		16656	26	16829	02879
1652	SF MAC1S+31,,,		16668	32	16824	00000
1653	SF MAC1S+33,,,		16680	32	16826	00000
1654	SF MAC1S+35,,,		16692	32	16828	00000
1655	TR MAC2S+39,RCD+29,,		16704	31	16884	00788
1656	BD LPA,LPA1S,,		16716	43	15100	15315
1657	BD MAC3 ,LPA2T,,		16728	43	16748	16283
1658	B LPA,,,		16740	49	15100	00000
1659	DORG *-3		16748			
1660 MAC3	BTM CDP ,*+12,,		16748	17	01620	J6760
1661	B LPA ,,,		16760	49	15100	00000
1662 MAC1A	DSA MAC1S-1,MAC2S-1,MAC3S-1		16776		00005	J6792
			16781		00005	J6844
			16786		00005	J7006
			16791		00005	
1663	DC 5,@,,		16793		00002	
1664 MAC1S	DAC 2, ,,		16797		00003	
1665	DAC 3, ,,		16797		00003	
1666	DAS 6, ,,		16803		00006	
1667	DAC 4,BTM ,,		16815		00004	
1668	DAS 4, ,,		16823		00004	
1669	DAC 1,\$		16831		00001	
1670	DAC 1, ,,		16833		00001	
1671	DAC 1,*		16835		00001	
1672	DAC 1,+		16837		00001	
1673	DAC 1,1		16839		00001	
1674	DAC 1,2		16841		00001	
1675	DC 1,-0,,		16842		00001	
1676	DC 1,@,,		16843		00001	
1677 MAC2S	DAC 2, ,,		16845		00002	

1678		DAC	3, ,,	16849		00003	
1679		DAC	1, ,,	16855		00001	
1680		DAC	1, ,,	16857		00001	
1681		DAC	1, ,,	16859		00001	
1682		DAC	1, ,,	16861		00001	
1683		DAC	1, ,,	16863		00001	
1684		DAC	1, ,,	16865		00001	
1685		DAC	4, DSA ,,	16867		00004	
1686		DAC	1, *	16875		00001	
1687		DAC	1, +	16877		00001	
1688		DAC	1, 1	16879		00001	
1689		DAC	1, 7	16881		00001	
1690		DAC	1, ,	16883		00001	
1691		DAS	61	16885		00061	
1692	MAC3S	DAC	2, ,,	17007		00002	
1693		DAC	3, ,,	17011		00003	
1694		DAC	1, ,,	17017		00001	
1695		DAC	1, ,,	17019		00001	
1696		DAC	1, ,,	17021		00001	
1697		DAC	1, ,,	17023		00001	
1698		DAC	1, ,,	17025		00001	
1699		DAC	1, ,,	17027		00001	
1700		DAC	4, DC ,,	17029		00004	
1701		DAC	1, 1	17037		00001	
1702		DAC	1, ,	17039		00001	
1703		DC	2, 34, ,	17041		00002	
1704		DC	1, -0, ,	17042		00001	
1705		DC	1, @, ,	17043		00001	
1706		DS	5, ,	17048		00005	
1707	PNS	TBTY	, , ,	17050	34	00000	00108
1708		TFM	PNS1E, CPR4R-1, ,	17062	16	17263	+2518
1709		TFM	PNS1L, 24, 10,	17074	16	17119	000K4
1710	PNS3	SM	PNS1P, 1, 10,	17086	12	17343	000+1
1711		BNL	PNS1, , ,	17098	46	17120	01300
1712		B	PNS-1, , 6,	17110	49	1704R	00000
1713	PNS1C	DS	, *-4,	17117		00000	
1714	PNS1L	DS	, *-2,	17119		00000	
1715		DORG	*-1,	17120			
1716	PNS1	AM	PNS1E, 1, 10,	17120	11	17263	000+1
1717		SM	PNS1L, 1, 10,	17132	12	17119	000+1
1718		BNL	PNS2 , , ,	17144	46	17204	01300
1719		RCTY	, , ,	17156	34	00000	00102
1720		TBTY	, , ,	17168	34	00000	00108
1721		TBTY	, , ,	17180	34	00000	00108
1722		TFM	PNS1L, 23, 10,	17192	16	17119	000K3
1723	PNS2	BD	PNS5 , PNS1C, ,	17204	43	17284	17117
1724		BNR	PNS5 , PNS1E, 11,	17216	45	17284	1726L
1725		BNF	PNS4 , PNS1E, 11,	17228	44	17264	1726L
1726		WATYPNS1A	, , ,	17240	39	17345	00100
1727		B	PNS3 , , ,	17252	49	17086	00000
1728	PNS1E	DS	, * ,	17263		00000	
1729	PNS4	SPTY	, , ,	17264	34	00000	00101
1730		B	PNS3 , , ,	17276	49	17086	00000
1731	PNS1S	DS	, *-4,	17283		00000	
1732		DORG	*-3,	17284			
1733	PNS5	TD	PNS1S, 19999, ,	17284	25	17283	19999

1734		TD	19999,PNS1E,11,	17296	25	19999	1726L
1735		DNTY	19999,,,	17308	35	19999	00100
1736		TD	19999,PNS1S,,	17320	25	19999	17283
1737		B	PNS3,,7,	17332	49	17086	+0000
1738	PNS1P	DS	,*,	17343		00000	
1739	PNS1A	DAC	2,*@,,	17345		00002	
1740		DS	5	17352		00005	
1741	PSC	BD	PSC1,LAB2D+4,,	17354	43	17486	14526
1742		TF	SMB1V,LOC,,	SET	SYMBOL	VALUE	
1743		TDM	SMB1R,1,,	17366	26	24839	16291
1744		TDM	SMB2S,,,	SET	SYN	IDENTIFICATION	
1745		DC	1,@,*,	17378	15	24834	00001
1746		TR	PTC4R,SMB1R,,	17390	15	24852	00000
1747		TR	PTC4R+19,PTC1B-47,,	17401		00001	
1748		TR	PTC4R+67,PTC1B-8,,	17402	31	17874	24834
1749		TF	PTC4R+79,CPR3T,,	17414	31	17893	17825
1750		WNCD	PTC4R,,,	17426	31	17941	17864
1751		AM	CPR3T,1,10,	17438	26	17953	02404
1752		B	PSC-1,,6,	17450	38	17874	00400
1753	PSC1	BTM	LBP,,PSC-1,711,	17462	11	02404	000+1
1754		DORG	*-4	17474	49	1735L	00000
1755		DS	5,,	17486	17	11642	J735L
1756	PTC	TF	PTC4R+25,DTB1N,,	17493			
1757		TF	PTC1C,DTB1N,,	17497		00005	
1758		TFM	PTC4R+27,0,10,	17498	26	17899	11056
1759		TFM	PTC1E,DTA1T-1,,	17510	26	17718	11056
1760		B	PTC5,,,	17522	16	17901	000+0
1761		DORG	*-3	17534	16	17661	J0865
1762	PTC1	TF	PTC4R+25,PTC1A+25,,	17546	49	17602	00000
1763		TDM	PTC4R,0,,	17554			
1764		TD	PTC4R+18,PTC1R,,	17554	26	17899	17849
1765		SF	PTC4R+18,,,	17566	15	17874	00000
1766	PTC5	TR	PTC4R+28,PTC1A+1,,	17578	25	17892	17873
1767		TFM	PTC1S,PTC4R+39,,	17590	32	17892	00000
1768	PTC2	SM	PTC1C,1,10,	17602	31	17902	17825
1769		BL	PTC3,,,	17614	16	17656	J7913
1770		TF	,,,	17626	12	17718	000+1
1771	PTC1S	DS	,*-5,	17638	47	17720	01300
1772	PTC1E	DS	,,	17650	26	00000	00000
1773		SM	PTC1E,18,10,	17656		00000	
1774		CM	PTC1S,PTC4R+75,,	17661		00000	
1775		BNL	PTC4,,	17662	12	17661	000J8
1776		AM	PTC1S,12,10,	17674	14	17656	J7949
1777		B	PTC2,,,	17686	46	17756	01300
1778	PTC1C	DS	2,*-3,	17698	11	17656	000J2
1779		DORG	*-1	17710	49	17626	00000
1780	PTC3	BNF	PTC4,PTC4R+18,,	17718		00002	
1781		CM	PTC1S,PTC4R+39,,	17720			
1782		BE	PTC-1,,6,	17720	44	17756	17892
1783	PTC4	TF	PTC4R+79,CPR3T,,	17732	14	17656	J7913
1784		WNCD	PTC4R,,,	17744	46	1749P	01200
1785		AM	CPR3T,1,10,	17756	26	17953	02404
1786		AM	PTC4R+27,1,10,	17768	38	17874	00400
1787		BNF	PTC1,PTC1C	17780	11	02404	000+1
				17792	11	17901	000+1
				17804	44	17554	17718

1788	B	PTC-1,,6,	17816	49	1749P	00000
1789		DORG *-3,	17824			
1790	PTC1A	DC 1,-0,,	17824		00001	
1791	PTC1B	DNB 48,,	17872		00048	
1792	PTC1R	DC 1,@,,	17873		00001	
1793	PTC4R	DSB 1,80,	17874		00001	00080
1794		DS 5,,	17958		00005	
1795	RTA	TR RTA2A,RTA1A,,				SET INDICATORS AND DIRECTORS INITIALLY
			17960	31	18272	18208
1796	RTA1	AM RTA1D,5,10,				ADD FIVE TO POWER TWO DIRECTOR
			17972	11	18284	000+5
1797		C RTA1E,RTA1C,,				COMPARE EXAMINER WITH LIMIT
			17984	24	18289	18215
1798		BNH RTA2 ,,,	17996	47	18056	01100
1799		C SMB2S,RTA1E,11,				COMPARE SYMBOL WITH TABLE ENTRY
			18008	24	24852	1828R
1800		BH RTA2 ,,,	18020	46	18056	01100
1801		TF RTA1P,RTA1E,,				TRANSFER SYMBOL EXAMINER TO POSITION
			18032	26	18279	18289
1802		BE RTA5 ,,,	18044	46	18128	01200
1803	RTA2	BNR RTA3 ,RTA1D,11,	18056	45	18076	1828M
1804		B RTA-1,,6,				EXIT IF SYMBOL NOT PRESENT
			18068	49	1795R	00000
1805		DORG *-3	18076			
1806	RTA3	BH RTA4	18076	46	18108	01100
1807		A RTA1E,RTA1D,11,				INCREASE SYMBOL EXAMINER
			18088	21	18289	1828M
1808		B RTA1	18100	49	17972	00000
1809		DORG *-3	18108			
1810	RTA4	S RTA1E,RTA1D,11,				DECREASE SYMBOL EXAMINER
			18108	22	18289	1828M
1811		B RTA1	18120	49	17972	00000
1812		DORG *-3	18128			
1813	RTA5	TDM RTA1S,1,,				SYMBOL PRESENT IN TABLE
			18128	15	18273	00001
1814		SM RTA1E,13,10,				SET TO EXTRACT VALUE
			18140	12	18289	000J3
1815		TF RTA1V,RTA1E,11,	18152	26	18271	1828R
1816		BNF RTA-1,RTA1V,6,				TEST FOR ABSOLUTE SYMBOL
			18164	44	1795R	18271
1817		CF RTA1V,	18176	33	18271	00000
1818		TDM RTA1R,1,,				RELOCATABLE SYMBOL
			18188	15	18274	00001
1819		B RTA-1,,6,	18200	49	1795R	00000
1820		DORG *-3,	18208			
1821		DC 3,0,,	18210		00003	
1822	RTA1A	DS ,*-2,	18208		00000	
1823	RTA1C	DSA RTA1T,RTA2D-5,RTA1T-127*18				
			18215		00005	K2882
			18220		00005	J8226
			18225		00005	K0596
			18226		00001	
1824		DC 1,@				
1825	RTA2D	DSA 64*18,32*18,16*18,8*18,4*18,2*18,1*18				
			18231		00005	+1152
			18236		00005	+0576
			18241		00005	+0288

1826 DC 5,@
 1827 RTA1V DS 5,,
 1828 RTA2A DS 1,,
 1829 RTA1S DS 1,,
 1830 RTA1R DS 1,,
 1831 RTA1P DS 5,,
 1832 RTA1D DS 5,,
 1833 RTA1E DS 5,,
 1834 DS 1,,
 1835 DAS 1,,
 1836 DORG *-1,
 1837 RTA1T DS 255*18+1,
 1838 DS 5,,
 1839 RTB CM RTA1C,RTA1T-254*18,
 1840 BL RTB1,,,
 1841 TF RTB1C,RTA1C,,
 1842 SM RTA1C,18,10,
 1843 TF RTB1P,RTA1P,,
 1844 SM RTB1P,18,10,
 1845 TD RTA1P,RTB1R,6,
 1846 TD SMB2S,RTB1R,,
 1847 TR RTA1C,RTB1C,611,
 1848 BNR RTB1,RTB1P,11,
 1849 TR RTB1P,SMB1R,6,
 1850 TDM RTA1P,0,6,
 1851 B RTB-1,,6,
 1852 DORG *-3
 1853 RTB1 TDM RTB1F,1,,
 1854 B RTB-1,,6
 1855 DORG *-4
 1856 RTB1F DC 1,0
 1857 RTB1R DC 1,@
 1858 RTB1C DS 5
 1859 RTB1P DS 5
 1860 DS 5,,
 1861 SCA TR SCA2A,SCA1A,,
 1862 SCA1 SM SCA1N,2,10,
 1863 BL SCA3 ,,,
 1864 BH SCA5 ,,,
 1865 BNR SCA2,SMB1E,11,

18246 00005 +0144
 18251 00005 +0072
 18256 00005 +0036
 18261 00005 +0018
 18266 00005
 SYMBOL VALUE
 18271 00005
 18272 00001
 SYMBOL PRESENT IF DIGIT
 18273 00001
 SYMBOL RELOCATABLE IF DIGIT
 18274 00001
 SYMBOL R.H. POSITION
 18279 00005
 POWER TWO DIRECTOR
 18284 00005
 SYMBOL R.H. EXAMINER
 18289 00005
 18290 00001
 18293 00001
 18292
 22882 04591
 22887 00005
 22888 14 18215 J8310
 BRANCH IF TABLE FULL
 22900 47 23040 01300
 STORE LIMIT COUNTER
 22912 26 23065 18215
 22924 12 18215 000J8
 22936 26 23070 18279
 SET SYMBOL L.H. POSITION
 22948 12 23070 000J8
 SET R.M IN TABLE
 22960 25 1827R 23060
 SET R.M AFTER SYMBOL
 22972 25 24852 23060
 22984 31 1821N 2306N
 22996 45 23040 2307+
 23008 31 2307+ 24834
 23020 15 1827R 00000
 23032 49 2288P 00000
 23040
 23040 15 23059 00001
 23052 49 2288P 00000
 23059
 23059 00001
 23060 00001
 23065 00005
 23070 00005
 23075 00005
 23076 31 23315 23303
 REDUCE CHARACTER COUNT
 23088 12 23259 000+2
 23100 47 23236 01300
 23112 46 23272 01100
 23124 45 23204 2425R

1909	BE	SCD1 , , ,	IGNORE BLANKS				
				23496	46	23368	01200
1910	BD	SCD5 ,SCD2M , ,		23508	43	23564	23983
1911	CM	SMB1T ,20 ,10 ,	COMPARE WITH MINUS				
				23520	14	24853	000K0
1912	BNE	SCD5 , , ,		23532	47	23564	01200
1913	TDM	SCD2M ,1 , ,	SET DIGIT IF MINUS				
				23544	15	23983	00001
1914	B	SCD1 , , ,		23556	49	23368	00000
1915	DORG	*-3		23564			
1916	SCD5	CM SMB1T ,70 ,10 ,	COMPARE WITH ZERO				
				23564	14	24853	000P0
1917	BNL	SCD6 , , ,		23576	46	23644	01300
1918	CM	SMB1T ,34 ,10 ,	COMPARE WITH @				
				23588	14	24853	000L4
1919	BE	SCD6 , , ,		23600	46	23644	01200
1920	CM	SMB1T ,23 ,10 ,	COMPARE WITH COMMA				
				23612	14	24853	000K3
1921	BNE	SCD16 , , ,	ERROR , ILLEGAL CHARACTER				
				23624	47	23924	01200
1922	B	SCD2 , , ,		23636	49	23404	00000
1923	DORG	*-3		23644			
1924	SCD6	AM SCD1C ,1 ,10 ,	INCR	23644	11	23982	000+1 R NUMBER OR RM
1925	B	SCD1 , , ,		23656	49	23368	00000
1926	DORG	*-3		23664			
1927	SCD7	TF SMB1T ,* , ,	OBTAIN CHARACTER				
				23664	26	24853	23664
1928	SCD1E	DS 0 ,* ,		23675			00000
1929	AM	SCD1E ,2 ,10 ,	INCREASE STORED EXTRACTOR BY TWO				
				23676	11	23675	000+2
1930	BNR	SCD8 ,SMB1T , ,		23688	45	23708	24853
1931	B	SCD9 , , ,		23700	49	23756	00000
1932	DORG	*-3		23708			
1933	SCD8	CM SMB1T ,70 ,10 ,	COMPARE WITH ZERO				
				23708	14	24853	000P0
1934	BNL	SCD15 , , ,	BRANCH IF NUMBER				
				23720	46	23892	01300
1935	CM	SMB1T ,23 ,10 ,		23732	14	24853	000K3
1936	BNE	SCD7 , , ,		23744	47	23664	01200
1937	SCD9	BD SCD11 ,SCD2M , ,	TEST FOR MINUS				
				23756	43	23776	23983
1938	B	SCD12 , , ,		23768	49	23788	00000
1939	DORG	*-3		23776			
1940	SCD11	SF SCD1S , ,6 ,		23776	32	2398R	00000
1941	SCD12	AM SCD1S ,1 ,10 ,		23788	11	23989	000+1
1942	TD	SCD1S ,SCD4R ,6 ,		23800	25	2398R	23972
1943	TDM	SCD2L ,1 , ,	FOR LEGAL EXIT				
				23812	15	23984	00001
1944	CM	SCD2F ,1 ,10 ,		23824	14	23871	000+1
1945	BNH	SCD-1 , ,6 ,	IF NOT SINGLE DIGIT				
				23836	47	2333J	01100
1946	SF	CPR4R , , ,	SET HIGH ORDER FLAG				
				23848	32	02519	00000
1947	B	SCD-1 , ,6 ,		23860	49	2333J	00000
1948	SCD2F	DS ,* ,		23871			00000
1949	SCD14	SF CPR4R , , ,	SET HIGH ORDER FLAG				
				23872	32	02519	00000

1950	B	SCD-1,,6,	23884	49	2333J	00000
1951		DORG *-3	23892			
1952	SCD15	AM SCD1S,1,10,	23892	11	23989	000+1
1953		TD SCD1S,SMB1T,6,	23904	25	2398R	24853
1954		B SCD7 ,,,	23916	49	23664	00000
1955		DORG *-3	23924			
1956	SCD16	BTM SCP,*+12,,	ERROR, ILLEGAL CHARACTER PRINT			
			23924	17	11576	K3936
1957		BTM SCM,SCD-1,711,	SEEKS TERMINAL COMMA			
			23936	17	23996	K333J
1958	SCD17	BTM FLP,SCD-1,711,	ERROR INVALID FIELD LENGTH			
			23948	17	11374	K333J
1959	SCD1A	DS 0,*+1,	23960			00000
1960		DC 7,0,,	23966			00007
1961		DSA CPR4R-1	23971			00005 +2518
1962	SCD4R	DC 1,@,,	23972			00001
1963	SCD1F	DS 5,,	23977			00005
1964	SCD2A	DS 1,,	23978			00001
1965	SCD1C	DS 4,,	23982			00004
1966	SCD2M	DS 1,,	23983			00001
1967	SCD2L	DS 1,,	23984			00001
1968	SCD1S	DS 5,,	23989			00005
1969		DS 1,,	23990			00001
1970		DS 5,,	23995			00005
1971	SCM	TF SMB1T,SMB1E,11,	OBTAINS CHARACTER			
			23996	26	24853	2425R
1972		AM SMB1E,2,10,	INCREASES EXTRACTOR			
			24008	11	24259	000+2
1973		BNR SCM1 ,SMB1T,,	24020	45	24040	24853
1974		B SCM-1,,6,	EXIT IF RM			
			24032	49	2399N	00000
1975		DORG *-3	24040			
1976	SCM1	CM SMB1T,23,10,	24040	14	24853	000K3
1977		BNE SCM ,,,	REPEAT IF NOT COMMA			
			24052	47	23996	01200
1978		B SCM-1,,6,	EXIT IF COMMA			
			24064	49	2399N	00000
1979		DORG *-4,	24071			
1980	SKP	BD LPA ,LPA1S,,	24072	43	15100	15315
1981		BD SKP1 ,LPA2T,,	24084	43	24104	16283
1982		B LPA ,,,	24096	49	15100	00000
1983		DORG *-3,	24104			
1984	SKP1	TFM SMB1E,RCD+30,,	24104	16	24259	+0789
1985		BTM EVA ,*+12,,	24116	17	12152	K4128
1986		BD SKP2 ,EVATR,,	24128	43	24152	13563
1987		BD SKP3 ,EVATL,,	24140	43	24164	13562
1988	SKP2	BTM DSP ,LPA,,	24152	17	11700	J5100
1989	SKP3	TF SKP1C,EVA1T,,	24164	26	24187	13571
1990		SF SKP1C-1,,,	24176	32	24186	00000
1991	SKP1C	DS ,*	24187			00000
1992	SKP4	SM SKP1C,1,10,	24188	12	24187	000+1
1993		BL LPA ,,,	24200	47	15100	01300
1994		RCTY ,,,	24212	34	00000	00102
1995		B SKP4 ,,,	24224	49	24188	00000
1996		DORG *-4,	24231			
1997		DS 5,,	FOR RETURN ADDRESS			
			24235			00005

1998	SMB	TR	SMB1D,SMB1B,,	CLEAR WORKING AREA
				24236 31 24824 24792
1999	SMB1	TF	SMB1T,0,,	EXTRACT CHARACTER
				24248 26 24853 00000
2000	SMB1E	DS	,*,	CHARACTER EXTRACTOR
				24259 00000
2001		BNR	SMB5,SMB1T,,	TEST FOR TERMINAL RECORD MARK
				24260 45 24352 24853
2002	SMB2	TDM	SMB1D+5,1,,	, OR RM
				24272 15 24829 00001
2003	SMB3	TDM	SMB1D+4,1,,	LEGAL TERMINATION
				24284 15 24828 00001
2004	SMB4	SF	SMB1S,,,	ERROR EXIT
				24296 32 24840 00000
2005		SF	SMB1V-4,,,	24308 32 24835 00000
2006		TDM	SMB2S,0,,	FINAL ZERO FOR TABLE LOOK@UP
				24320 15 24852 00000
2007		AM	SMB1E,2,10,	INCREASE EXTRACTOR COUNTER BY TWO
				24332 11 24259 000+2
2008		B	SMB-1,,6,	EXIT
				24344 49 2423N 00000
2009		DORG	*-3	24352
2010	SMB5	BD	SMB6,SMB2S,,	CHARACTER NOT BLANK
				24352 43 24384 24852
2011		BD	SMB4,SMB1T,,	ERROR
				24364 43 24296 24853
2012		B	SMB8,,,	BLANK
				24376 49 24504 00000
2013		DORG	*-3	24384
2014	SMB6	CM	SMB1T,40,10,	TEST FOR LETTER OR NUMBER
				24384 14 24853 00000
2015		BNH	SMB9,,,	TERMINAL SYMBOL OR ASTERISK
				24396 47 24524 01100
2016		BD	SMB4,SMB1D+3,,	ERROR 24408 43 24296 24827 ADDRESS ASTERIS ,
2017		TDM	SMB1D+1,1,,	SYMBOL NOT BLANK
				24420 15 24825 00001
2018		BD	SMB7,SMB1D+2,,	TEST FOR PURE NUMBER TO DATE
				24432 43 24480 24826
2019		CM	SMB1T,70,10,	TEST FOR NUMBER
				24444 14 24853 00000
2020		BNL	SMB7,,,	BRANCH IF NUMBER
				24456 46 24480 01300
2021		TDM	SMB1D+2,1,,	SYMBOL NOT NUMBER
				24468 15 24826 00001
2022	SMB7	CF	SMB2S,,,	CLEAR FLAG BEFORE SHIFTING
				24480 33 24852 00000
2023		TR	SMB1S,SMB1S+2,,	SHIFT SYMBOL LEFT
				24492 31 24840 24842
2024	SMB8	AM	SMB1E,2,10,	INCREASE EXTRACTOR COUNTER BY TWO
				24504 11 24259 000+2
2025		B	SMB1,,,	OBTAIN NEXT CHARACTER
				24516 49 24248 00000
2026		DORG	*-3	24524
2027	SMB9	CM	SMB1T,23,10,	COMPARE WITH COMMA
				24524 14 24853 000K3
2028		BE	SMB2,,,	COMMA TERMINATION
				24536 46 24272 01200

2029	BH	SMB4,,,	ERROR
			24548 46 24296 01100
2030	CM	SMB1T,14,10,	COMPARE WITH ASTERISK
			24560 14 24853 000J4
2031	BE	SMB13,,,	TEST24572 46 24660 01200 PLIER ASTERISK
2032	BL	SMB12,,,	TEST FOR PLUS, DOLLAR, OR ERROR
			24584 47 24640 01300
2033	BD	SMB4,SMB1T,,	ERROR
			24596 43 24296 24853
2034	TDM	SMB1D+9,1,,	MINUS TERMINATION
			24608 15 24833 00001
2035	SMB11 TDM	SMB1D+7,1,,	ARITHMATIC TERMINATION
			24620 15 24831 00001
2036	B	SMB3,,,	FOR LEGAL EXIT
			24632 49 24284 00000
2037	DORG *-3		24640
2038	SMB12 BD	SMB15,SMB1T,,	FOR DOLLAR TEST
			24640 43 24736 24853
2039	B	SMB11,,,	PLUS TERMINATION
			24652 49 24620 00000
2040	DORG *-3		24660
2041	SMB13 BD	SMB14,SMB1D+1,,	FOR MULTIPLIER ASTERISK
			24660 43 24716 24825
2042	TDM	SMB1D+1,1,,	SYMBOL NOT BLANK
			24672 15 24825 00001
2043	TDM	SMB1D+2,1,,	SYMBOL NOT NUMBER
			24684 15 24826 00001
2044	TDM	SMB1D+3,1,,	SYMBOL ASTERISK
			24696 15 24827 00001
2045	B	SMB7,,,	SHIFT AND OBTAIN NEXT CHARACTER
			24708 49 24480 00000
2046	DORG *-3		24716
2047	SMB14 TDM	SMB1D+8,1,,	ASTERISK TERMINATION
			24716 15 24832 00001
2048	B	SMB11,,,	FOR ARITH. TERMINATION AND LEGAL EXIT
			24728 49 24620 00000
2049	DORG *-3		24736
2050	SMB15 CM	SMB1T,13,10,	COMPARE WITH DOLLAR
			24736 14 24853 000J3
2051	BNE	SMB4,,,	ERROR
			24748 47 24296 01200
2052	BD	SMB4,SMB1D+3,,	24760 43 24296 24827
2053	TDM	SMB1D+6,1,,	DOLL24772 15 24830 00001 T WITH ASTERIS
2054	B	SMB3,,,	FOR LEGAL EXIT
			24784 49 24284 00000
2055	DORG *-3		24792
2056	SMB1B DS	,*+1	24792 00000
2057	DC	32,@,,	FOR CLEARING WORKING AREA
			24823 00032
2058	SMB1D DS	1,,	FOR FLAGGED ZERO PRECEDING INDICATORS
			24824 00001
2059	SMB1R DS	10,,	FOR ZERO PRECEDING SYMBOL AND VALUE
			24834 00010
2060	SMB1V DS	5,,	FOR SYMBOL VALUE
			24839 00005
2061	SMB1S DS	1,,	HIGH ORDER SYMBOL POSITION
			24840 00001

2113		TF	RDB1E,RDA1C,,	05836	26	25751	25733
2114		SF	RDB1E,,,	05848	32	25751	00000
2115		DORG	LPA+12	15112			
2116		TDM	LPA1P,0,,	15112	15	16285	00000
2117		BTM	RDB ,LPA2,,	15124	17	25740	J5352
2118		DORG	WST5+24	25264			
2119		DS	5,,	25268		00005	
2120	RDA	TF	RDA1C,EVACS,,	25270	26	25733	13556
2121		SM	RDA1C,1,10,	25282	12	25733	000+1
2122		SF	RDA1C-4,,,	25294	32	25729	00000
2123		TF	RDA1E,RDA1C,,	25306	26	25484	25733
2124		TFM	RDA1S,RCDT,,	25318	16	25472	K5858
2125	RDA1	RACD	RCR,,,	25330	37	00759	00500
2126		TFM	RDA1R,RCR+150,,	25342	16	25377	+0909
2127	RDA2	SM	RDA1R,2,10,	25354	12	25377	000+2
2128		TF	RDA1T,,,	25366	26	25429	00000
2129	RDA1R	DS	,*,	25377		00000	
2130		BNF	RDA3 ,RDA1T-1,,	25378	44	25430	25428
2131		BD	RDA4 ,RDA1T-1,,	25390	43	25442	25428
2132		BD	RDA4 ,RDA1T,,	25402	43	25442	25429
2133		B	RDA2,,,	25414	49	25354	00000
2134		DORG	*-4,	25421			
2135	RDA1T	DS	9,,	25429		00009	
2136	RDA3	AM	RDA1R,2,10,	25430	11	25377	000+2
2137	RDA4	AM	RDA1R,2,10,	25442	11	25377	000+2
2138		TFM	RDA1R,,6,	25454	16	2537P	00000
2139		DC	2,@,*	25465		00002	
2140		TR	,RCD-1,,	25466	31	00000	00758
2141	RDA1S	DS	,*-5,	25472		00000	
2142		TF	,RDA1S,,	25478	26	00000	25472
2143	RDA1E	DS	,*-5,	25484		00000	
2144		SM	RDA1E,5,10,	25490	12	25484	000+5
2145		TDM	RDA1E,,6,	25502	15	2548M	00000
2146		DC	1,@,*	25513		00001	
2147		SM	RDA1R,RCR-2,,	25514	12	25377	+0757
2148		A	RDA1S,RDA1R,,	25526	21	25472	25377
2149		C	RDA1S,RDA1E,,	25538	24	25472	25484
2150		BNL	RDA5,,,	25550	46	25646	01300
2151		C	RCR+2R,RDA1A,,	25562	24	00787	25727
2152		BNE	RDA1,,,	25574	47	25330	01200
2153		CM	RCR+10,14,10,	25586	14	00769	000J4
2154		BE	RDA1	25598	46	25330	01200
2155		TF	RDB1E,RDA1C,,	25610	26	25751	25733
2156		SF	RDB1E,,,	25622	32	25751	00000
2157		BT	LPA,RDA-1,,	25634	27	15100	25269
2158	RDA5	RCTY	,,,	25646	34	00000	00102
2159		WATYRDA2A	,,,	25658	39	25691	00100
2160		H	,,,	25670	48	00000	00000
2161		B	*-12,,,	25682	49	25670	00000
2162		DORG	*-3,	25690			
2163	RDA2A	DAC	15,TOO MANY CARDS@,,	25691		00015	
2164		DAC	4,DEND,,	25721		00004	
2165	RDA1A	DS	,*,	25727		00000	
2166	RDA1C	DS	6,	25733		00006	
2167		DS	5,,	25738		00005	
2168	RDB	TR	RCR-1,,,	25740	31	00758	00000

2169	RDB1E	DS	,*	25751		00000
2170		SM	RDB1E,5,1011,	25752	12	25751 000+N
2171		TFM	RDB1R,RCD+28,,	25764	16	25799 +0787
2172	RDB1	AM	RDB1R,2,10,	25776	11	25799 000+2
2173		BNR	RDB1 ,,,	25788	45	25776 00000
2174	RDB1R	DS	,*	25799		00000
2175		TDM	CDP1P,1,,	25800	15	01763 00001
2176		CM	RDB1R,RCD+70,,	25812	14	25799 +0829
2177		BNH	RDB-1,,6,	25824	47	2573R 01100
2178		TDM	CDP1P,0,,	25836	15	01763 00000
2179		B	RDB-1,,6,	25848	49	2573R 00000
2180		DORG	*-4,	25855		
2181		DAS	1	25857		00001
2182	RCDT	DS	1	25858		00001
2183		DEND	SET	00402		

APPENDIX L

THE LOADER

A listing of the programme loader follows.

The standard SPS processor was modified to assemble DC 1, 0 as an unflagged zero digit.

THE LOADER

0001		DORG 52142		52142			
0002	USA1T	DS 1,,		52142		00001	
0003		DAS 1,,		52145		00001	
0004		DORG *-1,		52144			
0005	TLA1T	DS 255*18+1,,		56734		04591	
0006	RLD	RNCD RNC,,		56736	36	57958	00500
0007		BNR RLD2 ,RNC,,		56748	45	56800	57958
0008		BNF RLD1 ,RNC,,		56760	44	56780	57958
0009		B REL ,,,		56772	49	57076	00000
0010		DORG *-3 ,		56780			
0011	RLD1	BNR STC ,RNC+6,,		56780	45	57702	57964
0012		B DDC ,,,		56792	49	56892	00000
0013		DORG *-3 ,		56800			
0014	RLD2	BNR RLD4 ,RNC+2,,		56800	45	56844	57960
0015	RLD3	RNCD RNC ,,		56812	36	57958	00500
0016		BNR RLD ,RNC+2,,		56824	45	56736	57960
0017		B RLD3 ,,,		56836	49	56812	00000
0018		DORG *-3 ,		56844			
0019	RLD4	BNR TCD ,RNC+18,,		56844	45	58038	57976
0020		BD SYN ,RNC,,		56856	43	57910	57958
0021		BNF TLC ,RNC+18,,		56868	44	58966	57976
0022		B ERR ,402,7,		56880	49	59932	+0402
0023	ORG	DS 5,* ,		56891		00005	
0024	DDC	BNF DDC3 ,RNC+5,,		56892	44	57056	57963
0025		CF RNC+5,, ,		56904	33	57963	00000
0026	DDC1	TF DDC1C ,RNC+5,,		56916	26	56951	57963
0027		A DDC1C ,RNC+12,,		56928	21	56951	57970
0028		CM USA1C ,,,		56940	14	59597	+0000
0029	DDC1C	DS 5,* ,		56951		00005	
0030		BL REL7 ,,,		56952	47	57160	01300
0031		CF RNC+7,, ,		56964	33	57965	00000
0032		BNF DDC2 ,RNC+6,,		56976	44	57000	57964
0033		SF RNC+7,, ,		56988	32	57965	00000
0034	DDC2	SM RNC+12,1,10,		57000	12	57970	000+1
0035		BL RLD ,,,		57012	47	56736	01300
0036		TD RNC+5,RNC+7,6,		57024	25	5796L	57965
0037		AM RNC+5,1,10,		57036	11	57963	000+1
0038		B DDC2 ,,,		57048	49	57000	00000
0039		DORG *-3 ,		57056			
0040	DDC3	A RNC+5,ORG,,		57056	21	57963	56891
0041		B DDC1 ,,,		57068	49	56916	00000
0042		DORG *-4 ,		57075			
0043	REL	TFM REL1E ,RNC+7,,		57076	16	57263	N7965
0044		BNF REL6 ,RNC+5,,		57088	44	57658	57963
0045		CF RNC+5,, ,		57100	33	57963	00000
0046	REL1	TF REL1C ,RNC+5,,		57112	26	57147	57963
0047		A REL1C ,RNC+7,,		57124	21	57147	57965
0048		CM USA1C ,,,		57136	14	59597	+0000
0049	REL1C	DS ,*		57147		00000	
0050		BNL REL2 ,,,		57148	46	57180	01300
0051	REL7	TFM ERT-1,ERT1C,,		57160	16	59727	N9859
0052		B ERT1 ,,,		57172	49	59764	00000
0053		DORG *-3 ,		57180			
0054	REL2	CM RNC+7,68,10,		57180	14	57965	00008
0055		BH ERR ,,,		57192	46	59932	01100
0056		SM RNC+5,1,10,		57204	12	57963	000+1

0057	REL3	SM	RNC+7,1,10,	57216	12	57965	000+1
0058		BL	RLD ,,,	57228	47	56736	01300
0059		AM	REL1E,1,10,	57240	11	57263	000+1
0060		BNR	REL5 ,,,	57252	45	57626	00000
0061	REL1E	DS	,*,	57263		00000	
0062		BNF	REL5 ,REL1E,11,	57264	44	57626	5726L
0063		TF	REL2S,RNC+5,,	57276	26	57390	57963
0064		SM	REL2S,1,10,	57288	12	57390	000+1
0065		TF	REL3S,REL2S,,	57300	26	57402	57390
0066		SM	REL3S,1,10,	57312	12	57402	000+1
0067		TF	REL4S,REL3S,,	57324	26	57414	57402
0068		SM	REL4S,1,10,	57336	12	57414	000+1
0069		TF	REL5S,REL4S,,	57348	26	57426	57414
0070		SM	REL5S,1,10,	57360	12	57426	000+1
0071		CF	RNC+5,,6,	57372	33	5796L	00000
0072		CF	,,,	57384	33	00000	00000
0073	REL2S	DS	,*-5,	57390		00000	
0074		CF	,,,	57396	33	00000	00000
0075	REL3S	DS	,*-5,	57402		00000	
0076		CF	,,,	57408	33	00000	00000
0077	REL4S	DS	,*-5,	57414		00000	
0078		SF	,,,	57420	32	00000	00J00
0079	REL5S	DS	,*-5,	57426		00000	
0080		A	RNC+5,ORG,6,	57432	21	5796L	56891
0081		TF	REL1F,REL1E,,	57444	26	57479	57263
0082		SM	REL1F,5,10,	57456	12	57479	000+5
0083		TR	REL5F,,,	57468	31	57620	00000
0084	REL1F	DS	,*,	57479		00000	
0085		CF	REL5S,,6,	57480	33	57420	00000
0086		BNF	*+24,REL5F,,	57492	44	57516	57620
0087		SF	REL5S,,6,	57504	32	57420	00000
0088		BNF	*+24,REL5F+1,,	57516	44	57540	57621
0089		SF	REL4S,,6,	57528	32	5741M	00000
0090		BNF	*+24,REL5F+2,,	57540	44	57564	57622
0091		SF	REL3S,,6,	57552	32	5740K	00000
0092		BNF	*+24,REL5F+3,,	57564	44	57588	57623
0093		SF	REL2S,,6,	57576	32	5739+	00000
0094		BNF	REL3 ,REL5F+4,,	57588	44	57216	57624
0095		SF	RNC+5,,6,	57600	32	5796L	00000
0096		B	REL3 ,,,	57612	49	57216	00000
0097		DORG	*-3	57620			
0098	REL5F	DSB	1,6,,	57620		00001	00006
0099	REL5	AM	RNC+5,1,10,	57626	11	57963	000+1
0100		TD	RNC+5,REL1E,611,	57638	25	5796L	5726L
0101		B	REL3 ,,,	57650	49	57216	00000
0102		DORG	*-3	57658			
0103	REL6	A	RNC+5,ORG,,	57658	21	57963	56891
0104		BNR	REL1 ,RNC+8,,	57670	45	57112	57966
0105		BNF	REL1 ,RNC+8,,	57682	44	57112	57966
0106		B	ERR ,,,	57694	49	5993?	00000
0107		DORG	*-4	57701			
0108	STC	BD	STC2 ,STC1T,,	57702	43	57898	57781
0109		TDM	STC1T,1,,	57714	15	57781	00001
0110		CM	RNC+17,0,10,	57726	14	57975	000+0
0111		BNE	STC1 ,,,	57738	47	57782	01200
0112		A	RNC+5,ORG,,	57750	21	57963	56891

0113	TF	RLD1B,RNC+5,,	57762	26	58360	57963
0114	B	RLD ,,,	57774	49	56736	00000
0115	STC1T	DS 1,*-4,	57781		00001	
0116		DORG *-3 ,	57782			
0117	STC1	TDM RNC ,0,,	57782	15	57958	00000
0118		TDM RNC+18,,,	57794	15	57976	00000
0119	DC	1,@,* ,	57805		00001	
0120	TFM	RNC+5,RLD1B,,	57806	16	57963	N8360
0121	TF	STC1C,ORG,,	57818	26	57865	56891
0122	A	STC1C,TLC1D,,	57830	21	57865	59685
0123	SM	USA1C,18,10,	57842	12	59597	000J8
0124	CM	USA1C,,,	57854	14	59597	+0000
0125	STC1C	DS 5,* ,	57865		00005	
0126	BL	TLC14,,,	57866	47	59710	01300
0127	TR	USA1C,RNC,6,	57878	31	5959P	57958
0128	B	TLC15,,,	57890	49	59526	00000
0129		DORG *-3 ,	57898			
0130	STC2	BTM ERT ,ERT1D,,	57898	17	59728	N9895
0131	SYN	TDM RNC ,0,,	57910	15	57958	00000
0132	A	RNC+5,ORG,,	57922	21	57963	56891
0133	TR	RNC+24,SYN1A,,	57934	31	57982	57953
0134	B	TLC1,,79,	57946	49	59038	+0+00
0135	SYN1A	DS ,*-4,	57953		00000	
0136	DC	1,@,* ,	57957		00001	
0137	RNC	DSB 1,80,,	57958		00001	00080
0138	TCD	CM USA1C,USA1T,,	58038	14	59597	N2142
0139	BE	TCD6 ,,,	58050	46	58262	01200
0140	TCD1	RCTY ,,,	58062	34	00000	00102
0141		WATY TCD2A,,,	58074	39	58417	00100
0142	TF	TCD1C,USA1C,,	58086	26	58229	59597
0143	TDM	RNC+19,,,	58098	15	57977	00000
0144	DC	1,@,* ,	58109		00001	
0145	SM	TCD1C,12,10,	58110	12	58229	000J2
0146	TCD2	RCTY ,,,	58122	34	00000	00102
0147	TCD3	AM TCD1C,18,10,	58134	11	58229	000J8
0148	CM	TCD1C,USA1T,,	58146	14	58229	N2142
0149	BH	TCD4,,,	58158	46	58230	01100
0150	TR	RNC+6,TCD1C,11,	58170	31	57964	5822R
0151	BTM	TLA ,*+12,,	58182	17	58476	N8194
0152	BD	TCD3,TLA1S,,	58194	43	58134	58764
0153	WATY	RNC+7,,,	58206	39	57965	00100
0154	B	TCD2,,,	58218	49	58122	00000
0155	TCD1C	DS 5,* ,	58229		00005	
0156	TCD4	BNR ERT2,RLD1B,,	58230	45	59788	58360
0157	TCD5	TFM ERT-1,TCD1A,,	58242	16	59727	N8363
0158	B	ERT1,,,	58254	49	59764	00000
0159		DORG *-3 ,	58262			
0160	TCD6	BD TCD1,TLC2A,,	58262	43	58062	59557
0161	BNR	TCD7,RLD1B,,	58274	45	58294	58360
0162	B	TCD5,,,	58286	49	58242	00000
0163		DORG *-3 ,	58294			
0164	TCD7	BLC ,*+12,	58294	46	58306	00900
0165		RCTY ,,,	58306	34	00000	00102
0166		WATY TCD3A,,,	58318	39	58451	00100
0167		RCTY ,,,	58330	34	00000	00102
0168		H	58342	48	00000	00000

0169	B		58354	49	00000	00000
0170	RLD1B	DC 1,@,*-5,	58360		00001	
0171	DORG	*-3,	58362			
0172	TCD1A	DAC 27,TRANSFER LOCATION REQUIRED@,,	58363		00027	
0173	TCD2A	DAC 17,LOAD SUBROUTINES@,,	58417		00017	
0174	TCD3A	DAC 10,LOAD DATA@,,	58451		00010	
0175	DS	5,,	58474		00005	
0176	TLA	TR TLA2A,TLA1A,,	58476	31	58764	58707
0177	TDM	RNC+18,0,,	58488	15	57976	00000
0178	TLA1	AM TLA1D,5,10,	58500	11	58774	000+5
0179	C	TLA1E,TLA1C,,	58512	24	58779	58712
0180	BNH	TLA2 ,,,	58524	47	58584	01100
0181	C	RNC+18,TLA1E,11,	58536	24	57976	5877R
0182	BH	TLA2 ,,,	58548	46	58584	01100
0183	TF	TLA1P,TLA1E,,	58560	26	58760	58779
0184	BE	TLA5 ,,,	58572	46	58660	01200
0185	TLA2	BNR TLA3 ,TLA1D,11,	58584	45	58604	5877M
0186	B	TLA-1,,6,	58596	49	5847N	00000
0187	DORG	*-3,	58604			
0188	TLA3	BH TLA4 ,,,	58604	46	58636	01100
0189	A	TLA1E,TLA1D,11,	58616	21	58779	5877M
0190	B	TLA1 ,,,	58628	49	58500	00000
0191	DORG	*-3	58636			
0192	TLA4	S TLA1E,TLA1D,11,	58636	22	58779	5877M
0193	B	TLA1 ,,7,	58648	49	58500	+0000
0194	TLA1V	DS ,*,	58659		00000	
0195	TLA5	TDM TLA1S,1,,	58660	15	58764	00001
0196	SM	TLA1E,13,10,	58672	12	58779	000J3
0197	TF	TLA1V,TLA1E,11,	58684	26	58659	5877R
0198	B	TLA-1,,6,	58696	49	5847N	00000
0199	TLA1A	DS ,*,	58707		00000	
0200	TLA1C	DSA TLA1T,TLA2D-5,TLA1T-127*18	58712		00005	N6734
			58717		00005	N8723
			58722		00005	N4448
0201	DC	1,@,,	58723		00001	
0202	TLA2D	DSA 64*18,32*18,16*18,8*18,4*18,2*18,1*18	58728		00005	+1152
			58733		00005	+0576
			58738		00005	+0288
			58743		00005	+0144
			58748		00005	+0072
			58753		00005	+0036
			58758		00005	+0018
0203	DC	5,@,,	58763		00005	
0204	TLA2A	DS 1,,	58764		00001	
0205	TLA1S	DS ,*,	58764		00000	
0206	TLA1P	DS 5,,	58769		00005	
0207	TLA1D	DS 5,,	58774		00005	
0209	DS	1,,	58780		00001	
0210	DS	5,,	58785		00005	
0211	TLB	TDM RNC+18,,,	58786	15	57976	00000
0212	DC	1,@,*	58797		00001	
0213	CM	TLA1C,TLA1T-254*18,,	58798	14	58712	N2162
0214	BL	TLB1 ,,,	58810	47	58942	01300

0215	TF	TLB1C,TLA1C,,	58822	26	58941	58712
0216	SM	TLA1C,18,10,	58834	12	58712	000J8
0217	TF	TLB1P,TLA1P,,	58846	26	58965	58769
0218	SM	TLB1P,18,10,	58858	12	58965	000J8
0219	TDM	TLA1P,,6,	58870	15	5876R	00000
0220	DC	1,@,*,	58881		00001	
0221	TR	TLA1C,TLB1C,611,	58882	31	5871K	5894J
0222	BNR	TLB1,TLB1P,11,	58894	45	58942	5896N
0223	TR	TLB1P,RNC,6,	58906	31	5896N	57958
0224	TDM	TLA1P,0,6,	58918	15	5876R	00000
0225	B	TLB-1,,6,	58930	49	5878N	00000
0226	TLB1C DS	,*,	58941		00000	
0227	TLB1 TDM	TLB1F,1,,	58942	15	58952	00001
0228	TLB1F DS	,*-1,	58952		00000	
0229	B	TLB-1,,6,	58954	49	5878N	00000
0230	TLB1P DS	,*,	58965		00000	
0231	TLC A	ORG ,TLC1D,,				
			PREV DIGITS TO PREVIOUS ORIGIN			
			58966	21	56891	59685
0232	MM	ORG,5,10,	TEST IF EVEN			
			58978	13	56891	000+5
0233	BD	TLC16,99,,	BRANCH IF ODD			
			58990	43	59642	00099
0234	TLC17 TF	TLC1D,RNC+23,,	59002	26	59685	57981
0235	A	RNC+5,ORG,,	ADD ORIGIN TO REL VALUE			
			59014	21	57963	56891
0236	BD	TLC8 ,TLC2A,,	BRANCH IF DOLLAR REQ			
			59026	43	59562	59557
0237	TLC1 CM	RNC+17,0,10,,	TEST FOR ZERO LABEL			
			59038	14	57975	000+0
0238	BE	TLC2 ,,,	BRANCH IF ZERO			
			59050	46	59110	01200
0239	BTM	TLA ,*+12,,	LOOK UP SYMBOL TABLE			
			59062	17	58476	N9074
0240	BD	TLC12,TLA1S,,	ERROR IF ALREADY PRESENT			
			59074	43	59686	58764
0241	BTM	TLB ,*+12,,	ENTER SYMBOL AND VALUE			
			59086	17	58786	N9098
0242	BD	TLC13,TLB1F,,	SYMBOL NOT ENTERED			
			59098	43	59698	58952
0243	TLC2 TF	TLC1N,RNC+25,,	STORE EX SYMBOL COUNT			
			59110	26	59559	57983
0244	TF	RNC+5,ORG,,	ORIGIN TO SYMBOL VALUE STORE			
			59122	26	57963	56891
0245	AM	RNC+5,4,10,,	AND ADD 4			
			59134	11	57963	000+4
0246	TF	TLC1C,RNC+27,,	CONT COUNT TO STORE			
			59146	26	59561	57985
0247	TLC3 AM	TLC1C,1,10,	ADD 1			
			59158	11	59561	000+1
0248	TFM	TLC1E,RNC+39,,	SET LABEL EXTRACTOR			
			59170	16	59217	N7997
0249	TLC4 SM	TLC1N,1,10,	SUBTRACT 1 FROM STORED EX SYMBOL COUNT			
			59182	12	59559	000+1
0250	BL	TLC7 ,,,	TRANSFER IF EXHAUSTED			
			59194	47	59478	01300
0251	TF	RNC+17,,,	EXTRACT WANTED SYMBOL			
			59206	26	57975	00000

0252	TLC1E	DS	,*	59217	00000
0253		CM	RNC+17,0,10,	TEST FOR ZERO LABEL	
				59218	14 57975 000+0
0254		BE	TLC9 ,,,	59230	46 59598 01200
0255		SM	USA1C,18,10,	OBTAIN LH POSITION	
				59242	12 59597 000J8
0256		C	RNC+5,USA1C,,	TEST FOR ROOM	
				59254	24 57963 59597
0257		BNL	TLC14, ,,	NO ROOM	
				59266	46 59710 01300
0258		TR	USA1C,RNC,6,	SET NEXT SYMBOL WANTED	
				59278	31 5959P 57958
0259	TLC5	AM	RNC+5,5,10,	OBTAIN NEXT SYMBOL POSITION	
				59290	11 57963 000+5
0260		CM	TLC1E,RNC+75,,	IS EXTRACTOR AT MAXIMUM	
				59302	14 59217 N8033
0261		BL	TLC11, ,,	BRANCH IF NOT AT MAXIMUM	
				59314	47 59662 01300
0262		CM	TLC1N,0,10,	IS COUNT EXHAUSTED	
				59326	14 59559 000+0
0263		BE	TLC7 ,,,	BRANCH IF EXHAUSTED	
				59338	46 59478 01200
0264		TF	TLC1F,RNC+5,,	SAVE SYMBOL POSITION	
				59350	26 59385 57963
0265		RNCD	RNC ,,,	OBTAIN NEW CARD	
				59362	36 57958 00500
0266		TFM	RNC+5, ,,	SET SYMBOL POSITION	
				59374	16 57963 +0000
0267	TLC1F	DS	5,*	59385	00005
0268		BD	ERR ,RNC,,	ERROR	
				59386	43 59932 57958
0269		BNR	ERR ,RNC+18,,	ERROR	
				59398	45 59932 57976
0270		BNF	ERR ,RNC+18,,	ERROR	
				59410	44 59932 57976
0271		C	TLC1C,RNC+27,,	TEST CARD SEQUENCE	
				59422	24 59561 57985
0272		BE	TLC3 ,,,	PROCEED	
				59434	46 59158 01200
0273		B	ERR ,,,	CARD ERROR	
				59446	49 59932 00000
0274		DORG	*-3,	59454	
0275	TLC6	TF	RNC+5,TLA1V,6,	ENTER FOUND SYMBOL VALUE	
				59454	26 5796L 58659
0276		AM	USA1C,18,10,	RESET LH SYMBOL INDICATOR	
				59466	11 59597 000J8
0277	TLC7	CM	USA1C,USA1T,,	ANY SYMBOLS WANTED	
				59478	14 59597 N2142
0278		BNL	RLD ,,,	NO SYMBOLS LEFT	
				59490	46 56736 01300
0279		TDM	USA1C,0,6,	SET ZERO	
				59502	15 5959P 00000
0280		TR	RNC ,USA1C,11,	EXTRACT SYMBOL AND VALUE POSITION	
				59514	31 57958 5959P
0281	TLC15	BTM	TLA ,*+12,,	SEEK VALUE	
				59526	17 58476 N9538

0282	BD	TLC6 ,TLA1S,,	VALUE PRESENT			
			59538	43	59454	58764
0283	B	RLD ,,,	NOT PRESENT, READ NEXT CARD			
			59550	49	56736	00000
0284	DORG	*-4	59557			
0285	TLC2A	DS 1,,	DOLLAR INDICATOR			
			59557		00001	
0286	TLC1N	DS 2,,	EX SYMBOLS COUNT STORE			
			59559		00002	
0287	TLC1C	DS 2,,	CONTINUATION COUNT STORE			
			59561		00002	
0288	TLC8	TDM TLC2A,0,,	RESET INDICATOR			
			59562	15	59557	00000
0289	TF	,RNC+5,,	SET DOLLAR VALUE LOCATION			
			59574	26	00000	57963
0290	TLC1B	DS *-5.	59580		00000	
0291	B	TLC1,USA1T,7,	59586	49	59038	N2142
0292	USA1C	DS *,	59597		00000	
0293	TLC9	BD ERR ,TLC2A,,	ERROR IF DIGIT			
			59598	43	59932	59557
0294	TDM	TLC2A,1,,	SET DIGIT			
			59610	15	59557	00001
0295	TF	TLC1B,RNC+5,,	SET LOCATION OF DOLLAR			
			59622	26	59580	57963
0296	B	TLC5 ,,,	59634	49	59290	00000
0297	DORG	*-3	59642			
0298	TLC16	AM ORG,1,10,	59642	11	56891	000+1
0299	B	TLC17,,,	59654	49	59002	00000
0300	DORG	*-3,	59662			
0301	TLC11	AM TLC1E,12,10,	59662	11	59217	000J2
0302	B	TLC4 ,,,7,	59674	49	59182	+0000
0303	TLC1D	DS *,	59685		00000	
0304	TLC12	BTM ERT ,ERT1A,,	59686	17	59728	N9809
0305	TLC13	BTM ERT ,ERT1B,,	59698	17	59728	N9833
0306	TLC14	BTM ERT ,ERT1C,,	59710	17	59728	N9859
0307	DS	5,	59726		00005	
0308	ERT	RCTY,,,	59728	34	00000	00102
0309	TDM	RNC+19,,,	59740	15	57977	00000
0310	DC	1,@,*,	59751		00001	
0311	WATYRNC	+7,,,	59752	39	57965	00100
0312	ERT1	WATYERT-1,,6,	59764	39	5972P	00100
0313	RCTY	,,,	59776	34	00000	00102
0314	ERT2	H ,,,	59788	48	00000	00000
0315	B	RLD ,,,	59800	49	56736	00000
0316	DORG	*-3	59808			
0317	ERT1A	DAC 12, DUPLICATED@,,	59809		00012	
0318	ERT1B	DAC 13, NOT ENTERED@,,	59833		00013	
0319	ERT1C	DAC 18, AT STORAGE LIMIT@,,	59859		00018	
0320	ERT1D	DAC 19, MULTIPLE TRANSFER@,,	59895		00019	
0321	ERR	RCTY,,,	59932	34	00000	00102
0322	WATYERR1A	,,,	59944	39	59977	00100
0323	H	,,,	59956	48	00000	00000
0324	B	RLD ,,,	59968	49	56736	00000
0325	DORG	*-3	59976			
0326	ERR1A	DAC 11,CARD ERROR@,,	59977		00011	
0327	DEND	RLD	56736			

