Diagnostic Engineering Publication

1410/7010

Subject: **Diagnostic Program** C021B
1410/7010 CPU Error Detection
Sequence Number 021
Replaces C021A

I. C021B obsoletes C021A. The general philosophy of C021B is the same as that of C021A with significant changes and additions made to many separate routines. In addition changes were incorporated into C021B to insure compatibility with 1410/7010 Tape Control Program TC50.

II. C021B utilizes only a System Control Card. This card is identified C021B001 and must indicate to the program certain information concerning storage capacity, CPU type (1410 or 7010) and the European Edit Feature.

Enclosures: **Pages** 169
Card Deck for CARD ONLY SYSTEMS (as punched by UP51)
7 Cards - Card Loader (1-7) and 1 Core Clear
633 Cards No. 001-633 Data Cards
1 Card Execute Card

Distribution:
x 1410 with storage capacity 40K or greater
X 7010
Other

C021B

1410/7010 CPU ERROR DETECTION PROGRAM

CONTENTS OF C021B WRITE-UP AND LISTING

2.01.00.0 TEST DESCRIPTION

00.1 MODIFICATIONS

C021B obsoletes and replaces C021A. The most significant changes to the program are as follows:

A. Subroutine No. 09.17 was added to insure a more thorough check of the Zero Balance circuitry.

B. Subroutine No. 10.15 was expanded to include a test of address register settings following an arithmetic operation in which recomplementing is required.

C. Subroutine No. 11.02 was altered slightly to insure that one hundred positions of storage can be cleared to blanks by a Clear Storage instruction.

D. Subroutine No. 13.16 was added to check the result of an indexed operation in which the effective address is generated from addresses which, except for 100K machines, would yield System Check errors.

E. Subroutine No. 18.06 was added to check the effect of a Compare operation in which the Hi-Lo status indicators are required to alternate rapidly and for a sustained period of time.

F. All appropriate subroutines which test operation of the two instructions, Move Characters and Suppress Zeros (MCS) and Move Characters and Edit (MCE), were modified so that these subroutines would function properly on machines with the European Edit Feature. Note that listing comments pertain only to non-European Edit machines.

G. Literal constants were relocated to lower storage locations for more efficient use of available space and to provide for possible future expansion of the program.

H. A modified Autocoder assembly program was used to prepare the listing which provides more rapid and accurate identification of the characters and addresses in actual machine language.

2.01.00.0 TEST DESCRIPTION (continued)

00.2 DESCRIPTION

C021B, like its predecessor, proceeds from relatively simple and fundamental operations to those of relative complexity. The only intentional exception to the foregoing rule occurs at routine No. 16.00 where four subroutines are introduced to test the Data Move operation MLCS. By proving the correct operation of the MLCS instruction, the programming in routine No. 18.00 is greatly facilitated.

The program is divided into routines which are, in turn, subdivided into subroutines. When an operation or a small group of operations is to be checked for the first time, a new routine number of the form MN.00 is assigned, where MN specifies the number of the routine in numeric sequence. Subroutines under MN.00 are identified MN.XY where XY specifies the subroutine number, again in numeric sequence. The term "subroutine" as used here is more properly a "subsection" of a larger routine. Unlike subroutines in the usual sense of the word, these are separate program entities which may, for the most part, be run independently of any other portion of the program. Within the comments of the program listing, the terms "routine" and "subroutine" are occasionally used interchangeably to refer to the current subsection under consideration.

It is anticipated that a CPU malfunction which occurs during the execution of routine Nos. 01.00 through 04.00 will be accompanied by a System Check error. An attempt is made to indicate, by means of a console printer, certain errors that may be experienced in routine Nos. 05.00 through 07.03. These typeouts cannot be bypassed. Beginning with subroutine No. 07.04 and continuing through the remainder of the program, normal TAD options are in effect. Generally speaking, machine troubles should be attended to at the time of their occurrence; this is especially true of troubles that arise during low-numbered sections of the program.

Completion of the program requires that a certain number of loops through the program be made. The number of loops required for completion is determined by a five-digit loop count constant at storage location 01006-01010. As released, this constant is +00100. Within the obvious limits imposed by a five-character area, the CE may alter this value to any other value he chooses.

2.01.00.0 TEST DESCRIPTION (continued)

Within C021B there are several routines which, because of the length of time required to perform them, are executed only the first time through the program and thereafter only in that loop immediately following the one in which the loop count limit is attained. The tests for Halt and Halt-Branch are performed only one time regardless of the number of loops required or the setting of TAD 3. In addition to the routine which tests Halt and Halt-Branch, there exist two other subroutines, No. 30.01 and No. 30.02, each requiring manual intervention, which are performed only during that loop in which the program finds TAD 4 set to a 1. If these subroutine Nos. 30.01 and 30.02 are performed, the latter one resets TAD 4 to a blank in order to prevent repeated testing of them.

00.3 EQUIPMENT REQUIRED

A. Card reader or tape unit to load the program.

B. Console Printer (assumed on channel E)

C. Storage capacity of at least 40K

No additional features are required by this program. C021B is equally applicable to the 1410, the 1410 Accelerator and the 7010.

00.4 CARD DECK

7 cards	Load Program L1A
1 card	Core Clear Card (39999 to 01000)
1 card	System Control Card C021B001
662 cards	Program C021B
1 card	Last Execute Card

00.5 ENGINEERING CHANGE LEVEL OF MACHINE

C021B will operate on 1410's and 7010's of any EC level provided the storage capacity is adequate and unless an Engineering Change modifies the function or operations of the standard instruction set.

2.01.00.0 TEST DESCRIPTION (continued)

00.6 PROGRAM RUN TIMES

The running times listed below in tabular form are for the 1410, the 1410 with the Accelerator Feature No. 1007, and the 7010. Values are given in seconds and are approximate; they do not include the time required to load the program or execute manual operations. In each case the loop counter was initialized to +00100.

	40K	60K	80K	100K
1410	44.8 sec	56 sec*	68 sec*	80 sec*
1410 ACC	37.5	47.3	57.0	67 *
7010	15.2	18.8	22.4	25.9

*Estimated

2.01.01.0 LOADING PROCEDURES

01.1 1410 CARD INPUT

A. Clear storage to blanks

B. Display and alter locations 00000-00011 as follows:

1. RL%1100011$. if reader is on E channel
2. XL¤1100011$. if reader is on F channel

C. Set Mode switch to Run, Computer Reset and Start.

01.2 1410 TAPE INPUT

A. Clear storage to blanks

B. Display and alter locations 00000-00011 as follows:

1. RL%B000011$. if tape unit is on E channel
2. XL¤B000011$. if tape unit is on F channel

C. Set Mode switch to Run, Computer Reset and Start.

2.01.01.0 LOADING PROCEDURES (continued)

01.3 7010 CARD INPUT

A. Clear storage to blanks

B. If reader is on E channel, use 7010 Load key and disregard steps C and D.

C. If reader is on F channel, display and alter locations 00000-00011 to XL␣1100011$.

D. Set Mode switch to Run, Computer Reset and Start.

01.4 7010 TAPE INPUT

A. Clear storage to blanks.

B. If tape unit is on E channel, use 7010 Load key and disregard steps C and D.

C. If tape unit is not on E channel, display and alter locations 00000-00011 as follows:

1. XL␣B000011$. if tape unit is on F channel
2. 3L?B000011$. if tape unit is on G channel
3. 1L!B000011$. if tape unit is on H channel

D. Set Mode switch to Run, Computer Reset and Start.

2.01.02.0 OPERATING PROCEDURES

No special instructions are necessary to run this program. Operation begins immediately upon reading the final Execute Card.

2.01.02.0 OPERATING PROCEDURES (continued)

All TADs are initialized to "not 1" and normal operation of C021B, described below, does not require that any TAD information be entered. By "normal operation" is meant that all typeouts are allowed, there will be no looping of individual subroutines, there will be no error stops (except for routine Nos. 06.00 through 07.03), only one "pass" will be performed, and subroutine Nos. 30.01 and 30.02, which require operator intervention, will be bypassed. The significance of the TADs is as follows:

TAD	Location	Not 1 (Normal)	1
TAD 0	01000	Allow all typeouts	Bypass error typeouts
TAD 1	01001	Not loop subroutine	Loop on subroutine
TAD 2	01002	Not halt on error	Halt on error
TAD 3	01003	One program pass only	Repeat C021B indefinitely
TAD 4	01004	Not perform subroutine Nos. 30.01 and 30.02	Perform subroutine Nos. 30.01 and 30.02

It is recommended that once during the execution of C021B TAD 4 be set to a "1" so that certain functions of the reset keys may be tested by subroutine Nos. 30.01 and 30.02. TAD 4 is the only special TAD used by this program.

The Customer Engineer should note at this time the contrast between TAD information and Control Card information. Data in the form of TADs applies to all installations, irrespective of machine type or configuration; Control Card data furnishes to the program important information which may vary widely from one installation to another. In order that C021B run properly and make fullest utilization of the CPU's capabilities, this information must be made available to the program through a Control Card, properly punched at the individual locations. This program requires Control Card information relating to machine type, storage capacity and the European Edit Feature.

2.01.03.0 OPERATING HINTS AND COMMENTS

With the understanding that the CE occasionally wishes to enter his own instruction sequence and data for the purpose of testing a specific condition and yet leave the main program intact, the following "safe" areas are listed. C021B will not disturb the contents of these locations.

01016 through 01028
01813 through 01993
34422 through 34899, but see following paragraph

Note that no area below address location 01000 can be considered "safe" since the Load Program L1A or Tape Control Program TC50 ( ) resides there, and the areas not used by L1A or TC50 ( ) are used as work areas by C021B.

The CE will observe that not all of storage above the greatest address given in the program listing is available for patching. In order to explain this, it is necessary to know something about the operation of subroutine Nos. 31.01 and 31.02. These two subroutines use the area above 34900 up to the highest available storage location as indicated by the System Control Card. Upper storage locations, in blocks of 10K, may be omitted from the test by altering the System Control Card or by manually altering storage location 01257. As an example, consider a CPU with 100K storage capacity. Normally, the System Control Card for this system will contain a "9" punch in card column 14 indicating that location 99999 is the highest available address. To remove the upper 10K storage locations from the test and thereby make it available for other use, alter address 01257 to an "8" or use a System Control Card, prepared especially for C021B, with an "8" punched into column 14 of card C021B001. In similar fashion, the upper limit of storage utilized by No. 31.01 and No. 31.02 may be reduced in 10K increments. The presence of non-numeric characters in location 01257 or numbers less than "3" will cause the program to assume a 40K system.

2.01.03.0 OPERATING HINTS AND COMMENTS (continued)

TADs or other data within the program may be altered in the following manner:

1. Depress the Inquiry Request key.

2. When "I" types, enter five numeric characters which specify the high-order location, i.e., the low storage address, to be altered.

3. Depress the Inquiry Release key.

4. Depress the Inquiry Request key.

5. Enter desired information or data from the keyboard.

6. Depress the Inquiry Release key.

If an error is made while keying in an address or data (steps 2 or 5), depress the Inquiry Cancel key and resume from the step which preceded the error.

The opportunity to recognize an Inquiry Request is provided in nearly all but the very first routines. Unless the Inquiry Request key is depressed during the execution of subroutine Nos. 31.01 or 31.02, acknowledgment will be almost instantaneous.

C021B provides that if TAD 1 is set to a "1" the current subroutine will be "looped" until TAD 1 is reset, regardless of whether that subroutine is in error or not.

Routine No. 12.00 places a Branch instruction at 00001-00007, the I-address of which is an appropriate restart location. Provided that routine No. 12.00 has been executed one time, the Program or Computer Reset keys may be used for the purpose of restarting the program but with the following exception. During the execution of TAD-optional routine Nos. 30.01 and 30.02, the use of the reset keys is required to proceed through the program. Note that neither the use of the reset keys nor the repeated looping provided by TAD 3 causes the identification to be typed again or the pass counter to be reset.

2.01.03.0 OPERATING HINTS AND COMMENTS (continued)

Give special attention to the comments portion of the listing. These notes are provided so that the CE may have an insight into the method of test and the expected results.

2.01.04.0 PROGRAM STOPS AND RESTARTS

There are only two normal stops that occur during the running of C021B; they are experienced when the operations Halt and Halt-Branch are tested and are accompanied by informative typeouts. Press the Start key to continue. Installations which cannot tolerate programmed stops or manual intervention must modify C021B by overlaying, with a patch card, the instruction following the one labeled AH on page 25. As released, this instruction is not defined with a word mark until one loop of the program has been made. A modification card providing non-stop operation should overlay the no-Word Mark "J" with a Word Mark "J."

If TAD 4 is set to "1" two stops will occur during the execution of subroutine Nos. 30.01 and 30.02. The console printer will direct the CE to depress a reset key and Start.

During most of the time that C021B is being run, an appropriate restart Branch instruction is located at address 00001. Restrictions on this condition are noted in the previous section of this write-up.

2.01.05.0 TYPEOUTS

05.1 NORMAL TYPEOUTS

A. C021B. Test identification typed at start of program.

B. PROG HLT. PRESS START. Typed when the Halt instruction is tested.

C. PROG HLT/BR. PRESS START. Typed when the Halt-Branch instruction is tested.

D. PRESS PROGRAM RESET & START. Associated with subroutine No. 30.02. Typed only if TAD 4 is set to "1."

2.01.05.0 TYPEOUTS (continued)

E. PRESS COMPUTER RESET & START. Associated with subroutine No. 30.02. Typed only if TAD 4 is set to "1."

F. PASS 001. Typed at conclusion of the first pass. If the program is repeated under the control of TAD 3 the pass number is incremented by 1 on each sequential pass. The pass number is not reset by any Reset-Start procedure.

G. EOJ C021B. End of Job message which immediately follows typeout (F) if TAD 3 is not set to "1."

05.2 ERROR TYPEOUTS

Most routines and subroutines within C021B provide an error typeout of the form No. MN.XY where MN specifies the routine number and XY the subroutine number. Sections of the program labeled in this manner which do not provide this typeout are No. 01.00 through No. 04.00, No. 12.00 and No. 31.02. Note that there are no routine Nos. 14.00, 20.00 or 21.00; their omission results from the consolidation of separate phases of a prior program.

In many subroutines, the subroutine number will be typed if any of several errors occur; for example, No. 19.57 will be typed if the SCNRM operation fails (1) to stop on a record mark, (2) to stop on a group mark, (3) if either the A- or B-address registers are incorrect following the scan, or (4) if any data are moved by the operation. In cases of the type just described, it is left to the ingenuity of the CE to determine precisely where the test failed.

Subroutine Nos. 18.01, 23.01, 24.02, 30.01 and 30.02 each provide error typeouts in addition to their respective subroutine numbers. These additional typeouts are discussed in some detail below.

No. 18.01
* VS * ERR W X Y Z

The two asterisks (*) represent the A- and B-field, in that order, of the single character compare operation which was found in error. The letters W X Y Z represent one or more of the ten possible error types that are tested by No. 18.01 and will be printed as a numeric digit (or digits) 1 through 9 or an alphabetic "X" (for Roman numeral "10"). The CE is referred to the COMPARE flow chart for the significance of the error numbers.

2.01.05.0 TYPEOUTS (continued)

No. 23.01
AB PROD XYZ; S/B ZERO

A and B represent the A-field multiplier and the B-field multiplicand, respectively. They may be any of the 64 possible legitimate characters. The product of A and B is given by XYZ and should have been zero; either the product XYZ was not zero or the zero balance indicator did not come on.

No. 23.01
AB PROD XYZ; S/B NZ

Similar to the example just described. Neither factor A nor B was zero or any of its equivalents. The product XYZ should not have been zero but a test of the zero balance indicator found it on.

No. 23.01
AB PROD XYZ; S/B NEG

The A- and B-field factors were so signed that a product having a zone configuration of B-bit only in the units position was expected. The product of A and B did not yield the anticipated negative result.

No. 23.01
AB PROD XYZ; S/B POS

Similar to the example just described. The product of A and B did not yield the anticipated positive result.

No. 23.01
AB PROD UVW; NE BA PROD XYZ

The product of any two single characters should yield the same result regardless of which character is multiplier or multiplicand. This typeout indicates that UVW, the product of A and B, was not equal to XYZ, the product of B and A. The products and their factors are given for comparison.

2.01.05.0 TYPEOUTS (continued)

No. 24.02
B/A EQ Q, REM R; NEQ [A][Q] PLUS R

B, A, Q and R represent signed integers with the restriction that A is never equal to zero. This typeout indicates a failure to recover the dividend B when the product of the divisor A and the quotient Q is algebraically added to the remainder R.

No. 24.02
00B/A CAUSED DIV OFLOW

A test of the Divide Overflow indicator found it on after performing the indicated division. Since A is not allowed to be equal to zero, the indicator should never come on.

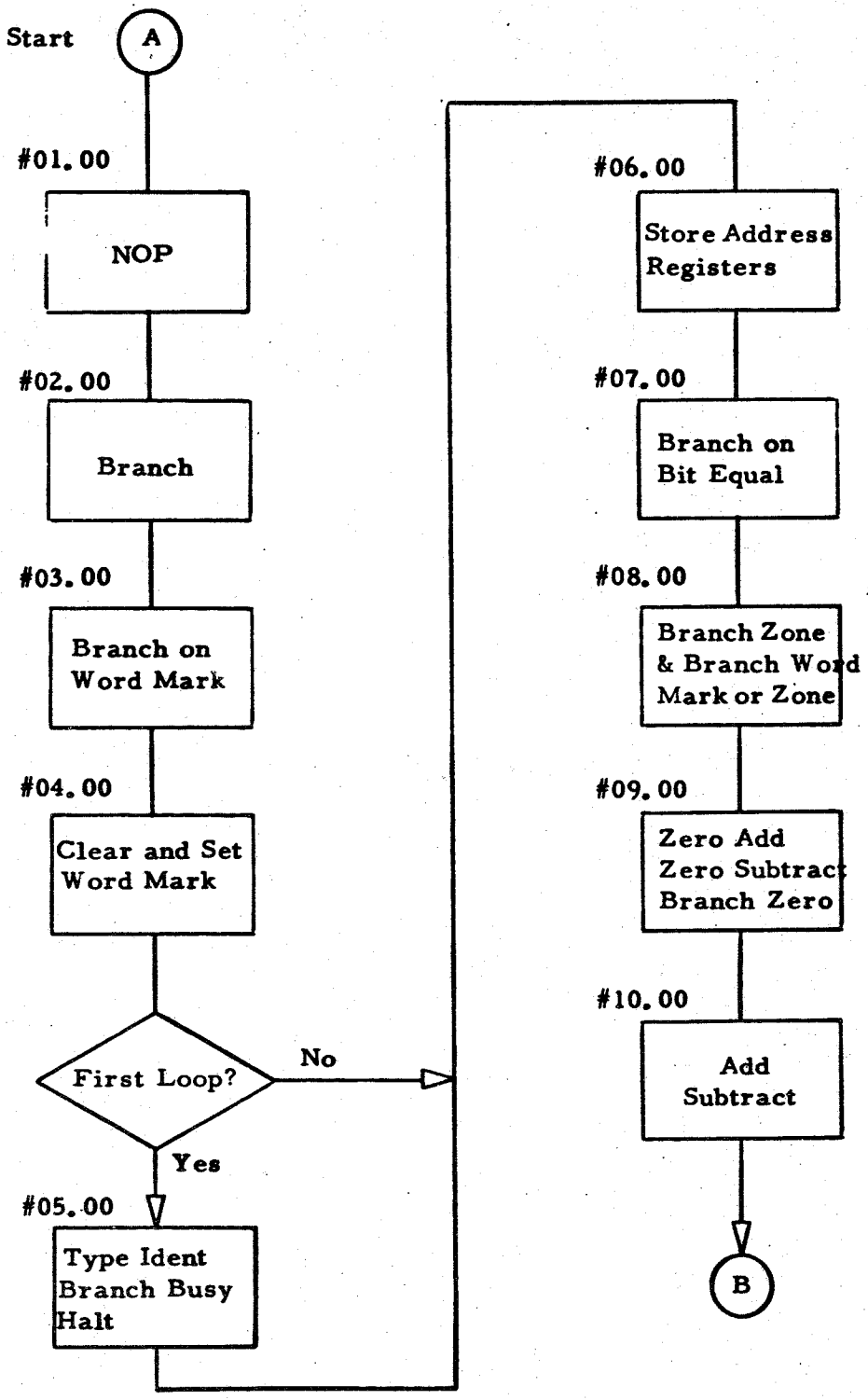
No. 30.01
B EQUAL A RESET
ARITH OFLOW RESET
DIV OFLOW RESET
ZERO BAL RESET

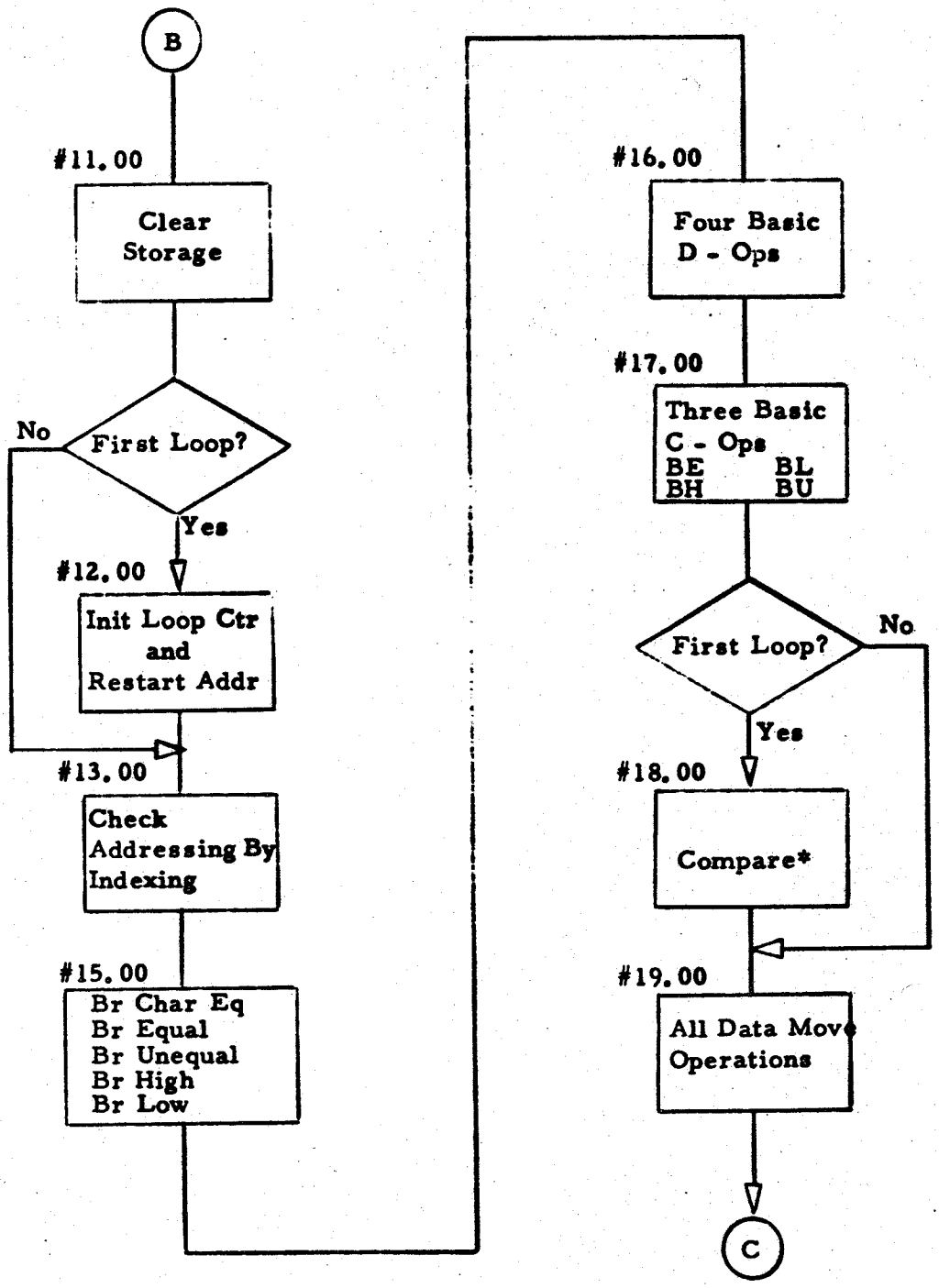
Subroutine No. 30.01 tests certain functions of the Program Reset key. This typeout points out that one or more of the specified indicators was reset by the Program Reset key.

No. 30.02
FAIL TO SET B<A
ARITH OFLOW NOT RESET
DIV OFLOW NOT RESET
ZERO BAL NOT RESET

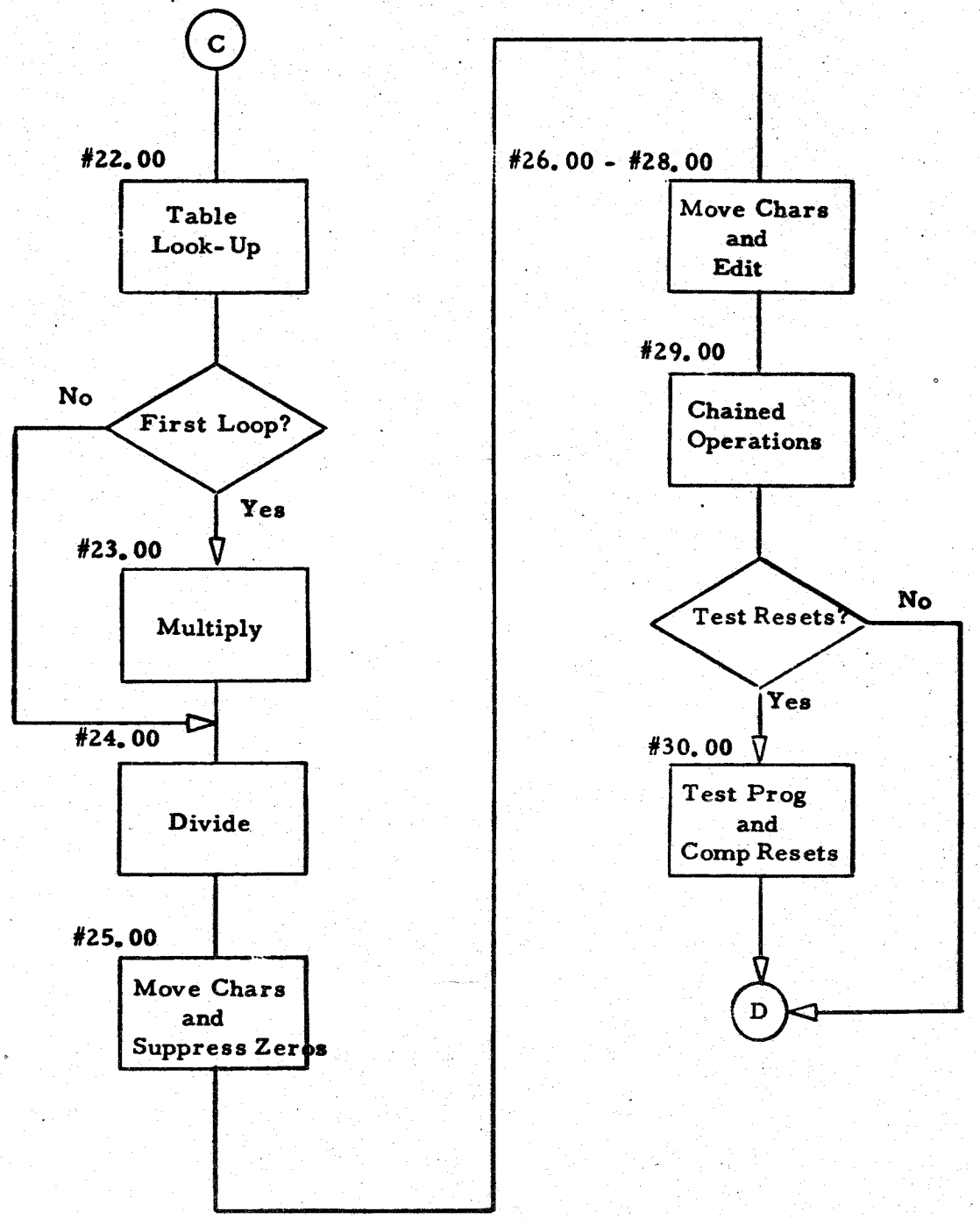
In a manner similar to that just described in the preceding example, some functions of the Computer Reset key are tested. This typeout will inform the CE of the failure or failures detected by this subroutine.

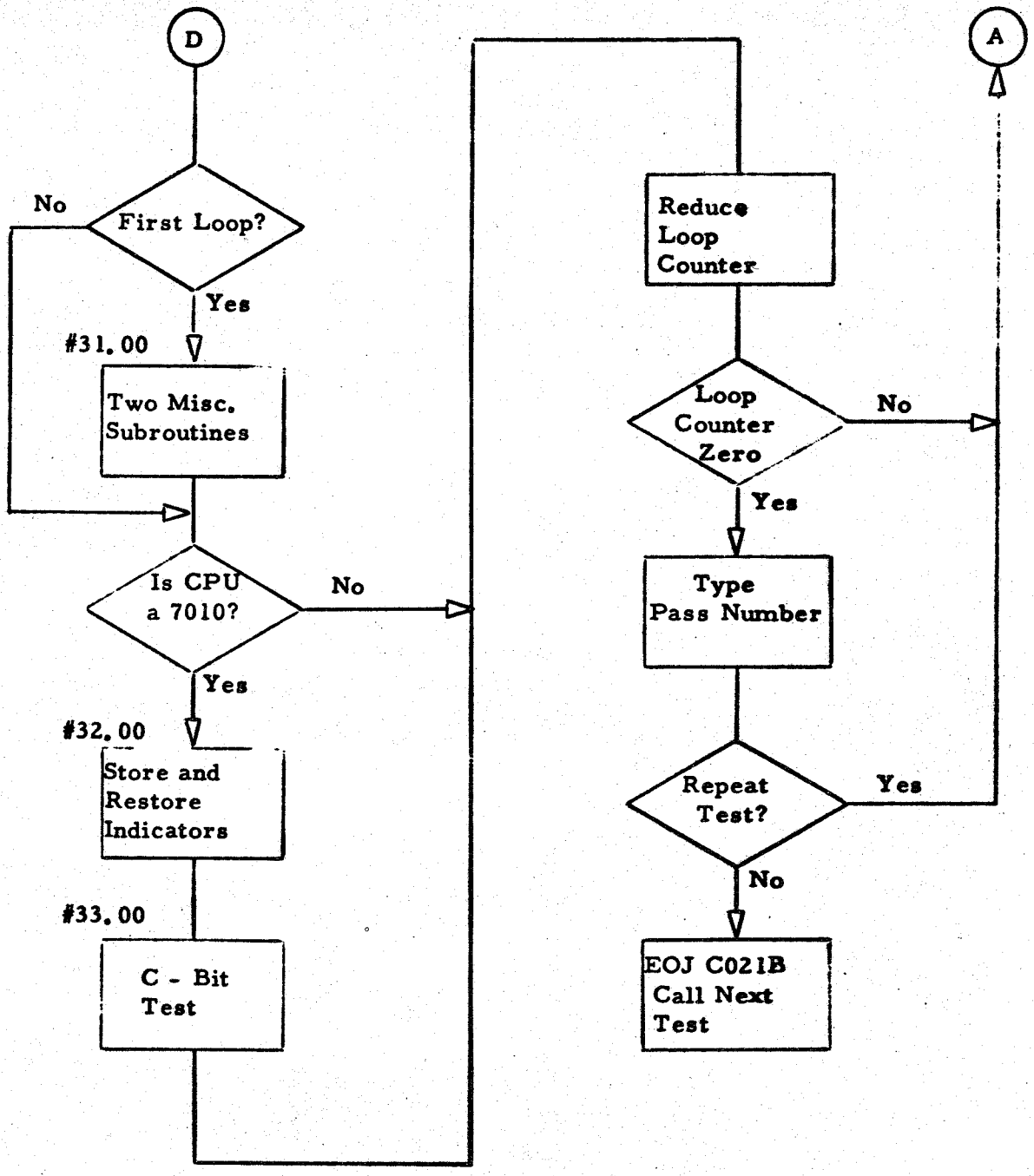
NOTES


Start
A
#01.00
NOP
#02.00
Branch
#03.00
Branch on Word Mark
#04.00
Clear and Set Word Mark
First Loop?
No
Yes
#05.00
Type Ident Branch Busy Halt
#06.00
Store Address Registers
#07.00
Branch on Bit Equal
#08.00
Branch Zone & Branch Word Mark or Zone
#09.00
Zero Add Zero Subtract Branch Zero
#10.00
Add Subtract
B

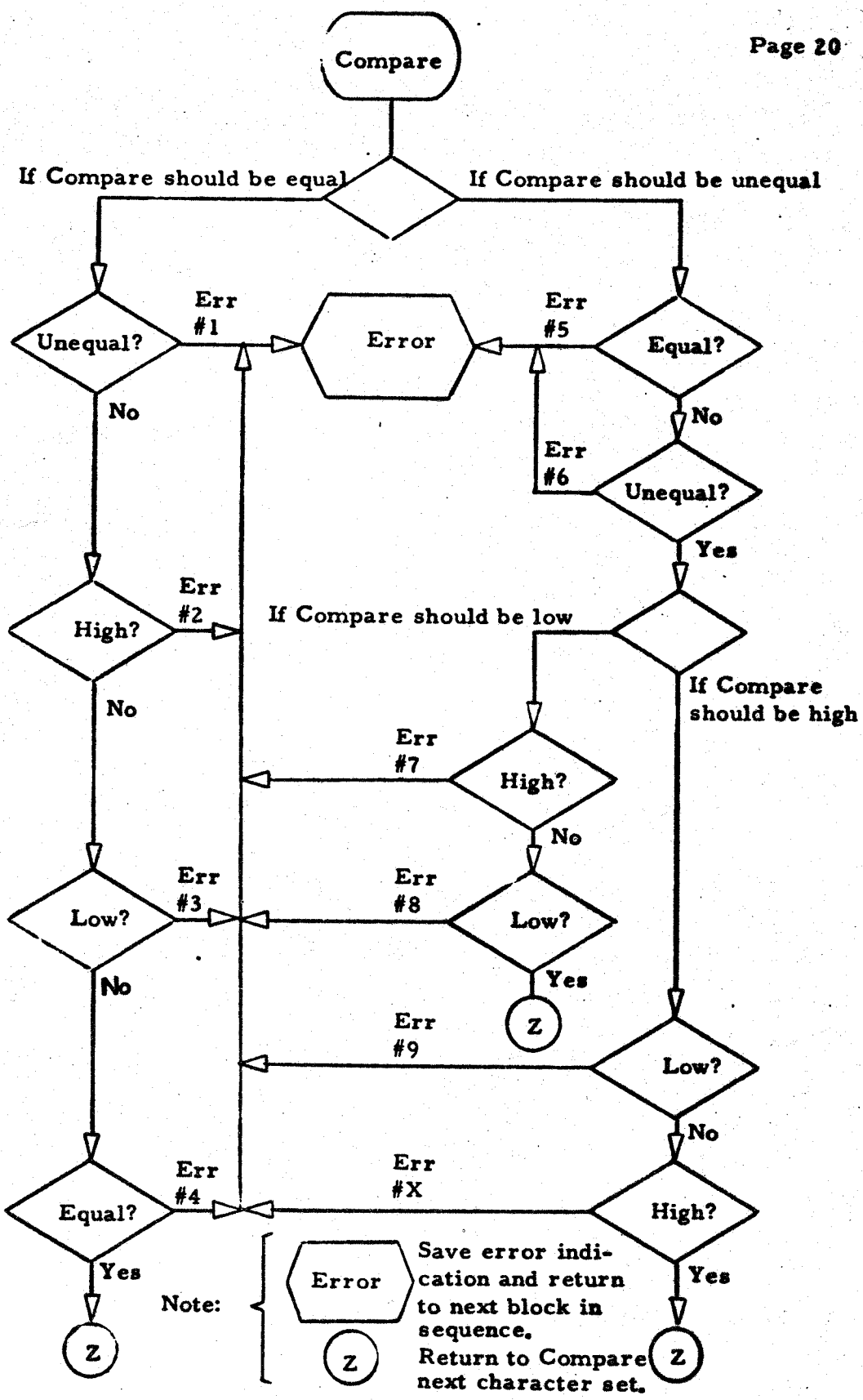


* See detailed Compare flow chart, Page 015


C
#22.00
Table Look-Up
No
First Loop?
Yes
#23.00
Multiply
#24.00
Divide
#25.00
Move Chars and Suppress Zeros
#26.00 - #28.00
Move Chars and Edit
#29.00
Chained Operations
Test Resets?
No
Yes
#30.00
Test Prog and Comp Resets
D


D
No
First Loop?
Yes
#31.00
Two Misc. Subroutines
Is CPU a 7010?
No
Yes
#32.00
Store and Restore Indicators
#33.00
C - Bit Test
Reduce Loop Counter
Loop Counter Zero
No
Yes
Type Pass Number
Repeat Test?
Yes
No
EOJ C021B Call Next Test
A

COMPARE flow chart to be used in analyzing error typeouts.



```
PGLIN     LABEL     OPCOD   OPERAND                                          CT  ADDRS  INSTRUCTION
1002                CTL     3
1003                LINES   36
1004                LOAD
1005
1006      SYSCTL    EQU     1256
1007      CTLIND    EQU     1230
1008      IDENT     EQU     1250
1009      START     EQU     2000
1010
1011                ORG     SYSCTL   NOTE -- THE ONLY POSITIONS IN THE SYSTEM      01256
1012                        CONTROL CARD REQUIRED BY THIS PROGRAM ARE THOSE
1013                        WHICH PROVIDE LOCATIONS 01256, 01257 AND 01261.
1014                        THIS INFORMATION COMES FROM COLUMNS 13, 14 AND 18
1015                        OF THE SYSTEM CONTROL CARD AND INDICATES, RESPEC-
1016                        TIVELY, WHETHER THE CPU IS 1410 OR 7010, MAXIMUM
1017                        CPU STORAGE CAPACITY AND WHETHER EUROPEAN EDIT
1018                        FEATURE IS TO BE TESTED.
1019
1020                DC      @                          +@                    33  01288
1021      LOWLOC    EQU     *
1022
1023                ORG     CTLIND                                           01230
1024
1025                DC      @          @                                     9  01238
1026                DCW     @0+11+10213U@      NOT 10K AND NOT 20K, SEQUENCE 11  01249
1027                                           NO. 021, DUMP TO 34999 ON TAPE
```

```
PGLIN     LABEL     OPCOD   OPERAND                                          CT  ADDRS  INSTRUCTION
1029                ORG     IDENT                                                01250
1030
1031                DCW     @C0218@,G          PROGRAM IDENTIFICATION        5   01254
1032
1033                ORG     1000                                                 01000
1034
1035                DC      @ @                ALLOW ALL TYPEOUTS            1   01000
1036                        @ @                DO NOT LOOP ON ERROR          1   01001
1037                        @ @                DO NOT HALT ON ERROR          1   01002
1038                        @ @                PERFORM ONLY ONE PASS         1   01003
1039                        @ @,G              NOT DO ROUTINES #30.01 OR #30.02 1 01004
1040                ORG     *                                                    01006
1041
1042      PCC       DCW     &00100             LOOP COUNT CONSTANT           5   01010
1043      PCCWK             @      @           LOOP COUNT WORK AREA          5   01015
```

```
PGLIN  LABEL   OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
1045           ORG    1029          THREE COMMON SUBROUTINES       01029
1046
1047   TYPE    SBR    *&9           COMMON TYPE ROUTINE          7 01029  G 01044 B
1048           WCP    0                                         10 01036  M %TO 00000 W
1049           SBR    *&20                                       7 01046  G 01072 B
1050           BCB1   *-23                                       7 01053  R 01036 2G
1051           BA1    *&1                                        7 01060  R 01067 M
1052           B      0                                          7 01067  J 00000
1053
1054   TYPCK   SBR    *&39          TYPE AND TAD CHECK ROUTINE   7 01074  G 01119 B
1055           SBR    *&65                                       7 01081  G 01152 B
1056           A      *-17,*&54                                 11 01088  A 01081 01152
1057           BBE    *&25,TAD0,1                               12 01099  W 01135 01000 1
1058           WCP    0                                         10 01111  M %TO 00000 W
1059           BCB1   *-16                                       7 01121  R 01111 2G
1060           BA1    *&1                                        7 01128  R 01135 M
1061           BBE    *&8,TAD2,1                                12 01135  W 01154 01002 1
1062           B      0                                          7 01147  J 00000
1063           H      *-12                                       6 01154  . 01147
1064
1065   AA      SBR    *&61          INTERNAL ADDRESS ALTER ROUTINE 7 01160  G 01227 B
1066           RCP    *&26                                      10 01167  M %TO 01202 RS
1067           BNT1   *&39                                       7 01177  R 01222 SBT
1068           BEX1   *-23,TM                                    7 01184  R 01167 MG
1069           BA1    *&1                                        7 01191  R 01198 M
1070           RCPW   0                                         10 01198  L %TO 00000 RS
1071           BEX1   *-16,SM                                    7 01208  R 01198 MG
1072           BA1    *&1                                        7 01215  R 01222 M
1073           B      0                                          7 01222  J 00000
1074           H                    DEFINE PRECEDING INSTR LENGTH 1 01229  .
```

```
PGLIN     LABEL      OPCOD   OPERAND                                                  CT  ADDRS  INSTRUCTION
1076                 ORG     START              PROGRAM BEGINS HERE                       02000
1077
1078        ROUTINE 01.00    CHECK LONG NO-OP INSTRUCTION
1079                 NOP                                                               1  02000  N
1080                 DC      @ 123456789@@.¢GTS¬TM@/STUVWXYZ¢,%WBS¬SSM@                32  02032
1081                         @-JKLMN¬OPQR*$*@,L&ABCDEFGHIM.¤@TM@                       32  02064
1082
1083        ROUTINE 02.00    CHECK UNCOND BR INST.  THIS ROUTINE ASSUMES THAT
1084                         WM-BL WILL GIVE INSTRUCTION CK IF BRANCH FAILS
1085
1086                 B       *&1                SET AND STEP IAR TO SAME ADDRESS       7  02065  J 02072
1087                 B       *&2                SHOULD SKIP FOLWNG INVALID OPCODE      7  02072  J 02080
1088                 DCW     @ @                                                       1  02079
1089
1090        ROUTINE 03.00    CHECK BRANCH ON WORD MARK INSTRUCTION
1091     AC         BW      AD,AD              SHOULD NOT BR, INST CK IF IT DOES      12  02080  V 02105 02105 1
1092                 BW      AE,*&1             SHOULD BRANCH, INST CK IF NO BR        12  02092  V 02106 02104 1
1093                 DCW     @ @                                                       1  02104
1094     AD         DC      @¢M@                                                      1  02105
1095
1096        ROUTINE 04.00    CHECK CLEAR AND SET WORD MARK INSTRUCTIONS
1097
1098     AE         CW      AC,AE              TRY TO CLEAR WMS AT TWO PLACES         11  02106  ¤ 02080 02106
1099                 BW      AF-1,AC            SHOULD NOT BR, INST CK IF IT DOES      12  02117  V 02165 02080 1
1100                 BW      AF,AE              DITTO                                  12  02129  V 02166 02106 1
1101                 SW      AE,AC              RESTORE WMS PREVIOUSLY CLEARED         11  02141  , 02106 02080
1102                 BW      *&4,AE             TEST AE FOR WORD MARK                  12  02152  V 02167 02106 1
1103     AF         DCW     @ 12@              INSTRUCTION CK IF NO WM AT AE          3  02166
1104                 BW      *&2,AC             TEST AC FOR WORD MARK                  12  02167  V 02180 02080 1
1105                 DCW     @ @                INSTRUCTION CK IF NO WM AT AC          1  02179
1106
1107        ROUTINE 05.00    TYPE IDENT, CK TYPEWR BUSY, HALT, HALT/BR.
1108                         THESE OPS PERFORMED ONLY FIRST TIME THROUGH
1109
1110                 NOPWM                                                             1  02180  N
1111                 B       AJ                 THIS BR NOT TAKEN FIRST TIME THRU      7  02181  J 02367
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PGLIN  LABEL   OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
1112           SW     WDSEP,*-17                                       11  02188  . 33022 02181
1113     AG    WCP    IDENT          TYPE PROGRAM IDENTIFICATION       10  02199  M %TO 01250 W
                                                                                      G
1114           BA1    *&1            RESET I/O INTERLOCK               7  02209  R 02216 M
1115           WCP    BUSYNG         TRY TO INDICATE FAILURE           10  02216  M %TO 02311 W
1116           BCB1   *&2            SHOULD BR BUSY; RESET I/O INTLK   7  02226  R 02234 2
1117           DCW    @ @            INSTR CK IF TYPEWR FAIL RAISE BSY 1  02233
1118           ORG    *              CREATE NEW CARD                      02234
1119     AH    NOPWM                                                    1  02234  N
1120           B      AJ             PUT WM HERE FOR NONSTOP OPERATION 7  02235  J 02367
1121           ORG    *              CREATE NEW CARD                      02242
1122           BW     AJ,997         BRANCH IF RUNNING NON-STOP        12  02242  V 02367 00997 1
1123           WCP    GOMSG1                                           10  02254  M %TO 02318 W
1124           BCB1   *-16                                             7  02264  R 02254 2
                                                                                      G
1125           BA1    *&1                                              7  02271  R 02278 M
1126           H                     SHOULD HALT                       1  02278  .
1127           WCP    GOMSG2                                           10  02279  M %TO 02341 W
1128           BCB1   AI             TAKE THIS ONLY IF HALT FAILS      7  02289  R 02310 2
                                                                                      G
1129           BA1    *&1                                              7  02296  R 02303 M
1130           H      AJ             SHOULD HALT/BR.  INST CK IF NOT   6  02303  . 02367
1131     AI    DCW    @ 1@                                             2  02310
1132
1133      BUSYNG      @#05.00@,G     TYPED IF TYPEWRITER BUSY FAILURE  6  02311
1134      GOMSG1      @PROG HLT.  PRESS START@,G                       22  02318
1135      GOMSG2      @PROG HLT/BR.  PRESS START@,G                    25  02341
```

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PGLIN  LABEL     OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
1137       ROUTINE 06.00  CHECK OPERATION OF SAR AND SBR INSTRUCTIONS
1138
1139   AJ        B      AK              I-ADDR MODIFIED WITHIN ROUTINE    7  02367  J 02374
1140   AK        NOPWM          NOTE. BR TO 00000 INDICATES SBR FAILURE   1  02374  N
1141             B      AL            . BR TO 00001 INDICATES SAR FAILURE 7  02375  J 02427
1142             SW     AK&1                                             6  02382  , 02375
1143             CW     1,AN&1          SET UP A & B ADDR REGISTERS      11  02388  ¤ 00001 02497
1144             SBR    AJ&5                                             7  02399  G 02372 B
1145             SAR    AJ&5                                             7  02406  G 02372 A
1146             SBR    AJ&5                                             7  02413  G 02372 B
1147             B      AJ                                               7  02420  J 02367
1148   AL        WCP    ER0600                                          10  02427  M &TO 02489 W
1149             BCBL   *-16                                            7  02437  R 02427 2
1150             BA1    *&1                                              7  02444  R 02451 G M
1151             H                                                       1  02451  .
1152   AM        CW     1,2                                             11  02452  ¤ 00001 00002
1153             SAR    ABHOLD                                           7  02463  G 02488 A
1154             SBR    ABHOLD                                           7  02470  G 02488 B
1155             B      AM                                               7  02477  J 02452
1156   ABHOLD    DCW    00000                                            5  02488
1157    ER0600           @#06.00@,G  BOTH SAR & SBR FAIL.  PRESS START    6  02489
1158                                 TO LOOP.  FIX BEFORE PROCEEDING.
1159   AN        CW     AO&1,2          SET UP A & B ADDR REGISTERS      11  02496  ¤ 02536 00002
1160             SAR    AJ&5                                             7  02507  G 02372 A
1161             SBR    AJ&5                                             7  02514  G 02372 B
1162             SAR    AJ&5                                             7  02521  G 02372 A
1163             B      AJ                                               7  02528  J 02367
1164   AO        CW     AK&1            RESET NOP/BR SWITCH              6  02535  ¤ 02375
1165             SAR    AJ&5            RESTORE I-ADDR OF AJ             7  02541  G 02372 A
1166             SW     1               SET WM BACK IN LOC 00001         6  02548  , 00001
```

```
PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
1168        ROUTINE 07.00   CHECK OPERATION OF BRANCH BIT EQUAL INSTRUCTION
1169
1170        SUB-RTN 07.01
1171                BBE     AP,*,1              SHOULD BRANCH        12  02554  W 02617 02565 1
1172                WCP     ER0701                                   10  02566  M %TO 02610 W
1173                BCB1    *-16                                      7  02576  R 02566 2
1174                BA1     *&1                                       7  02583  R 02590 M G
1175                H                                                 1  02590  .
1176                BBE     *&1,*,1               THESE INSTRUCTIONS PROVIDE  12  02591  W 02603 02602 1
1177                B       *-18                TIGHT LOOP IN EVENT OF FAILURE  7  02603  J 02591
1178       ER0701   DCW     @#07.01@,G    BBE 1 EQ 1 FAILS.  PRESS START    6  02610
1179                                      TO LOOP.  FIX BEFORE PROCEEDING.
1180        SUB-RTN 07.02
1181       AP       BBE     *&8,AQ&11,1         SHOULD NOT BRANCH    12  02617  W 02636 02698 1
1182                B       AQ                                        7  02629  J 02687
1183                WCP     ER0702                                   10  02636  M %TO 02680 W
1184                BCB1    *-16                                      7  02646  R 02636 2
1185                BA1     *&1                                       7  02653  R 02660 M G
1186                H                                                 1  02660  .
1187                BBE     *&1,AQ&11,1           THESE INSTRUCTIONS PROVIDE  12  02661  W 02673 02698 1
1188                B       *-18                TIGHT LOOP IN EVENT OF FAILURE  7  02673  J 02661
1189       ER0702   DCW     @#07.02@,G    BBE FAILURE.  PRESS START TO LOOP.  6  02680
1190                                      FIX THIS BEFORE PROCEEDING.
1191        SUB-RTN 07.03
1192       AQ       BBE     *&8,AP&11,1T        SHOULD NOT BRANCH    12  02687  W 02706 02628 1T
1193                B       AR                                        7  02699  J 02757
1194                WCP     ER0703                                   10  02706  M %TO 02750 W
1195                BCB1    *-16                                      7  02716  R 02706 2
1196                BA1     *&1                                       7  02723  R 02730 M G
1197                H                                                 1  02730  .
1198                BBE     *&1,AP&11,1T          THESE INSTRUCTIONS PROVIDE  12  02731  W 02743 02628 1T
1199                B       *-18                TIGHT LOOP IN EVENT OF FAILURE  7  02743  J 02731
1200       ER0703   DCW     @#07.03@,G    SAME AS #07.02 ABOVE              6  02750
1201        SUB-RTN 07.04
1202       AR       BBE     AU-19,*,2           SHOULD BRANCH        12  02757  W 02815 02768 2
1203                BBE     AS,TAD0,1                                12  02769  W 02795 01000 1
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PGLIN     LABEL      OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
1204                 B      TYPE                              7  02781  J 01029
1205                 DCW    @#07.04@,G       BBE 2 EQ 2 FAILURE  6  02793
1206      AS         BBE    AT,TAD2,1                        12  02795  W 02814 01002 1
1207                 B      *£2                               7  02807  J 02815
1208      AT         H                                        1  02814  .
1209                 BNQ    AA               TEST FOR INQUIRY REQUEST  7  02815  J 01160 Q
1210                 BBE    AR,TAD1,1                        12  02822  W 02757 01001 1
1211        SUB-RTN 07.05
1212      AU         BBE    *£8,AX&11,2      SHOULD NOT BRANCH  12  02834  W 02853 02929 2
1213                 B      AX-19                             7  02846  J 02899
1214                 BBE    AV,TAD0,1                        12  02853  W 02879 01000 1
1215                 B      TYPE                              7  02865  J 01029
1216                 DCW    @#C7.05@,G       BBE NOT-2 & 2 BITS  6  02877
1217      AV         BBE    AW,TAD2,1                        12  02879  W 02898 01002 1
1218                 B      *£2                               7  02891  J 02899
1219      AW         H                                        1  02898  .
1220                 BNQ    AA               TEST FOR INQUIRY REQUEST  7  02899  J 01160 Q
1221                 BBE    AU,TAD1,1                        12  02906  W 02834 01001 1
1222        SUB-RTN 07.06
1223      AX         BBE    *£8,AU&11,8(L)   SHOULD NOT BRANCH  12  02918  W 02937 02845 8(L)
1224                 B      BA-19                             7  02930  J 02983
1225                 BBE    AY,TAD0,1                        12  02937  W 02963 01000 1
1226                 B      TYPE                              7  02949  J 01029
1227                 DCW    @#C7.06@,G       BBE 2 & NOT-2 BITS  6  02961
1228      AY         BBE    AZ,TAD2,1                        12  02963  W 02982 01002 1
1229                 B      *£2                               7  02975  J 02983
1230      AZ         H                                        1  02982  .
1231                 BNQ    AA               TEST FOR INQUIRY REQUEST  7  02983  J 01160 Q
1232                 BBE    AX,TAD1,1                        12  02990  W 02918 01001 1
1233        SUB-RTN 07.07
1234      BA         BBE    BD-19,*,4        SHOULD BRANCH    12  03002  W 03060 03013 4
1235                 BBE    BB,TAD0,1                        12  03014  W 03040 01000 1
1236                 B      TYPE                              7  03026  J 01029
1237                 DCW    @#C7.07@,G       BBE 4 EQ 4 FAILURE  6  03038
1238      BB         BBE    BC,TAD2,1                        12  03040  W 03059 01002 1
1239                 B      *£2                               7  03052  J 03060
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PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
1240      BC        H                                                1  03059  .
1241                BNQ    AA                TEST FOR INQUIRY REQUEST  7  03060  J 01160 Q
1242                BBE    BA,TAD1,1                                12  03067  W 03002 01001 1
1243          SUB-RTN 07.08
1244      BD        BBE    *&8,BG&11,4       SHOULD NOT BRANCH        12  03079  W 03098 03174 4
1245                B      BG-19                                     7  03091  J 03144
1246                BBE    BE,TAD0,1                                12  03098  W 03124 01000 1
1247                B      TYPE                                      7  03110  J 01029
1248                DCW    @#07.08@,G        BBE NOT-4 & 4 BITS       6  03122
1249      BE        BBE    BF,TAD2,1                                12  03124  W 03143 01002 1
1250                B      *&2                                       7  03136  J 03144
1251      BF        H                                                1  03143  .
1252                BNQ    AA                TEST FOR INQUIRY REQUEST  7  03144  J 01160 Q
1253                BBE    BD,TAD1,1                                12  03151  W 03079 01001 1
1254          SUB-RTN 07.09
1255      BG        BBE    *&8,BD&11,.       SHOULD NOT BRANCH        12  03163  W 03182 03090 .
1256                B      BJ-19                                     7  03175  J 03228
1257                BBE    BH,TAD0,1                                12  03182  W 03208 01000 1
1258                B      TYPE                                      7  03194  J 01029
1259                DCW    @#07.09@,G        BBE 4 & NOT-4 BITS       6  03206
1260      BH        BBE    BI,TAD2,1                                12  03208  W 03227 01002 1
1261                B      *&2                                       7  03220  J 03228
1262      BI        H                                                1  03227  .
1263                BNQ    AA                TEST FOR INQUIRY REQUEST  7  03228  J 01160 Q
1264                BBE    BG,TAD1,1                                12  03235  W 03163 01001 1
1265          SUB-RTN 07.10
1266      BJ        BBE    BM-19,*,8         SHOULD BRANCH            12  03247  W 03305 03258 8
1267                BBE    BK,TAD0,1                                12  03259  W 03285 01000 1
1268                B      TYPE                                      7  03271  J 01029
1269                DCW    @#07.10@,G        BBE 8 EQ 8 FAILURE       6  03283
1270      BK        BBE    BL,TAD2,1                                12  03285  W 03304 01002 1
1271                B      *&2                                       7  03297  J 03305
1272      BL        H                                                1  03304  .
1273                BNQ    AA                TEST FOR INQUIRY REQUEST  7  03305  J 01160 Q
1274                BBE    BJ,TAD1,1                                12  03312  W 03247 01001 1
1275          SUB-RTN 07.11
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PGLIN     LABEL      OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
1276      BM         BBE    *&8,BP&11,8      SHOULD NOT BRANCH 12  03324  W 03343 03419 8
1277                 B      BP-19                              7  03336  J 03389
1278                 BBE    BN,TAD0,1                         12  03343  W 03369 01000 1
1279                 B      TYPE                               7  03355  J 01029
1280                 DCW    @#07.11@,G       BBE NOT-8 & 8 BITS 6  03367
1281      BN         BBE    BO,TAD2,1                         12  03369  W 03388 01002 1
1282                 B      *&2                                7  03381  J 03389
1283      BO         H                                         1  03388  .
1284                 BNQ    AA               TEST FOR INQUIRY REQUEST 7  03389  J 01160 Q
1285                 BBE    BM,TAD1,1                         12  03396  W 03324 01001 1
1286        SUB-RTN 07.12
1287      BP         BBE    *&8,BM&11,G      SHOULD NOT BRANCH 12  03408  W 03427 03335 G
1288                 B      BS-19                              7  03420  J 03473
1289                 BBE    BQ,TAD0,1                         12  03427  W 03453 01000 1
1290                 B      TYPE                               7  03439  J 01029
1291                 DCW    @#07.12@,G       BBE 8 & NOT-8 BITS 6  03451
1292      BQ         BBE    BR,TAD2,1                         12  03453  W 03472 01002 1
1293                 B      *&2                                7  03465  J 03473
1294      BR         H                                         1  03472  .
1295                 BNQ    AA               TEST FOR INQUIRY REQUEST 7  03473  J 01160 Q
1296                 BBE    BP,TAD1,1                         12  03480  W 03408 01001 1
1297        SUB-RTN 07.13
1298      BS         BBE    BV-19,*,8(S)     SHOULD BRANCH     12  03492  W 03550 03503 8(S)
1299                 BBE    BT,TAD0,1                         12  03504  W 03530 01000 1
1300                 B      TYPE                               7  03516  J 01029
1301                 DCW    @#07.13@,G       BBE A EQ A BIT FAILURE 6  03528
1302      BT         BBE    BU,TAD2,1                         12  03530  W 03549 01002 1
1303                 B      *&2                                7  03542  J 03550
1304      BU         H                                         1  03549  .
1305                 BNQ    AA               TEST FOR INQUIRY REQUEST 7  03550  J 01160 Q
1306                 BBE    BS,TAD1,1                         12  03557  W 03492 01001 1
1307        SUB-RTN 07.14
1308      BV         BBE    *&8,BY&11,8(S)   SHOULD NOT BRANCH 12  03569  W 03588 03664 8(S)
1309                 B      BY-19                              7  03581  J 03634
1310                 BBE    BW,TAD0,1                         12  03588  W 03614 01000 1
1311                 B      TYPE                               7  03600  J 01029
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PGLIN     LABEL      OPCOD   OPERAND                          CT  ADDRS  INSTRUCTION
1312                 DCW     a#07.14a,G       BBE NOT-A EQ A BIT   6  03612
1313      BW         BBE     BX,TAD2,1                            12  03614  W 03633 01002 1
1314                 B       *&2                                   7  03626  J 03634
1315      BX         H                                             1  03633  .
1316                 BNQ     AA               TEST FOR INQUIRY REQUEST  7  03634  J 01160 Q
1317                 BBE     BV,TAD1,1                            12  03641  W 03569 01001 1
1318        SUB-RTN 07.15
1319      BY         BBE     *&8,BV&11,L      SHOULD NOT BRANCH   12  03653  W 03672 03580 L
1320                 B       CB-19                                 7  03665  J 03718
1321                 BBE     BZ,TAD0,1                            12  03672  W 03698 01000 1
1322                 B       TYPE                                  7  03684  J 01029
1323                 DCW     a#07.15a,G       BBE A EQ NOT-A BITS  6  03696
1324      BZ         BBE     CA,TAD2,1                            12  03698  W 03717 01002 1
1325                 B       *&2                                   7  03710  J 03718
1326      CA         H                                             1  03717  .
1327                 BNQ     AA               TEST FOR INQUIRY REQUEST  7  03718  J 01160 Q
1328                 BBE     BY,TAD1,1                            12  03725  W 03653 01001 1
1329        SUB-RTN 07.16
1330      CB         BBE     CE-19,*,-        SHOULD BRANCH       12  03737  W 03795 03748 -
1331                 BBE     CC,TAD0,1                            12  03749  W 03775 01000 1
1332                 B       TYPE                                  7  03761  J 01029
1333                 DCW     a#07.16a,G       BBE B EQ B BIT FAILURE  6  03773
1334      CC         BBE     CD,TAD2,1                            12  03775  W 03794 01002 1
1335                 B       *&2                                   7  03787  J 03795
1336      CD         H                                             1  03794  .
1337                 BNQ     AA               TEST FOR INQUIRY REQUEST  7  03795  J 01160 Q
1338                 BBE     CB,TAD1,1                            12  03802  W 03737 01001 1
1339        SUB-RTN 07.17
1340      CE         BBE     *&8,CH&11,-      SHOULD NOT BRANCH   12  03814  W 03833 03909 -
1341                 B       CH-19                                 7  03826  J 03879
1342                 BBE     CF,TAD0,1                            12  03833  W 03859 01000 1
1343                 B       TYPE                                  7  03845  J 01029
1344                 DCW     a#07.17a,G       BBE NOT-B EQ B BIT   6  03857
1345      CF         BBE     CG,TAD2,1                            12  03859  W 03878 01002 1
1346                 B       *&2                                   7  03871  J 03879
1347      CG         H                                             1  03878  .
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
1348                 BNQ    AA                TEST FOR INQUIRY REQUEST   7  03879  J 01160 Q
1349                 BBE    CE,TAD1,1                                12  03886  W 03814 01001 1
1350       SUB-RTN 07.18
1351      CH         BBE    *&8,CE&11,S       SHOULD NOT BRANCH        12  03898  W 03917 03825 SM
1352                 B      CK-19                                      7  03910  J 03963
1353                 BBE    CI,TAD0,1                                12  03917  W 03943 01000 1
1354                 B      TYPE                                       7  03929  J 01029
1355                 DCW    @#07.18@,G        BBE B EQ NOT-B BITS      6  03941
1356      CI         BBE    CJ,TAD2,1                                12  03943  W 03962 01002 1
1357                 B      *&2                                        7  03955  J 03963
1358      CJ         H                                                 1  03962  .
1359                 BNQ    AA                TEST FOR INQUIRY REQUEST   7  03963  J 01160 Q
1360                 BBE    CH,TAD1,1                                12  03970  W 03898 01001 1
1361       SUB-RTN 07.19
1362      CK         BBE    *&8,*,            SHOULD NOT BRANCH        12  03982  W 04001 03993
1363                 B      CN-19                                      7  03994  J 04047
1364                 BBE    CL,TAD0,1                                12  04001  W 04027 01000 1
1365                 B      TYPE                                       7  04013  J 01029
1366                 DCW    @#07.19@,G        BBE FAILURE, NO-BITS CAUSED BR   6  04025
1367      CL         BBE    CM,TAD2,1                                12  04027  W 04046 01002 1
1368                 B      *&2                                        7  04039  J 04047
1369      CM         H                                                 1  04046  .
1370                 BNQ    AA                TEST FOR INQUIRY REQUEST   7  04047  J 01160 Q
1371                 BBE    CK,TAD1,1                                12  04054  W 03982 01001 1
1372       SUB-RTN 07.20
1373      CN         BBE    *&8,CQ&11,        SHOULD NOT BRANCH        12  04066  W 04085 04161
1374                 B      CQ-19                                      7  04078  J 04131
1375                 BBE    CO,TAD0,1                                12  04085  W 04111 01000 1
1376                 B      TYPE                                       7  04097  J 01029
1377                 DCW    @#07.20@,G        BBE ALL-BITS VS NO-BITS  6  04109
1378      CO         BBE    CP,TAD2,1                                12  04111  W 04130 01002 1
1379                 B      *&2                                        7  04123  J 04131
1380      CP         H                                                 1  04130  .
1381                 BNQ    AA                TEST FOR INQUIRY REQUEST   7  04131  J 01160 Q
1382                 BBE    CN,TAD1,1                                12  04138  W 04066 01001 1
1383       SUB-RTN 07.21
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
1384	CQ	BBE	*&8,CN&11,M[G]	SHOULD NOT BRANCH	12	04150	W 04169 04077 M[G]
1385		B	DA-19		7	04162	J 04215
1386		BBE	CR,TAD0,1		12	04169	W 04195 01000 1
1387		B	TYPE		7	04181	J 01029
1388		DCW	@#07.21@,G	BBE NO-BITS VS ALL BITS	6	04193	
1389	CR	BBE	CS,TAD2,1		12	04195	W 04214 01002 1
1390		B	*&2		7	04207	J 04215
1391	CS	H			1	04214	.
1392		BNQ	AA	TEST FOR INQUIRY REQUEST	7	04215	J 01160 Q
1393		BBE	CQ,TAD1,1		12	04222	W 04150 01001 1

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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
1395        ROUTINE 08.00   CHECK OPERATION OF BRANCH ZONE & BRANCH WM/ZONE
1396
1397        SUB-RTN 08.01
1398      DA           BZN   DD-19,TPMK,          SHOULD BRANCH      12  04234  V 04292 32957 2
1399                   BBE   DB,TAD0,1                               12  04246  W 04272 01000 1
1400                   B     TYPE                                    7  04258  J 01029
1401                   DCW   a#08.01a,G                              6  04270
1402      DB           BBE   DC,TAD2,1                               12  04272  W 04291 01002 1
1403                   B     *£2                                     7  04284  J 04292
1404      DC           H                                             1  04291  .
1405                   BNQ   AA                TEST FOR INQUIRY REQUEST  7  04292  J 01160 Q
1406                   BBE   DA,TAD1,1                               12  04299  W 04234 01001 1
1407        SUB-RTN 08.02
1408      DD           BZN   *£8,QUOT,          SHOULD NOT BRANCH  12  04311  V 04330 32972 2
1409                   B     DG-19                                   7  04323  J 04376
1410                   BBE   DE,TAD0,1                               12  04330  W 04356 01000 1
1411                   B     TYPE                                    7  04342  J 01029
1412                   DCW   a#08.02a,G                              6  04354
1413      DE           BBE   DF,TAD2,1                               12  04356  W 04375 01002 1
1414                   B     *£2                                     7  04368  J 04376
1415      DF           H                                             1  04375  .
1416                   BNQ   AA                TEST FOR INQUIRY REQUEST  7  04376  J 01160 Q
1417                   BBE   DD,TAD1,1                               12  04383  W 04311 01001 1
1418        SUB-RTN 08.03
1419      DG           BZN   *£8,DELT,          SHOULD NOT BRANCH  12  04395  V 04414 32988 2
1420                   B     DJ-19                                   7  04407  J 04460
1421                   BBE   DH,TAD0,1                               12  04414  W 04440 01000 1
1422                   B     TYPE                                    7  04426  J 01029
1423                   DCW   a#08.03a,G                              6  04438
1424      DH           BBE   DI,TAD2,1                               12  04440  W 04459 01002 1
1425                   B     *£2                                     7  04452  J 04460
1426      DI           H                                             1  04459  .
1427                   BNQ   AA                TEST FOR INQUIRY REQUEST  7  04460  J 01160 Q
1428                   BBE   DG,TAD1,1                               12  04467  W 04395 01001 1
1429        SUB-RTN 08.04
1430      DJ           BZN   *£8,GPMK,          SHOULD NOT BRANCH  12  04479  V 04498 33004 2
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PGLIN     LABEL      OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
1431                 B      DM-19                             7  04491  J 04544
1432                 BBE    DK,TAD0,1                        12  04498  W 04524 01000 1
1433                 B      TYPE                              7  04510  J 01029
1434                 DCW    a#08.04a,G                        6  04522
1435      DK         BBE    DL,TAD2,1                        12  04524  W 04543 01002 1
1436                 B      *£2                               7  04536  J 04544
1437      DL         H                                        1  04543  .
1438                 BNQ    AA                TEST FOR INQUIRY REQUEST  7  04544  J 01160 Q
1439                 BBE    DJ,TAD1,1                        12  04551  W 04479 01001 1
1440        SUB-RTN 08.05
1441      DM         BZN    DP-19,QUOT,*      SHOULD BRANCH   12  04563  V 04621 32972 S
1442                 BBE    DN,TAD0,1                        12  04575  W 04601 01000 1
1443                 B      TYPE                              7  04587  J 01029
1444                 DCW    a#08.05a,G                        6  04599
1445      DN         BBE    DO,TAD2,1                        12  04601  W 04620 01002 1
1446                 B      *£2                               7  04613  J 04621
1447      DO         H                                        1  04620  .
1448                 BNQ    AA                TEST FOR INQUIRY REQUEST  7  04621  J 01160 Q
1449                 BBE    DM,TAD1,1                        12  04628  W 04563 01001 1
1450        SUB-RTN 08.06
1451      DP         BZN    *£8,TPMK,*        SHOULD NOT BRANCH  12  04640  V 04659 32957 S
1452                 B      DS-19                             7  04652  J 04705
1453                 BBE    DQ,TAD0,1                        12  04659  W 04685 01000 1
1454                 B      TYPE                              7  04671  J 01029
1455                 DCW    a#08.06a,G                        6  04683
1456      DQ         BBE    DR,TAD2,1                        12  04685  W 04704 01002 1
1457                 B      *£2                               7  04697  J 04705
1458      DR         H                                        1  04704  .
1459                 BNQ    AA                TEST FOR INQUIRY REQUEST  7  04705  J 01160 Q
1460                 BBE    DP,TAD1,1                        12  04712  W 04640 01001 1
1461        SUB-RTN 08.07
1462      DS         BZN    *£8,DELT,*        SHOULD NOT BRANCH  12  04724  V 04743 32988 S
1463                 B      DV-19                             7  04736  J 04789
1464                 BBE    DT,TAD0,1                        12  04743  W 04769 01000 1
1465                 B      TYPE                              7  04755  J 01029
1466                 DCW    a#08.07a,G                        6  04767
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
1467	DT	BBE	DU,TAD2,1		12	04769	W 04788 01002 1
1468		B	*£2		7	04781	J 04789
1469	DU	H			1	04788	.
1470		BNQ	AA	TEST FOR INQUIRY REQUEST	7	04789	J 01160 Q
1471		BBE	DS,TAD1,1		12	04796	W 04724 01001 1
1472	SUB-RTN 08.08						
1473	DV	BZN	*£8,GPMK,*	SHOULD NOT BRANCH	12	04808	V 04827 33004 S
1474		B	DY-19		7	04820	J 04873
1475		BBE	DW,TAD0,1		12	04827	W 04853 01000 1
1476		B	TYPE		7	04839	J 01029
1477		DCW	@#08.08@,G		6	04851	
1478	DW	BBE	DX,TAD2,1		12	04853	W 04872 01002 1
1479		B	*£2		7	04865	J 04873
1480	DX	H			1	04872	.
1481		BNQ	AA	TEST FOR INQUIRY REQUEST	7	04873	J 01160 Q
1482		BBE	DV,TAD1,1		12	04880	W 04808 01001 1
1483	SUB-RTN 08.09						
1484	DY	BZN	EB-19,DELT,-	SHOULD BRANCH	12	04892	V 04950 32988 K
1485		BBE	DZ,TAD0,1		12	04904	W 04930 01000 1
1486		B	TYPE		7	04916	J 01029
1487		DCW	@#08.09@,G		6	04928	
1488	DZ	BBE	EA,TAD2,1		12	04930	W 04949 01002 1
1489		B	*£2		7	04942	J 04950
1490	EA	H			1	04949	.
1491		BNQ	AA	TEST FOR INQUIRY REQUEST	7	04950	J 01160 Q
1492		BBE	DY,TAD1,1		12	04957	W 04892 01001 1
1493	SUB-RTN 08.10						
1494	EB	BZN	*£8,TPMK,-	SHOULD NOT BRANCH	12	04969	V 04988 32957 K
1495		B	EE-19		7	04981	J 05034
1496		BBE	EC,TAD0,1		12	04988	W 05014 01000 1
1497		B	TYPE		7	05000	J 01029
1498		DCW	@#08.10@,G		6	05012	
1499	EC	BBE	ED,TAD2,1		12	05014	W 05033 01002 1
1500		B	*£2		7	05026	J 05034
1501	ED	H			1	05033	.
1502		BNQ	AA	TEST FOR INQUIRY REQUEST	7	05034	J 01160 Q

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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
1503                 BBE    EB,TAD1,1                                12  05041  W 04969 01001 1
1504       SUB-RTN 08.11
1505      EE         BZN    *&8,QUOT,-        SHOULD NOT BRANCH      12  05053  V 05072 32972 K
1506                 B      EH-19                                     7  05065  J 05118
1507                 BBE    EF,TAD0,1                                12  05072  W 05098 01000 1
1508                 B      TYPE                                      7  05084  J 01029
1509                 DCW    a#08.11a,G                                6  05096
1510      EF         BBE    EG,TAD2,1                                12  05098  W 05117 01002 1
1511                 B      *&2                                       7  05110  J 05118
1512      EG         H                                                1  05117  .
1513                 BNQ    AA                TEST FOR INQUIRY REQUEST 7  05118  J 01160 Q
1514                 BBE    EE,TAD1,1                                12  05125  W 05053 01001 1
1515       SUB-RTN 08.12
1516      EH         BZN    *&8,GPMK,-        SHOULD NOT BRANCH      12  05137  V 05156 33004 K
1517                 B      EK-19                                     7  05149  J 05202
1518                 BBE    EI,TAD0,1                                12  05156  W 05182 01000 1
1519                 B      TYPE                                      7  05168  J 01029
1520                 DCW    a#08.12a,G                                6  05180
1521      EI         BBE    EJ,TAD2,1                                12  05182  W 05201 01002 1
1522                 B      *&2                                       7  05194  J 05202
1523      EJ         H                                                1  05201  .
1524                 BNQ    AA                TEST FOR INQUIRY REQUEST 7  05202  J 01160 Q
1525                 BBE    EH,TAD1,1                                12  05209  W 05137 01001 1
1526       SUB-RTN 08.13
1527      EK         BZN    EN-19,GPMK,&      SHOULD BRANCH          12  05221  V 05279 33004 B
1528                 BBE    EL,TAD0,1                                12  05233  W 05259 01000 1
1529                 B      TYPE                                      7  05245  J 01029
1530                 DCW    a#08.13a,G                                6  05257
1531      EL         BBE    EM,TAD2,1                                12  05259  W 05278 01002 1
1532                 B      *&2                                       7  05271  J 05279
1533      EM         H                                                1  05278  .
1534                 BNQ    AA                TEST FOR INQUIRY REQUEST 7  05279  J 01160 Q
1535                 BBE    EK,TAD1,1                                12  05286  W 05221 01001 1
1536       SUB-RTN 08.14
1537      EN         BZN    *&8,TPMK,&        SHOULD NOT BRANCH      12  05298  V 05317 32957 B
1538                 B      EQ-19                                     7  05310  J 05363
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
1539                 BBE    EO,TAD0,1                                12  05317  W 05343 01000 1
1540                 B      TYPE                                      7  05329  J 01029
1541                 DCW    @#08.14@,G                                6  05341
1542      EO         BBE    EP,TAD2,1                                12  05343  W 05362 01002 1
1543                 B      *&2                                       7  05355  J 05363
1544      EP         H                                                1  05362  .
1545                 BNQ    AA                TEST FOR INQUIRY REQUEST 7  05363  J 01160 Q
1546                 BBE    EN,TAD1,1                                12  05370  W 05298 01001 1
1547        SUB-RTN 08.15
1548      EQ         BZN    *&8,QUOT,&        SHOULD NOT BRANCH        12  05382  V 05401 32972 B
1549                 B      ET-19                                     7  05394  J 05447
1550                 BBE    ER,TAD0,1                                12  05401  W 05427 01000 1
1551                 B      TYPE                                      7  05413  J 01029
1552                 DCW    @#08.15@,G                                6  05425
1553      ER         BBE    ES,TAD2,1                                12  05427  W 05446 01002 1
1554                 B      *&2                                       7  05439  J 05447
1555      ES         H                                                1  05446  .
1556                 BNQ    AA                TEST FOR INQUIRY REQUEST 7  05447  J 01160 Q
1557                 BBE    EQ,TAD1,1                                12  05454  W 05382 01001 1
1558        SUB-RTN 08.16
1559      ET         BZN    *&8,DELT,&        SHOULD NOT BRANCH        12  05466  V 05485 32988 B
1560                 B      EW-19                                     7  05478  J 05531
1561                 BBE    EU,TAD0,1                                12  05485  W 05511 01000 1
1562                 B      TYPE                                      7  05497  J 01029
1563                 DCW    @#08.16@,G                                6  05509
1564      EU         BBE    EV,TAD2,1                                12  05511  W 05530 01002 1
1565                 B      *&2                                       7  05523  J 05531
1566      EV         H                                                1  05530  .
1567                 BNQ    AA                TEST FOR INQUIRY REQUEST 7  05531  J 01160 Q
1568                 BBE    ET,TAD1,1                                12  05538  W 05466 01001 1
1569        SUB-RTN 08.17
1570      EW         BWZ    *&8,GPMK,         SHOULD NOT BRANCH        12  05550  V 05569 33004 3
1571                 B      EZ-19                                     7  05562  J 05615
1572                 BBE    EX,TAD0,1                                12  05569  W 05595 01000 1
1573                 B      TYPE                                      7  05581  J 01029
1574                 DCW    @#08.17@,G                                6  05593
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PGLIN     LABEL      OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
1575      EX         BBE    EY,TAD2,1                        12  05595  W 05614 01002 1
1576                 B      *&2                               7  05607  J 05615
1577      EY         H                                        1  05614  .
1578                 BNQ    AA              TEST FOR INQUIRY REQUEST  7  05615  J 01160 Q
1579                 BBE    EW,TAD1,1                        12  05622  W 05550 01001 1
1580        SUB-RTN 08.18
1581      EZ         BWZ                    OPCODE    . SHOULD  1  05634  V
1582                 DC     EZ1             I-ADDRESS . NOT     5  05639  05653
1583                        GMWM            B-ADDRESS . BRANCH  5  05644  33011
1584                        @¤@             D-MODIFIER .        1  05645
1585                 B      FC-19                              7  05646  J 05699
1586      EZ1        BBE    FA,TAD0,1                        12  05653  W 05679 01000 1
1587                 B      TYPE                               7  05665  J 01029
1588                 DCW    @#08.18@,G                       6  05677
1589      FA         BBE    FB,TAD2,1                        12  05679  W 05698 01002 1
1590                 B      *&2                               7  05691  J 05699
1591      FB         H                                        1  05698  .
1592                 BNQ    AA              TEST FOR INQUIRY REQUEST  7  05699  J 01160 Q
1593                 BBE    EZ,TAD1,1                        12  05706  W 05634 01001 1
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PGLIN     LABEL      OPCOD  OPERAND                                                  CT  ADDRS  INSTRUCTION
1595        ROUTINE 09.00   CK INSTRUCTIONS ZERO-ADD, ZERO-SUBTRACT, BR ZERO
1596
1597        SUB-RTN 09.01
1598      FC          ZA     QMARK,WORK1          ATTEMPT TO TURN ON ZERO BAL INDR    11  05718  QMQM 05819 33563
1599                  ZA     &8,WORK1             ATTEMPT TO TURN OFF ZERO BAL INDR   11  05729  QMQM 01289 33563
1600                  BZ     *&8                  SHOULD NOT BRANCH                    7  05740  J 05754 V
1601                  B      QMARK-19                                                  7  05747  J 05800
1602                  BBE    FD,TADO,1                                                12  05754  W 05780 01000 1
1603                  B      TYPE                                                      7  05766  J 01029
1604                  DCW    @#09.01@,G                                                6  05778
1605      FD          BBE    FE,TAD2,1                                                12  05780  W 05799 01002 1
1606                  B      *&2                                                       7  05792  J 05800
1607      FE          H                                                                1  05799  .
1608                  BNQ    AA                   TEST FOR INQUIRY REQUEST             7  05800  J 01160 Q
1609                  BBE    FC,TAD1,1                                                12  05807  W 05718 01001 1
1610        SUB-RTN 09.02
1611      QMARK       ZA     QMARK,WORK1          TURN ZERO BALANCE INDICATOR ON      11  05819  QMQM 05819 33563
1612                  ZA     &8,WORK2              AND OFF                            11  05830  QMQM 01289 33564
1613                  ZA     WORK1,WORK2            AND BACK ON AGAIN                 11  05841  QMQM 33563 33564
1614                  BZ     FH-19                SHOULD BRANCH                        7  05852  J 05905 V
1615                  BBE    FF,TADO,1                                                12  05859  W 05885 01000 1
1616                  B      TYPE                                                      7  05871  J 01029
1617                  DCW    @#09.02@,G                                                6  05883
1618      FF          BBE    FG,TAD2,1                                                12  05885  W 05904 01002 1
1619                  B      *&2                                                       7  05897  J 05905
1620      FG          H                                                                1  05904  .
1621                  BNQ    AA                   TEST FOR INQUIRY REQUEST             7  05905  J 01160 Q
1622                  BBE    QMARK,TAD1,1                                             12  05912  W 05819 01001 1
1623        SUB-RTN 09.03   CK ZERO-ADD FOR PROPER ZONE GENERATION
1624      FH          ZA     -8,WORK2                                                 11  05924  QMQM 01290 33564
1625                  ZA     &8,WORK2                                                 11  05935  QMQM 01289 33564
1626                  BZN    FK-19,WORK2,&        SHOULD BRANCH                       12  05946  V 06004 33564 B
1627                  BBE    FI,TADO,1                                                12  05958  W 05984 01000 1
1628                  B      TYPE                                                      7  05970  J 01029
1629                  DCW    @#09.03@,G                                                6  05982
1630      FI          BBE    FJ,TAD2,1                                                12  05984  W 06003 01002 1
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
1631                 B      *&2                                       7  05996  J 06004
1632      FJ         H                                                1  06003  .
1633                 BNQ    AA                TEST FOR INQUIRY REQUEST  7  06004  J 01160 Q
1634                 BBE    FH,TAD1,1                                12  06011  W 05924 01001 1
1635        SUB-RTN 09.04
1636      FK         ZA     -8,WORK2                                 11  06023  M 01290 33564
                                                                                  Q
1637                 BZN    FN-19,WORK2,-     SHOULD BRANCH          12  06034  V 06092 33564 K
1638                 BBE    FL,TAD0,1                                12  06046  W 06072 01000 1
1639                 B      TYPE                                      7  06058  J 01029
1640                 DCW    @#09.04@,G                                6  06070
1641      FL         BBE    FM,TAD2,1                                12  06072  W 06091 01002 1
1642                 B      *&2                                       7  06084  J 06092
1643      FM         H                                                1  06091  .
1644                 BNQ    AA                TEST FOR INQUIRY REQUEST  7  06092  J 01160 Q
1645                 BBE    FK,TAD1,1                                12  06099  W 06023 01001 1
1646        SUB-RTN 09.05
1647      FN         ZA     @Y@,WORK2         SHOULD TREAT Y AS PLUS 8 11  06111  M 01291 33564
                                                                                  Q
1648                 BZN    FQ-19,WORK2,&     SHOULD BRANCH          12  06122  V 06180 33564 8
1649                 BBE    FO,TAD0,1                                12  06134  W 06160 01000 1
1650                 B      TYPE                                      7  06146  J 01029
1651                 DCW    @#09.05@,G                                6  06158
1652      FO         BBE    FP,TAD2,1                                12  06160  W 06179 01002 1
1653                 B      *&2                                       7  06172  J 06180
1654      FP         H                                                1  06179  .
1655                 BNQ    AA                TEST FOR INQUIRY REQUEST  7  06180  J 01160 Q
1656                 BBE    FN,TAD1,1                                12  06187  W 06111 01001 1
1657        SUB-RTN 09.06
1658      FQ         ZA     -8,WORK2          SET SIGN NEGATIVE      11  06199  M 01290 33564
                                                                                  Q
1659                 ZA     @8@,WORK2         SHOULD TREAT NUMERIC 8 AS PLUS 8 11  06210  M 01292 33564
                                                                                  Q
1660                 BZN    FT-19,WORK2,&     SHOULD BRANCH          12  06221  V 06279 33564 8
1661                 BBE    FR,TAD0,1                                12  06233  W 06259 01000 1
1662                 B      TYPE                                      7  06245  J 01029
1663                 DCW    @#09.06@,G                                6  06257
1664      FR         BBE    FS,TAD2,1                                12  06259  W 06278 01002 1
1665                 B      *&2                                       7  06271  J 06279
1666      FS         H                                                1  06278  .
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
1667                 BNQ    AA                  TEST FOR INQUIRY REQUEST  7  06279  J 01160 Q
1668                 BBE    FQ,TAD1,1                                12  06286  W 06199 01001 1
1669       SUB-RTN 09.07    CHECK ZERO-SUBTRACT FOR PROPER ZONE GENERATION
1670      FT         ZS     &8,WORK2                                 11  06298  : 01289 33564
1671                 BZN    FW-19,WORK2,-       SHOULD BRANCH        12  06309  V 06367 33564 K
1672                 BBE    FU,TAD0,1                                12  06321  W 06347 01000 1
1673                 B      TYPE                                      7  06333  J 01029
1674                 DCW    @#09.07@,G                                6  06345
1675      FU         BBE    FV,TAD2,1                                12  06347  W 06366 01002 1
1676                 B      *&2                                       7  06359  J 06367
1677      FV         H                                                1  06366  .
1678                 BNQ    AA                  TEST FOR INQUIRY REQUEST  7  06367  J 01160 Q
1679                 BBE    FT,TAD1,1                                12  06374  W 06298 01001 1
1680       SUB-RTN 09.08
1681      FW         ZS     -8,WORK2                                 11  06386  : 01290 33564
1682                 BZN    FZ-19,WORK2,&       SHOULD BRANCH        12  06397  V 06455 33564 8
1683                 BBE    FX,TAD0,1                                12  06409  W 06435 01000 1
1684                 B      TYPE                                      7  06421  J 01029
1685                 DCW    @#09.08@,G                                6  06433
1686      FX         BBE    FY,TAD2,1                                12  06435  W 06454 01002 1
1687                 B      *&2                                       7  06447  J 06455
1688      FY         H                                                1  06454  .
1689                 BNQ    AA                  TEST FOR INQUIRY REQUEST  7  06455  J 01160 Q
1690                 BBE    FW,TAD1,1                                12  06462  W 06386 01001 1
1691       SUB-RTN 09.09
1692      FZ         ZS     @Y@,WORK2           SHOULD TREAT ALPHA Y AS PLUS 8  11  06474  : 01291 33564
1693                 BZN    GC-19,WORK2,-       SHOULD BRANCH        12  06485  V 06543 33564 K
1694                 BBE    GA,TAD0,1                                12  06497  W 06523 01000 1
1695                 B      TYPE                                      7  06509  J 01029
1696                 DCW    @#09.09@,G                                6  06521
1697      GA         BBE    GB,TAD2,1                                12  06523  W 06542 01002 1
1698                 B      *&2                                       7  06535  J 06543
1699      GB         H                                                1  06542  .
1700                 BNQ    AA                  TEST FOR INQUIRY REQUEST  7  06543  J 01160 Q
1701                 BBE    FZ,TAD1,1                                12  06550  W 06474 01001 1
1702       SUB-RTN 09.10
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PGLIN     LABEL      OPCOD  OPERAND                        CT  ADDRS  INSTRUCTION
1703      GC         ZS     -8,WORK2          SET SIGN POSITIVE      11  06562  : 01290 33564
1704                 ZS     @8@,WORK2         SHOULD TREAT NUMERIC 8 AS PLUS 8  11  06573  : 01292 33564
1705                 BZN    GF-19,WORK2,-     SHOULD BRANCH          12  06584  V 06642 33564 K
1706                 BBE    GD,TAD0,1                                12  06596  W 06622 01000 1
1707                 B      TYPE                                      7  06608  J 01029
1708                 DCW    @#C9.10@,G                                6  06620
1709      GD         BBE    GE,TAD2,1                                12  06622  W 06641 01002 1
1710                 B      *&2                                       7  06634  J 06642
1711      GE         H                                                1  06641  .
1712                 BNQ    AA                TEST FOR INQUIRY REQUEST  7  06642  J 01160 Q
1713                 BBE    GC,TAD1,1                                12  06649  W 06562 01001 1
1714        SUB-RTN 09.11   CK FOR HI-ORDER ZONE ELIMINATION
1715      GF         ZA     &8,WORK3-1                               11  06661  QM 01289 33565
1716                 ZA     WORK3-1,WORK3                            11  06672  QM 33565 33566
1717                 BZN    G1-19,WORK3-1,    SHOULD BRANCH, ZONE ELIMINATED  12  06683  V 06741 33565 2
1718                 BBE    GG,TAD0,1                                12  06695  W 06721 01000 1
1719                 B      TYPE                                      7  06707  J 01029
1720                 DCW    @#C9.11@,G                                6  06719
1721      GG         BBE    GH,TAD2,1                                12  06721  W 06740 01002 1
1722                 B      *&2                                       7  06733  J 06741
1723      GH         H                                                1  06740  .
1724                 BNQ    AA                TEST FOR INQUIRY REQUEST  7  06741  J 01160 Q
1725                 BBE    GF,TAD1,1                                12  06748  W 06661 01001 1
1726        SUB-RTN 09.12   CK FOR HI-ORDER ZERO GENERATION
1727      GI         ZS     &8,WORK3-1                               11  06760  : 01289 33565
1728                 ZS     WORK3-1,WORK3                            11  06771  : 33565 33566
1729                 ZS     WORK3-1           SINGLE-FIELD ARITH TEST FOR ZERO  6  06782  : 33565
1730                 BZ     GL-19             SHOULD BRANCH          7  06788  J 06841 V
1731                 BBE    GJ,TAD0,1                                12  06795  W 06821 01000 1
1732                 B      TYPE                                      7  06807  J 01029
1733                 DCW    @#09.12@,G                                6  06819
1734      GJ         BBE    GK,TAD2,1                                12  06821  W 06840 01002 1
1735                 B      *&2                                       7  06833  J 06841
1736      GK         H                                                1  06840  .
1737                 BNQ    AA                TEST FOR INQUIRY REQUEST  7  06841  J 01160 Q
1738                 BBE    GI,TAD1,1                                12  06848  W 06760 01001 1
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
1739        SUB-RTN 09.13   CK ZERO-ADD & ZERO-SUBTRACT, SINGLE NUMERIC BIT
1740      GL         ZA     &6,WORK2                                 11  06860  QM 01293 33564
1741                 ZA     -1,WORK2                                 11  06871  QM 01294 33564
1742                 BBE    GM,WORK2,8S          SHOULD NOT BRANCH   12  06882  W 06906 33564 8S
1743                 BBE    GP-19,WORK2,1        SHOULD BRANCH       12  06894  W 06952 33564 1
1744      GM         BBE    GN,TAD0,1                                12  06906  W 06932 01000 1
1745                 B      TYPE                                      7  06918  J 01029
1746                 DCW    @#09.13@,G                                6  06930
1747      GN         BBE    GO,TAD2,1                                12  06932  W 06951 01002 1
1748                 B      *&2                                       7  06944  J 06952
1749      GO         H                                                1  06951  .
1750                 BNQ    AA                   TEST FOR INQUIRY REQUEST  7  06952  J 01160 Q
1751                 BBE    GL,TAD1,1                                12  06959  W 06860 01001 1
1752        SUB-RTN 09.14
1753      GP         ZS     -9,WORK2                                 11  06971  :. 01295 33564
1754                 ZS     &2,WORK2                                 11  06982  :. 01296 33564
1755                 BBE    GQ,WORK2,WS          SHOULD NOT BRANCH   12  06993  W 07017 33564 WS
1756                 BBE    GT-19,WORK2,2        SHOULD BRANCH       12  07005  W 07063 33564 2
1757      GQ         BBE    GR,TAD0,1                                12  07017  W 07043 01000 1
1758                 B      TYPE                                      7  07029  J 01029
1759                 DCW    @#C9.14@,G                                6  07041
1760      GR         BBE    GS,TAD2,1                                12  07043  W 07062 01002 1
1761                 B      *&2                                       7  07055  J 07063
1762      GS         H                                                1  07062  .
1763                 BNQ    AA                   TEST FOR INQUIRY REQUEST  7  07063  J 01160 Q
1764                 BBE    GP,TAD1,1                                12  07070  W 06971 01001 1
1765        SUB-RTN 09.15
1766      GT         ZA     &9,WORK2                                 11  07082  QM 01297 33564
1767                 ZS     &4,WORK2                                 11  07093  :. 01298 33564
1768                 BBE    GU,WORK2,,           SHOULD NOT BRANCH   12  07104  W 07128 33564 ,
1769                 BBE    GX-19,WORK2,4        SHOULD BRANCH       12  07116  W 07174 33564 4
1770      GU         BBE    GV,TAD0,1                                12  07128  W 07154 01000 1
1771                 B      TYPE                                      7  07140  J 01029
1772                 DCW    @#09.15@,G                                6  07152
1773      GV         BBE    GW,TAD2,1                                12  07154  W 07173 01002 1
1774                 B      *&2                                       7  07166  J 07174
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PGLIN     LABEL      OPCOD  OPERAND                        CT  ADDRS  INSTRUCTION
1775      GW         H                                      1  07173  .
1776                 BNQ    AA              TEST FOR INQUIRY REQUEST  7  07174  J 01160 Q
1777                 BBE    GT,TAD1,1                     12  07181  W 07082 01001 1
1778        SUB-RTN 09.16
1779      GX         ZS     -6,WORK2                      11  07193  .  01299 33564
1780                 ZA     -8,WORK2                      11  07204  M  01290 33564
1781                 BBE    GY,WORK2,X      SHOULD NOT BRANCH  12  07215  W 07239 33564 X
1782                 BBE    HA1-19,WORK2,8  SHOULD BRANCH  12  07227  W 07285 33564 8
1783      GY         BBE    GZ,TAD0,1                     12  07239  W 07265 01000 1
1784                 B      TYPE                           7  07251  J 01029
1785                 DCW    @#09.16@,G                     6  07263
1786      GZ         BBE    HA,TAD2,1                     12  07265  W 07284 01002 1
1787                 B      *&2                            7  07277  J 07285
1788      HA         H                                      1  07284  .
1789                 BNQ    AA              TEST FOR INQUIRY REQUEST  7  07285  J 01160 Q
1790                 BBE    GX,TAD1,1                     12  07292  W 07193 01001 1
1791        SUB-RTN 09.17  TEST THAT ONLY ZERO TURNS ON ZERO BALANCE
1792      HA1        ZA     PLUS1,WORK2                   11  07304  M  33032 33564
1793                 BZ     HA2             * SHOULD       7  07315  J  07484 V
1794                 ZA     PLUS2,WORK2                   11  07322  M  33033 33564
1795                 BZ     HA2             * NOT          7  07333  J  07484 V
1796                 ZA     PLUS3,WORK2                   11  07340  M  33034 33564
1797                 BZ     HA2             * TAKE         7  07351  J  07484 V
1798                 ZA     PLUS4,WORK2                   11  07358  M  33035 33564
1799                 BZ     HA2             * ANY          7  07369  J  07484 V
1800                 ZA     PLUS5,WORK2                   11  07376  M  33036 33564
1801                 BZ     HA2             * OF           7  07387  J  07484 V
1802                 ZA     PLUS6,WORK2                   11  07394  M  33037 33564
1803                 BZ     HA2             * THESE        7  07405  J  07484 V
1804                 ZA     PLUS7,WORK2                   11  07412  M  33038 33564
1805                 BZ     HA2             * CONDITIONAL  7  07423  J  07484 V
1806                 ZA     PLUS8,WORK2                   11  07430  M  33039 33564
1807                 BZ     HA2             * BRANCH       7  07441  J  07484 V
1808                 ZA     PLUS9,WORK2                   11  07448  M  33040 33564
1809                 BZ     HA2             * INSTRUCTIONS 7  07459  J  07484 V
1810                 ZA     PLUS0,WORK2                   11  07466  M  33031 33564
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
1811		BZ	H8-19	SHOULD BRANCH & EXIT ROUTINE HERE	7	07477	J 07530 V
1812	HA2	BBE	HA3,TAD0,1		12	07484	W 07510 01000 1
1813		B	TYPE		7	07496	J 01029
1814		DCW	@#09.17@,G		6	07508	
1815	HA3	BBE	HA4,TAD2,1		12	07510	W 07529 01002 1
1816		B	*&2		7	07522	J 07530
1817	HA4	H			1	07529	.
1818		BNQ	AA	TEST FOR INQUIRY REQUEST	7	07530	J 01160 Q
1819		BBE	HA1,TAD1,1		12	07537	W 07304 01001 1

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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
1821        ROUTINE  10.00  CHECK OPERATIONS ADD AND SUBTRACT
1822
1823        SUB-RTN  10.01  ADD ZERO TO ZERO
1824      HB         ZA     HB,WORK2                                 11  07549  M 07549 33564
1825                 A      HB,WORK2                                 11  07560  A 07549 33564
1826                 BZ     HC-19              SHOULD BRANCH          7  07571  J 07624 V
1827                 BBE    *&15,TAD0,1                              12  07578  W 07604 01000 1
1828                 B      TYPE                                      7  07590  J 01029
1829                 DCW    a#10.01a,G                                6  07602
1830                 BBE    *&8,TAD2,1                               12  07604  W 07623 01002 1
1831                 B      *&2                                       7  07616  J 07624
1832                 H                                                1  07623  .
1833                 BNQ    AA                 TEST FOR INQUIRY REQUEST  7  07624  J 01160 Q
1834                 BBE    HB,TAD1,1                                12  07631  W 07549 01001 1
1835        SUB-RTN  10.02  ADD PLUS 1 TO MINUS 1
1836      HC         ZS     &1,WORK2                                 11  07643  . 01300 33564
1837                 A      &1,WORK2                                 11  07654  A 01300 33564
1838                 BZ     HD-19              SHOULD BRANCH          7  07665  J 07718 V
1839                 BBE    *&15,TAD0,1                              12  07672  W 07698 01000 1
1840                 B      TYPE                                      7  07684  J 01029
1841                 DCW    a#10.02a,G                                6  07696
1842                 BBE    *&8,TAD2,1                               12  07698  W 07717 01002 1
1843                 B      *&2                                       7  07710  J 07718
1844                 H                                                1  07717  .
1845                 BNQ    AA                 TEST FOR INQUIRY REQUEST  7  07718  J 01160 Q
1846                 BBE    HC,TAD1,1                                12  07725  W 07643 01001 1
1847        SUB-RTN  10.03  ADD MINUS 2 TO PLUS 2
1848      HD         ZS     -2,WORK2                                 11  07737  . 01301 33564
1849                 A      -2,WORK2                                 11  07748  A 01301 33564
1850                 BZ     HE-19              SHOULD BRANCH          7  07759  J 07812 V
1851                 BBE    *&15,TAD0,1                              12  07766  W 07792 01000 1
1852                 B      TYPE                                      7  07778  J 01029
1853                 DCW    a#10.03a,G                                6  07790
1854                 BBE    *&8,TAD2,1                               12  07792  W 07811 01002 1
1855                 B      *&2                                       7  07804  J 07812
1856                 H                                                1  07811  .
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
1857                 BNQ    AA                  TEST FOR INQUIRY REQUEST  7  07812  J 01160 Q
1858                 BBE    HD,TAD1,1                                12  07819  W 07737 01001 1
1859       SUB-RTN 10.04    ADD PLUS 4 TO MINUS 4
1860      HE         ZA     -4,WORK2                                 11  07831  M 01302 33564 Q
1861                 A      &4,WORK2                                 11  07842  A 01298 33564
1862                 BZ     HF-19               SHOULD BRANCH         7  07853  J 07906 V
1863                 BBE    *&15,TAD0,1                              12  07860  W 07886 01000 1
1864                 B      TYPE                                      7  07872  J 01029
1865                 DCW    @#10.04@,G                                6  07884
1866                 BBE    *&8,TAD2,1                               12  07886  W 07905 01002 1
1867                 B      *&2                                       7  07898  J 07906
1868                 H                                                1  07905  .
1869                 BNQ    AA                  TEST FOR INQUIRY REQUEST  7  07906  J 01160 Q
1870                 BBE    HE,TAD1,1                                12  07913  W 07831 01001 1
1871       SUB-RTN 10.05    ADD MINUS 8 TO PLUS 8
1872      HF         ZA     &8,WORK2                                 11  07925  M 01289 33564 Q
1873                 A      -8,WORK2                                 11  07936  A 01290 33564
1874                 BZ     HG-19               SHOULD BRANCH         7  07947  J 08000 V
1875                 BBE    *&15,TAD0,1                              12  07954  W 07980 01000 1
1876                 B      TYPE                                      7  07966  J 01029
1877                 DCW    @#10.05@,G                                6  07978
1878                 BBE    *&8,TAD2,1                               12  07980  W 07999 01002 1
1879                 B      *&2                                       7  07992  J 08000
1880                 H                                                1  07999  .
1881                 BNQ    AA                  TEST FOR INQUIRY REQUEST  7  08000  J 01160 Q
1882                 BBE    HF,TAD1,1                                12  08007  W 07925 01001 1
1883       SUB-RTN 10.06    SUBTRACT PLUS 1 FROM PLUS 1
1884      HG         ZA     &1,WORK2                                 11  08019  M 01300 33564 Q
1885                 S      &1,WORK2                                 11  08030  S 01300 33564
1886                 BZ     HH-19               SHOULD BRANCH         7  08041  J 08094 V
1887                 BBE    *&15,TAD0,1                              12  08048  W 08074 01000 1
1888                 B      TYPE                                      7  08060  J 01029
1889                 DCW    @#10.06@,G                                6  08072
1890                 BBE    *&8,TAD2,1                               12  08074  W 08093 01002 1
1891                 B      *&2                                       7  08086  J 08094
1892                 H                                                1  08093  .
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
1893                 BNQ    AA                  TEST FOR INQUIRY REQUEST  7  08094  J 01160 Q
1894                 BBE    HG,TAD1,1                                12  08101  W 08019 01001 1
1895       SUB-RTN 10.07    SUBTRACT MINUS 2 FROM MINUS 2
1896      HH         ZS     &2,WORK2                                 11  08113  . 01296 33564
1897                 S      -2,WORK2                                 11  08124  S 01301 33564
1898                 BZ     HI-19               SHOULD BRANCH         7  08135  J 08188 V
1899                 BBE    *&15,TAD0,1                              12  08142  W 08168 01000 1
1900                 B      TYPE                                      7  08154  J 01029
1901                 DCW    @#10.07@,G                                6  08166
1902                 BBE    *&8,TAD2,1                               12  08168  W 08187 01002 1
1903                 B      *&2                                       7  08180  J 08188
1904                 H                                                1  08187  .
1905                 BNQ    AA                  TEST FOR INQUIRY REQUEST  7  08188  J 01160 Q
1906                 BBE    HH,TAD1,1                                12  08195  W 08113 01001 1
1907       SUB-RTN. 10.08    SUBTRACT PLUS 4 FROM PLUS 4
1908      HI         ZS     -4,WORK2                                 11  08207  . 01302 33564
1909                 S      &4,WORK2                                 11  08218  S 01298 33564
1910                 BZ     HJ-19               SHOULD BRANCH         7  08229  J 08282 V
1911                 BBE    *&15,TAD0,1                              12  08236  W 08262 01000 1
1912                 B      TYPE                                      7  08248  J 01029
1913                 DCW    @#10.08@,G                                6  08260
1914                 BBE    *&8,TAD2,1                               12  08262  W 08281 01002 1
1915                 B      *&2                                       7  08274  J 08282
1916                 H                                                1  08281  .
1917                 BNQ    AA                  TEST FOR INQUIRY REQUEST  7  08282  J 01160 Q
1918                 BBE    HI,TAD1,1                                12  08289  W 08207 01001 1
1919       SUB-RTN 10.09    SUBTRACT MINUS 8 FROM MINUS 8
1920      HJ         ZA     -8,WORK2                                 11  08301  Q M 01290 33564
1921                 S      -8,WORK2                                 11  08312  S 01290 33564
1922                 BZ     HK-19               SHOULD BRANCH         7  08323  J 08376 V
1923                 BBE    *&15,TAD0,1                              12  08330  W 08356 01000 1
1924                 B      TYPE                                      7  08342  J 01029
1925                 DCW    @#10.09@,G                                6  08354
1926                 BBE    *&8,TAD2,1                               12  08356  W 08375 01002 1
1927                 B      *&2                                       7  08368  J 08376
1928                 H                                                1  08375  .
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
1929		BNQ	AA	TEST FOR INQUIRY REQUEST	7	08376	J 01160 Q
1930		BBE	HJ,TAD1,1		12	08383	W 08301 01001 1
1931	SUB-RTN 10.10		CK ARITH OFLOW AND ZERO BALANCE				
1932	HK	BAV	*&1	SHOULD RESET ARITH OFLOW, IF ON	7	08395	J 08402 Z
1933		BAV	HL	SHOULD NOT BRANCH	7	08402	J 08468 Z
1934		ZA	&5,WORK2		11	08409	M 01303 33564
1935		A	WORK2	DOUBLE WORK2 FOR OFLOW & ZERO BAL	6	08420	A 33564
1936		BZ	*&8	SHOULD BRANCH	7	08426	J 08440 V
1937		B	HL	IF TAKEN, INDICATES NO ZERO BAL	7	08433	J 08468
1938		BAV	*&8	SHOULD BRANCH & RESET OFLOW	7	08440	J 08454 Z
1939		B	HL	IF TAKEN, INDICATES NO OFLOW	7	08447	J 08468
1940		BAV	*&8	SHOULD NOT BRANCH	7	08454	J 08468 Z
1941		B	HM-19		7	08461	J 08514
1942	HL	BBE	*&15,TAD0,1		12	08468	W 08494 01000 1
1943		B	TYPE		7	08480	J 01029
1944		DCW	@#10.10@,G		6	08492	
1945		BBE	*&8,TAD2,1		12	08494	W 08513 01002 1
1946		B	*&2		7	08506	J 08514
1947		H			1	08513	.
1948		BNQ	AA	TEST FOR INQUIRY REQUEST	7	08514	J 01160 Q
1949		BBE	HK,TAD1,1		12	08521	W 08395 01001 1
1950	SUB-RTN 10.11		CK ARITH OFLOW & NO ZERO BAL & NO DIGIT OFLOW				
1951	HM	BAV	*&1		7	08533	J 08540 Z
1952		ZS	*-10,WORK1	SET WORK1 TO PLUS ZERO	11	08540	: 08540 33563
1953		ZS	&9,WORK2		11	08551	: 01297 33564
1954		S	&9,WORK2	SUB POS FROM NEG NO. FOR OFLOW	11	08562	S 01297 33564
1955		BAV	*&8	SHOULD BRANCH	7	08573	J 08587 Z
1956		B	HN	IF TAKEN, INDICATES NO OFLOW	7	08580	J 08607
1957		BZ	HN	SHOULD NOT BRANCH	7	08587	J 08607 V
1958		ZA	WORK1	WORK1 SHOULD STILL BE ZERO	6	08594	M 33563
1959		BZ	HO-19	SHOULD BRANCH	7	08600	J 08653 V
1960	HN	BBE	*&15,TAD0,1		12	08607	W 08633 01000 1
1961		B	TYPE		7	08619	J 01029
1962		DCW	@#10.11@,G		6	08631	
1963		BBE	*&8,TAD2,1		12	08633	W 08652 01002 1
1964		B	*&2		7	08645	J 08653

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PGLIN     LABEL      OPCOD  OPERAND                                                CT  ADDRS  INSTRUCTION
1965                 H                                                             1  08652  .
1966                 BNQ    AA                  TEST FOR INQUIRY REQUEST          7  08653  J 01160 Q
1967                 BBE    HM,TAD1,1                                             12  08660  W 08533 01001 1
1968       SUB-RTN 10.12    LONG ADD & SUBTRACT USING ALL DIGITS
1969     HO          ZS     &54321,WORK4-5      WORK4 SHOULD BE  5432J..... NOW   11  08672  ! 01308 33571
1970                 ZS     WORK4-5,WORK4       WORK4 SHOULD BE  000005432A NOW   11  08683  ! 33571 33576
1971                 A      &9876,WORK4-5       WORK4 SHOULD BE  098765432A NOW   11  08694  A 01312 33571
1972                 A      &123,WORK4-5        WORK4 SHOULD BE  099995432A NOW   11  08705  A 01315 33571
1973                 A      &45679,WORK4        WORK4 SHOULD BE  100000000& NOW   11  08716  A 01320 33576
1974                 BZ     HP                  SHOULD NOT BRANCH                 7  08727  J 08836 V
1975                 SW     WORK4-8                                               6  08734  . 33568
1976                 ZS     WORK4               TEST LOWER 9 POS OF WORK4 FOR ZRO 6  08740  ! 33576
1977                 CW     WORK4-8                                               6  08746  ¤ 33568
1978                 BZ     *&8                 SHOULD BRANCH                     7  08752  J 08766 V
1979                 B      HP                                                    7  08759  J 08836
1980                 S      &123,WORK4-5        WORK4 SHOULD BE  098770000- NOW   11  08766  S 01315 33571
1981                 S      -45679,WORK4        WORK4 SHOULD BE  098765432J NOW   11  08777  S 01325 33576
1982                 S      &9876,WORK4-5       WORK4 SHOULD BE  000005432J NOW   11  08788  S 01312 33571
1983                 S      -54321,WORK4        WORK4 SHOULD BE  000000000- NOW   11  08799  S 01330 33576
1984                 BZ     *&8                 SHOULD BRANCH                     7  08810  J 08824 V
1985                 B      HP                                                    7  08817  J 08836
1986                 BZN    HQ-19,WORK4,-       WILL BRANCH IF ZONED CORRECTLY    12  08824  V 08882 33576 K
1987     HP          BBE    *&15,TADO,1      ** ANY #10.12 ERROR COMES HERE       12  08836  W 08862 01000 1
1988                 B      TYPE                                                  7  08848  J 01029
1989                 DCW    @#10.12@,G                                            6  08860
1990                 BBE    *&8,TAD2,1                                            12  08862  W 08881 01002 1
1991                 B      *&2                                                   7  08874  J 08882
1992                 H                                                            1  08881  .
1993                 BNQ    AA                  TEST FOR INQUIRY REQUEST          7  08882  J 01160 Q
1994                 BBE    HO,TAD1,1                                             12  08889  W 08672 01001 1
1995       SUB-RTN 10.13    CK B-FIELD ZONE RETENTION & SIGN CHANGE
1996     HQ          SW     WORK5               PROTECT HI-ORDER FIELD OF WORK5   6  08901  . 33580
1997                 ZA     -1,WORK5            INSURE ZONED NEGATIVELY           11  08907  M 01294 33580
1998                 CW     WORK5               REMOVE WM                         6  08918  ¤ 33580
1999                 S      WORK5               ZERO OUT WORK5 FIELD              6  08924  S 33580
2000                 BZN    *&8,WORK5,-         . INSURE                          12  08930  V 08949 33580 K
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
2001		B	HR	. THAT	7	08942	J 09116
2002		BZN	*&8,WORK5-1,*	. ZONES	12	08949	V 08968 33579 S
2003		B	HR	. ARE	7	08961	J 09116
2004		BZN	*&8,WORK5-2,	. RETAINED	12	08968	V 08987 33578 2
2005		B	HR	. FOLLOWING	7	08980	J 09116
2006		BZN	*&8,WORK5-3,&	. SINGLE-FIELD	12	08987	V 09006 33577 B
2007		B	HR	. SUBTRACT	7	08999	J 09116
2008		A	@9RIY@,WORK5		11	09006	A 01334 33580
2009		BZN	*&8,WORK5,&	. CHECK	12	09017	V 09036 33580 B
2010		B	HR	. SIGN	7	09029	J 09116
2011		BZN	*&8,WORK5-1,*	. CHANGE	12	09036	V 09055 33579 S
2012		B	HR	. AND	7	09048	J 09116
2013		BZN	*&8,WORK5-2,	. ZONE	12	09055	V 09074 33578 2
2014		B	HR	. RETENTION	7	09067	J 09116
2015		BZN	*&8,WORK5-3,&	. FOLLOWING	12	09074	V 09093 33577 B
2016		B	HR	. ADD	7	09086	J 09116
2017		S	FIVE9S-1,WORK5	SHOULD CHANGE SIGN BACK TO MINUS	11	09093	S 34007 33580
2018		BZN	HS-19,WORK5,-	SHOULD BRANCH	12	09104	V 09162 33580 K
2019	HR	BBE	*&15,TAD0,1	** ANY #10.13 ERROR COMES HERE	12	09116	W 09142 01000 1
2020		B	TYPE		7	09128	J 01029
2021		DCW	@#10.13@,G	. NOTE - THIS SUBROUTINE IS	6	09140	
2022		BBE	*&8,TAD2,1	. NOT SELF-RESTORING AND A	12	09142	W 09161 01002 1
2023		B	*&2	. ONE-TIME ERROR WILL PROBABLY	7	09154	J 09162
2024		H		. RESULT IN REPEATED FAILURES	1	09161	.
2025		BNQ	AA	TEST FOR INQUIRY REQUEST	7	09162	J 01160 Q
2026		BBE	HQ,TAD1,1		12	09169	W 08901 01001 1
2027	SUB-RTN	10.14	ARITHMETIC OPERATIONS ON SPECIAL CHARACTERS				
2028	HS	ZA	HS,WORK4	ZERO WORK4, INSURE NO HI-ORDER ZN	11	09181	Q M 09181 33576
2029		A	SPECL1,WORK4-1	ADD SPECIAL CHARS TO ZEROS	11	09192	A 33975 33575
2030		BBE	HT,WORK4-1,H	. SHOULD NOT	12	09203	W 09365 33575 H
2031		BBE	HT,WORK4-2,I	. TAKE	12	09215	W 09365 33574 I
2032		BBE	HT,WORK4-3,M Q	. ANY	12	09227	W 09365 33573 M Q
2033		BBE	HT,WORK4-4,.	. OF THESE	12	09239	W 09365 33572 .
2034		BBE	HT,WORK4-5,¤	. CONDITIONAL	12	09251	W 09365 33571 ¤
2035		BBE	HT,WORK4-6,E	. BRANCHES	12	09263	W 09365 33570 E
2036		S	&34567,WORK4-1		11	09275	S 01339 33575

PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
2037		BZ	*&8	SHOULD BRANCH	7	09286	J 09300 V
2038		B	HT		7	09293	J 09365
2039		ZA	SPECL2,WORK4	TRY ZERO-ADD ON SPECIAL CHARS	11	09300	QM 33981 33576
2040		A	-34567,WORK4		11	09311	A 01344 33576
2041		BZ	*&8	SHOULD BRANCH	7	09322	J 09336 V
2042		B	HT		7	09329	J 09365
2043		ZS	SPECL3,WORK4		11	09336	. 33987 33576
2044		S	SPECL4,WORK4		11	09347	S 33993 33576
2045		BZ	HU-19	SHOULD BRANCH	7	09358	J 09411 V
2046	HT	BBE	*&15,TAD0,1		12	09365	W 09391 01000 1
2047		B	TYPE		7	09377	J 01029
2048		DCW	@#10.14@,G		6	09389	
2049		BBE	*&8,TAD2,1		12	09391	W 09410 01002 1
2050		B	*&2		7	09403	J 09411
2051		H			1	09410	.
2052		BNQ	AA	TEST FOR INQUIRY REQUEST	7	09411	J 01160 Q
2053		BBE	HS,TAD1,1		12	09418	W 09181 01001 1
2054	SUB-RTN 10.15		ARITH OPS WHEREIN A-FLD LENGTH EXCEEDS B-FLD				
2055	HU	ZA	ALPHA,WORK3A	A-FLD LENGTH EXCEEDS B-FLD	11	09430	QM 01996 01999
2056		SAR	HOLDA1		7	09441	G 33949 A
2057		SBR	HOLDB1		7	09448	G 33954 B
2058		S	ALFADD,HOLDA1	CHECK PROPER STEPPING OF AAR	11	09455	S 33998 33949
2059		BZ	*&8	SHOULD BRANCH	7	09466	J 09480 V
2060		B	HV		7	09473	J 09662
2061		S	BETADD,HOLDB1	CHECK PROPER STEPPING OF BAR	11	09480	S 34003 33954
2062		BZ	*&8	SHOULD BRANCH	7	09491	J 09505 V
2063		B	HV		7	09498	J 09662
2064		S	ALPHA,WORK3A	A-FLD LENGTH EXCEEDS B-FLD	11	09505	S 01996 01999
2065		SAR	HOLDA1		7	09516	G 33949 A
2066		SBR	HOLDB1		7	09523	G 33954 B
2067		BZ	*&8	SHOULD BRANCH IF ZA & S PROPER	7	09530	J 09544 V
2068		B	HV		7	09537	J 09662
2069		S	ALFADD,HOLDA1	CHECK PROPER STEPPING OF AAR	11	09544	S 33998 33949
2070		BZ	*&8	SHOULD BRANCH	7	09555	J 09569 V
2071		B	HV		7	09562	J 09662
2072		S	BETADD,HOLDB1	CHECK PROPER STEPPING OF BAR	11	09569	S 34003 33954

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PGLIN     LABEL     OPCOD   OPERAND                                                CT  ADDRS  INSTRUCTION
2073                BZ      *&8                 SHOULD BRANCH                      7  09580  J 09594 V
2074                B       HV                                                     7  09587  J 09662
2075
2076                  NOTE - IN ORDER TO CHECK A SPECIFIC CIRCUIT IN THE
2077                         7010 IT IS NECESSARY THAT THE A AND B FIELDS
2078                         OF THE FOLLOWING INSTRUCTION BE LOCATED AT
2079                         AN EVEN AND ODD ADDRESS, RESPECTIVELY
2080
2081                S       ALPHA,WORK3A        A-FLD EXCEEDS B-FLD, RECOMP REQD  11  09594  S 01996 01999
2082                SAR     HOLDA1                                                 7  09605  G 33949 A
2083                SBR     HOLDB1                                                 7  09612  G 33954 B
2084                S       ALFADD,HOLDA1       CHECK PROPER STEPPING OF AAR      11  09619  S 33998 33949
2085                BZ      *&8                 SHOULD BRANCH                      7  09630  J 09644 V
2086                B       HV                                                     7  09637  J 09662
2087                S       BETADD,HOLDB1       CHECK PROPER STEPPING OF BAR      11  09644  S 34003 33954
2088                BZ      HW-19               SHOULD BRANCH & EXIT ROUTINE HERE  7  09655  J 09708 V
2089      HV        BBE     *&15,TAD0,1         ANY #10.15 ERRORS COME HERE       12  09662  W 09688 01000 1
2090                B       TYPE                                                   7  09674  J 01029
2091                DCW     @#10.15@,G                                             6  09686
2092                BBE     *&8,TAD2,1                                            12  09688  W 09707 01002 1
2093                B       *&2                                                    7  09700  J 09708
2094                H                                                              1  09707  .
2095                BNQ     AA                  TEST FOR INQUIRY REQUEST           7  09708  J 01160 Q
2096                BBE     HU,TAD1,1                                             12  09715  W 09430 01001 1
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
2098        ROUTINE 11.00   CHECK OPERATION CLEAR STORAGE
2099
2100        SUB-RTN 11.01   CK CS 00000 FOR NO ERR & PROPER SETTINGS AAR, BAR
2101      HW        CS      0                                         6  09727  / 00000
2102                SAR     HOLDA1                                    7  09733  G 33949 A
2103                SBR     HOLDB1                                    7  09740  G 33954 B
2104                A       &0,HOLDA1          CHECK SETTING OF AAR  11  09747  A 01345 33949
2105                BZ      *&8                SHOULD BRANCH          7  09758  J 09772 V
2106                B       HX                                        7  09765  J 09790
2107                S       FIVE9S,HOLDB1      CHECK SETTING OF BAR  11  09772  S 34008 33954
2108                BZ      HY-19              SHOULD BRANCH          7  09783  J 09804 V
2109      HX        B       TYPCK                                     7  09790  J 01074
2110                DCW     @#11.01@,G                                6  09802
2111                BNQ     AA                 TEST FOR INQUIRY REQUEST 7 09804  J 01160 Q
2112                BBE     HW,TAD1,1                                12  09811  W 09727 01001 1
2113        SUB-RTN 11.02   CHECK PROPER OPERATION CLEAR STORAGE
2114      HY        CW      300                . INITIALIZE B-FIELD OF  6  09823  ¤ 00300
2115                SAR     HZ&10              . BBE INSTRUCTION WHICH FOLLOWS 7 09829 G 09979 A
2116                SW      201,251                                  11  09836  , 00201 00251
2117                CS      299                TRY TO CLEAR 00299 - 00200  6 09847  / 00299
2118                BW      JA,251             SHOULD NOT BRANCH     12  09853  V 10018 00251 1
2119                BW      JA,201             SHOULD NOT BRANCH     12  09865  V 10018 00201 1
2120                SW      200,301            PLACE TWO WORD MARKS  11  09877  , 00200 00301
2121                ZA      &7,200             PUT B-A-4-2-1 BITS IN LOC 00200 11 09888 QM 01346 00200
2122                ZA      &8,301                                   11  09899  M 01289 00301
2123                CW      301,300                                  11  09910  ¤ 00301 00300
2124                ZA      301,300            FILL 00200 - 00299 WITH EIGHTS 11 09921 QM 00301 00300
2125                BBE     JA,200,G           G IS PLUS 7.  SHOULD NOT BRANCH 12 09932 W 10018 00200 G
2126                BBE     *&8,200,8          SHOULD BRANCH         12  09944  W 09963 00200 8
2127                B       JA                                        7  09956  J 10018
2128                CS      299                TRY TO CLEAR THE EIGHTS  6 09963  / 00299
2129      HZ        BBE     JA,299,GM          BRANCH IF ANY BITS AT ALL 12 09969 W 10018 00299 GM
2130                BZ      J8-19              LEAVE ROUTINE HERE IF NO ERROR 7 09981 J 10032 V
2131                SW      HZ&9                                      6  09988  , 09978
2132                S       &1,HZ&10                                 11  09994  S 01300 09979
2133                CW      HZ&9                                      6  10005  ¤ 09978
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
2134                 B      HZ                                        7  10011  J 09969
2135      JA         B      TYPCK                                     7  10018  J 01074
2136                 DCW    @#11.02@,G                                6  10030
2137                 BNQ    AA                 TEST FOR INQUIRY REQUEST  7  10032  J 01160 Q
2138                 BBE    HY,TAD1,1                                12  10039  W 09823 01001 1
2139
2140        SUB-RTN 11.03    CHECK CLEAR STORAGE & BRANCH
2141
2142      JB         SW     100                . PUT SOME DATA        6  10051  & 00100
2143                 ZA     &7,100             . IN LOC 00100        11  10057  &QM 01346 00100
2144                 CS     JD,100             CLEAR LOC 00100, SKIP NEXT INSTR  11  10068  / 10086 00100
2145      JC         B      JE                                        7  10079  J 10155
2146      JD         SAR    HOLDA1                                    7  10086  G 33949 A
2147                 SBR    HOLDB1                                    7  10093  G 33954 B
2148                 BBE    JE,100,&M          SHOULD NOT BRANCH     12  10100  W 10155 00100 &M
2149                 S      &JD,HOLDA1                               11  10112  S 01351 33949
2150                 BZ     *&8                SHOULD BRANCH          7  10123  J 10137 V
2151                 B      JE                                        7  10130  J 10155
2152                 S      &JC,HOLDB1                               11  10137  S 01356 33954
2153                 BZ     JF-19              SHOULD EXIT ROUTINE HERE  7  10148  J 10169 V
2154      JE         B      TYPCK                                     7  10155  J 01074
2155                 DCW    @#11.03@,G                                6  10167
2156                 BNQ    AA                 TEST FOR INQUIRY REQUEST  7  10169  J 01160 Q
2157                 BBE    JB,TAD1,1                                12  10176  W 10051 01001 1
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PGLIN     LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
2159          ROUTINE 12.00  INITIALIZE PASS COUNT WORK AREA & LOCATION 00001
2160
2161      JF         NOPWM                                                    1  10188  N
2162                 B      *&18              SKIP NEXT TWO INSTRS WHEN SET  7  10189  J 10213
2163                 SW     *-12                                             6  10196  , 10189
2164                 ZA     PCC,PCCWK                                       11  10202  M 01010 01015
2165                 CS     99                                               6  10213  / 00099
2166                 SW     1,8                                             11  10219  , 00001 00008
2167                 A      &RESET,6                                        11  10230  A 01361 00006
2168                 S      &1,1                                            11  10241  S 01300 00001
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
2170        ROUTINE 13.00   CHECK ADDRESSING BY INDEXING
2171
2172        SUB-RTN 13.01
2173      JG           SW   X1-4              WM OVER HI-ORDER DIGIT IX REG 1  6  10252  Q 00025
2174                   ZA   *,X1                                              11  10258  M 10268 00029
2175                   S    X1,0&X1           B-ADDR INDEXED BY IX REG 1     11  10269  S 00029 000*0
2176                   BZ   JH-19&X1          SHOULD BRANCH                   7  10280  J 103*1 V
2177                   B    TYPCK                                             7  10287  J 01074
2178                   DCW  @#13.01@,G                                        6  10299
2179                   BNQ  AA                TEST FOR INQUIRY REQUEST        7  10301  J 01160 Q
2180                   BBE  JG,TAD1,1                                        12  10308  W 10252 01001 1
2181        SUB-RTN 13.02
2182      JH           SW   X2-4                                              6  10320  Q 00030
2183                   ZA   *,X2                                             11  10326  M 10336 00034
2184                   S    X2,0&X2                                          11  10337  S 00034 000.0
2185                   BZ   JI-19&X2          SHOULD BRANCH                   7  10348  J 10309 V
2186                   B    TYPCK                                             7  10355  J 01074
2187                   DCW  @#13.02@,G                                        6  10367
2188                   BNQ  AA                TEST FOR INQUIRY REQUEST        7  10369  J 01160 Q
2189                   BBE  JH,TAD1,1                                        12  10376  W 10320 01001 1
2190        SUB-RTN 13.03
2191      JI           SW   X3-4                                              6  10388  Q 00035
2192                   ZA   *,X3                                             11  10394  M 10404 00039
2193                   S    X3,0&X3                                          11  10405  S 00039 000M0
2194                   BZ   JJ-19&X3          SHOULD BRANCH                   7  10416  J 104C7 V
2195                   B    TYPCK                                             7  10423  J 01074
2196                   DCW  @#13.03@,G                                        6  10435
2197                   BNQ  AA                TEST FOR INQUIRY REQUEST        7  10437  J 01160 Q
2198                   BBE  JI,TAD1,1                                        12  10444  W 10388 01001 1
2199        SUB-RTN 13.04
2200      JJ           SW   X4-4                                              6  10456  Q 00040
2201                   ZA   *,X4                                             11  10462  M 10472 00044
2202                   S    X4,0&X4                                          11  10473  S 00044 00*00
2203                   BZ   JK-19&X4          SHOULD BRANCH                   7  10484  J 10V05 V
2204                   B    TYPCK                                             7  10491  J 01074
2205                   DCW  @#13.04@,G                                        6  10503
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PGLIN     LABEL      OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
2206                 BNQ    AA              TEST FOR INQUIRY REQUEST  7  10505  J 01160 Q
2207                 BBE    JJ,TAD1,1                        12  10512  W 10456 01001 1
2208       SUB-RTN 13.05
2209      JK         SW     X5-4                              6  10524  ; 00045
2210                 ZA     *,X5                             11  10530  M 10540 00049
2211                 S      X5,0&X5                          11  10541  S 00049 00*#0
2212                 BZ     JL-19&X5        SHOULD BRANCH     7  10552  J 10VX3 V
2213                 B      TYPCK                             7  10559  J 01074
2214                 DCW    @#13.05@,G                        6  10571
2215                 BNQ    AA              TEST FOR INQUIRY REQUEST  7  10573  J 01160 Q
2216                 BBE    JK,TAD1,1                        12  10580  W 10524 01001 1
2217       SUB-RTN 13.06
2218      JL         SW     X6-4                              6  10592  ; 00050
2219                 ZA     *,X6                             11  10598  M 10608 00054
2220                 S      X6,0&X6                          11  10609  S 00054 00*.0
2221                 BZ     JM-19&X6        SHOULD BRANCH     7  10620  J 10WM1 V
2222                 B      TYPCK                             7  10627  J 01074
2223                 DCW    @#13.06@,G                        6  10639
2224                 BNQ    AA              TEST FOR INQUIRY REQUEST  7  10641  J 01160 Q
2225                 BBE    JL,TAD1,1                        12  10648  W 10592 01001 1
2226       SUB-RTN 13.07
2227      JM         SW     X7-4                              6  10660  ; 00055
2228                 ZA     *,X7                             11  10666  M 10676 00059
2229                 S      X7,0&X7                          11  10677  S 00059 00*M0
2230                 BZ     JN-19&X7        SHOULD BRANCH     7  10688  J 10XM9 V
2231                 B      TYPCK                             7  10695  J 01074
2232                 DCW    @#13.07@,G                        6  10707
2233                 BNQ    AA              TEST FOR INQUIRY REQUEST  7  10709  J 01160 Q
2234                 BBE    JM,TAD1,1                        12  10716  W 10660 01001 1
2235       SUB-RTN 13.08
2236      JN         SW     X8-4                              6  10728  ; 00060
2237                 ZA     *,X8                             11  10734  M 10744 00064
2238                 S      X8,0&X8                          11  10745  S 00064 00.00
2239                 BZ     JP-19&X8        SHOULD BRANCH     7  10756  J 10P77 V
2240                 B      TYPCK                             7  10763  J 01074
2241                 DCW    @#13.08@,G                        6  10775
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PGLIN     LABEL       OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
2242                  BNQ    AA                TEST FOR INQUIRY REQUEST  7  10777  J 01160 Q
2243                  BBE    JN,TAD1,1                        12  10784  W 10728 01001 1
2244        SUB-RTN 13.09
2245      JP          SW     X9-4                              6  10796  Q 00065
2246                  ZA     *,X9                             11  10802  M 10812 00069
2247                  S      X9,0&X9                          11  10813  S 00069 00.*0
2248                  BZ     JQ-19&X9          SHOULD BRANCH   7  10824  J 10QU5 V
2249                  B      TYPCK                             7  10831  J 01074
2250                  DCW    @#13.09@,G                        6  10843
2251                  BNQ    AA                TEST FOR INQUIRY REQUEST  7  10845  J 01160 Q
2252                  BBE    JP,TAD1,1                        12  10852  W 10796 01001 1
2253        SUB-RTN 13.10
2254      JQ          SW     X10-4                             6  10864  Q 00070
2255                  ZA     *,X10                            11  10870  M 10880 00074
2256                  S      X10,0&X10                        11  10881  S 00074 00..0
2257                  BZ     JR-19&X10         SHOULD BRANCH   7  10892  J 10RJ3 V
2258                  B      TYPCK                             7  10899  J 01074
2259                  DCW    @#13.10@,G                        6  10911
2260                  BNQ    AA                TEST FOR INQUIRY REQUEST  7  10913  J 01160 Q
2261                  BBE    JQ,TAD1,1                        12  10920  W 10864 01001 1
2262        SUB-RTN 13.11
2263      JR          SW     X11-4                             6  10932  Q 00075
2264                  ZA     *,X11                            11  10938  M 10948 00079
2265                  S      X11,0&X11                        11  10949  S 00079 00.M0
2266                  BZ     JS-19&X11         SHOULD BRANCH   7  10960  J 10RH1 V
2267                  B      TYPCK                             7  10967  J 01074
2268                  DCW    @#13.11@,G                        6  10979
2269                  BNQ    AA                TEST FOR INQUIRY REQUEST  7  10981  J 01160 Q
2270                  BBE    JR,TAD1,1                        12  10988  W 10932 01001 1
2271        SUB-RTN 13.12
2272      JS          SW     X12-4                             6  11000  Q 00080
2273                  ZA     *,X12                            11  11006  M 11016 00084
2274                  S      X12,0&X12                        11  11017  S 00084 00M00
2275                  BZ     JT-19&X12         SHOULD BRANCH   7  11028  J 11M49 V
2276                  B      TYPCK                             7  11035  J 01074
2277                  DCW    @#13.12@,G                        6  11047
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PGLIN  LABEL      OPCOD  OPERAND                  CT  ADDRS  INSTRUCTION
2278              BNQ    AA                       TEST FOR INQUIRY REQUEST          7  11049  J 01160 Q
2279              BBE    JS,TAD1,1                                                 12  11056  W 11000 01001 1
2280        SUB-RTN 13.13
2281  JT          SW     X13-4                                                      6  11068  , 00085
2282              ZA     *,X13                                                     11  11074  M 11084 00089
2283              S      X13,0&X13                                                 11  11085  S 00089 00M40
2284              BZ     JU-19&X13                SHOULD BRANCH                     7  11096  J 11A77 V
2285              B      TYPCK                                                      7  11103  J 01074
2286              DCW    @#13.13@,G                                                 6  11115
2287              BNQ    AA                       TEST FOR INQUIRY REQUEST          7  11117  J 01160 Q
2288              BBE    JT,TAD1,1                                                 12  11124  W 11068 01001 1
2289        SUB-RTN 13.14
2290  JU          SW     X14-4                                                      6  11136  , 00090
2291              ZA     *,X14                                                     11  11142  M 11152 00094
2292              S      X14,0&X14                                                 11  11153  S 00094 00M.0
2293              BZ     JV-19&X14                SHOULD BRANCH                     7  11164  J 11AQ5 V
2294              B      TYPCK                                                      7  11171  J 01074
2295              DCW    @#13.14@,G                                                 6  11183
2296              BNQ    AA                       TEST FOR INQUIRY REQUEST          7  11185  J 01160 Q
2297              BBE    JU,TAD1,1                                                 12  11192  W 11136 01001 1
2298        SUB-RTN 13.15
2299  JV          SW     X15-4                                                      6  11204  , 00095
2300              ZA     *,X15                                                     11  11210  M 11220 00099
2301              S      X15,0&X15                                                 11  11221  S 00099 00MM0
2302              BZ     JW-19&X15                SHOULD BRANCH                     7  11232  J 118E3 V
2303              B      TYPCK                                                      7  11239  J 01074
2304              DCW    @#13.15@,G                                                 6  11251
2305              BNQ    AA                       TEST FOR INQUIRY REQUEST          7  11253  J 01160 Q
2306              BBE    JV,TAD1,1                                                 12  11260  W 11204 01001 1
2307        SUB-RTN 13.16 A BIT MORE COMPLEX       TEST OF INDEXED OPERATIONS
2308  JW          ZA     &1,X15                   INSURE X15 POSITIVE, ZERO BAL OFF 11  11272  M 01300 00099
2309              CS     0                        STEP BAR TO 99999                 6  11283  / 00000
2310              SBR    X15                      STORE BAR IN INDEX REG 15         7  11289  G 00099 B
2311              CS     1&X15                    CLEAR LOC 00001 PLUS INDEX REG 15 6  11296  / 00MM1
2312              SAR    HOLDA1                   SAVE A-ADDRESS REGISTER           7  11302  G 33949 A
2313              SBR    HOLDB1                   SAVE B-ADDRESS REGISTER           7  11309  G 33954 B
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PGLIN  LABEL  OPCOD  OPERAND          CT  ADDRS  INSTRUCTION
2314          BZ     JX               7   11316  J 11474 V
2315          S      X15,HOLDB1       11  11323  S 00099 33954
2316          BZ     *&8              7   11334  J 11348 V
2317          B      JX               7   11341  J 11474
2318          A      &0,HOLDA1        11  11348  A 01345 33949
2319          BZ     *&8              7   11359  J 11373 V
2320          B      JX               7   11366  J 11474
2321          ZS     &1,X15           11  11373  . 01300 00099
2322          CS     0                6   11384  / 00000
2323          SBR    X15              7   11390  G 00099 B
2324          SBR    *&6              7   11397  G 11409 B
2325          CS     0&X15            6   11404  / 00MMQQ0
2326          SAR    HOLDA1           7   11410  G 33949 A
2327          SBR    HOLDB1           7   11417  G 33954 B
2328          BZ     JX               7   11424  J 11474 V
2329          A      X15,HOLDB1       11  11431  A 00099 33954
2330          BZ     *&8              7   11442  J 11456 V
2331          B      JX               7   11449  J 11474
2332          A      &0,HOLDA1        11  11456  A 01345 33949
2333          BZ     KFC1-19          7   11467  J 11488 V
2334    JX    B      TYPCK            7   11474  J 01074
2335          DCW    @#13.16@,G       6   11486
2336          BNQ    AA               7   11488  J 01160 Q
2337          BBE    JW,TAD1,1        12  11495  W 11272 01001 1
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PGLIN     LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
2339        ROUTINE 15.00   CHECK OPERATION OF BRANCH CHARACTER EQUAL
2340
2341        SUB-RTN 15.01   COMPARE D-MOD 9 WITH B-FLD @ FOR LO COMPARE
2342                        AND NO BRANCH.  CHECK AAR & BAR SETTINGS
2343      KF01        BCE   KF02,ATSIGN,9        SHOULD NOT BRANCH          12  11507  B 11590 33027 9
2344                  SAR   HOLDA2                                           7  11519  G 33949 A
2345                  SBR   HOLDB2                                           7  11526  G 33954 B
2346                  BL    *&8                  SHOULD BRANCH              7  11533  J 11547 T
2347                  B     KF02                                            7  11540  J 11590
2348                  S     &KF02,HOLDA2                                   11  11547  S 01366 33949
2349                  BZ    *&8                  SHOULD BRANCH              7  11558  J 11572 V
2350                  B     KF02                                            7  11565  J 11590
2351                  S     &POUND,HOLDB2        ADDR OF POUND IS ADDR OF ATSIGN-1  11  11572  S 01371 33954
2352                  BZ    KF03-19              SHOULD BRANCH              7  11583  J 11604 V
2353      KF02        B     TYPCK                                           7  11590  J 01074
2354                  DCW   @#15.01@,G                                      6  11602
2355                  BNQ   AA                   TEST FOR INQUIRY REQUEST   7  11604  J 01160 Q
2356                  BBE   KF01,TAD1,1                                     12  11611  W 11507 01001 1
2357        SUB-RTN 15.02   COMPARE D-MOD AT SIGN WITH B-FLD NINE
2358                        FOR HI COMPARE AND NO BRANCH.
2359      KF03        BCE   KF04,NINE,@          SHOULD NOT BRANCH          12  11623  B 11656 33069 @
2360                  BH    *&8                  SHOULD BRANCH              7  11635  J 11649 U
2361                  B     *&8                                             7  11642  J 11656
2362                  BH    KF05-19              SHOULD STILL BRANCH        7  11649  J 11670 U
2363      KF04        B     TYPCK                                           7  11656  J 01074
2364                  DCW   @#15.02@,G                                      6  11668
2365                  BNQ   AA                   TEST FOR INQUIRY REQUEST   7  11670  J 01160 Q
2366                  BBE   KF03,TAD1,1                                     12  11677  W 11623 01001 1
2367        SUB-RTN 15.03   COMPARE D-MOD AMPERSAND W/B-FLD AMPERSAND FOR
2368                        EQ COMPARE AND BRANCH.  CHECK AAR & BAR SETTINGS
2369      KF05        BCE   KF07,AMPSND,&        SHOULD BRANCH              12  11689  B 11708 33012 &
2370      KF06        B     KF08                                            7  11701  J 11786
2371      KF07        SAR   HOLDA2                                          7  11708  G 33949 A
2372                  SBR   HOLDB2                                          7  11715  G 33954 B
2373                  BU    KF08                 SHOULD NOT BRANCH          7  11722  J 11786 /
2374                  BE    *&8                  SHOULD BRANCH              7  11729  J 11743 S
```

PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
2375		B	KF08		7	11736	J 11786
2376		S	&KF07,HOLDA2		11	11743	S 01376 33949
2377		BZ	*&8		7	11754	J 11768 V
2378		B	KF08		7	11761	J 11786
2379		S	&KF06,HOLDB2		11	11768	S 01381 33954
2380		BZ	KG-19	SHOULD BRANCH & EXIT ROUTINE HERE	7	11779	J 11800 V
2381	KF08	B	TYPCK		7	11786	J 01074
2382		DCW	@#15.03@,G		6	11798	
2383		BNQ	AA	TEST FOR INQUIRY REQUEST	7	11800	J 01160 Q
2384		BBE	KFC5,TAD1,1		12	11807	W 11689 01001 1

```
PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
2386        ROUTINE 16.00   CHECK CERTAIN MOVE OPCODES PREPARATORY TO COMPARE
2387
2388        SUB-RTN 16.01   CHECK SCNLS FOR STEPPING AAR, BAR ONE POSITION
2389      KG          CS    103                                       6  11819  / 00103
2390                  SCNLS 102,103                                  12  11825  D 00102 00103
2391                  SAR   HOLDA2                                    7  11837  G 33949 A
2392                  SBR   HOLDB2                                    7  11844  G 33954 B
2393                  S     @00101@,HOLDA2                           11  11851  S 01386 33949
2394                  BZ    *&8                 SHOULD BRANCH        7  11862  J 11876 V
2395                  B     KH                                       7  11869  J 11894
2396                  S     @00102@,HOLDB2                           11  11876  S 01391 33954
2397                  BZ    KI-19                                    7  11887  J 11908 V
2398      KH          B     TYPCK                                    7  11894  J 01074
2399                  DCW   @#16.01@,G                               6  11906
2400                  BNQ   AA                  TEST FOR INQUIRY REQUEST  7  11908  J 01160 Q
2401                  BBE   KG,TAD1,1                                12  11915  W 11819 01001 1
2402        SUB-RTN 16.02   CHECK MLNS FOR CORRECT OPERATION
2403      KI          CS    101                                       6  11927  / 00101
2404                  SW    100                                       6  11933  , 00100
2405                  ZA    MINUS7,101          PUT B-4-2-1 BITS IN LOC 00101  11  11939  M 33048 00101
                                                                                      Q
2406                  MLNS  WYE,101                                  12  11950  D 33058 00101 1
2407                  BBE   KJ,101,X            SHOULD NOT BRANCH    12  11962  W 12017 00101 X
2408                  BW    KJ,101              SHOULD NOT BRANCH    12  11974  V 12017 00101 1
2409                  BBE   *&8,101,-           SHOULD BRANCH        12  11986  W 12005 00101 -
2410                  B     KJ                                       7  11998  J 12017
2411                  BBE   KK-19,101,8         EXIT ROUTINE HERE    12  12005  W 12031 00101 8
2412      KJ          B     TYPCK                                    7  12017  J 01074
2413                  DCW   @#16.02@,G                               6  12029
2414                  BNQ   AA                  TEST FOR INQUIRY REQUEST  7  12031  J 01160 Q
2415                  BBE   KI,TAD1,1                                12  12038  W 11927 01001 1
2416        SUB-RTN 16.03   CHECK MLZS FOR CORRECT OPERATION
2417      KK          CS    101                                       6  12050  / 00101
2418                  SW    100                                       6  12056  , 00100
2419                  ZA    MINUS8,101          PUT B-8 BITS IN LOC 00101  11  12062  M 33049 00101
                                                                                      Q
2420                  MLZS  EKS,101                                  12  12073  D 33057 00101 2
2421                  BBE   KL,101,P            SHOULD NOT BRANCH    12  12085  W 12140 00101 P
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
2422		BW	KL,101	SHOULD NOT BRANCH	12	12097	V 12140 00101 1
2423		BBE	*&8,101,8	SHOULD BRANCH	12	12109	W 12128 00101 8
2424		B	KL		7	12121	J 12140
2425		BBE	KM-19,101,S8		12	12128	W 12154 00101 S8
2426	KL	B	TYPCK		7	12140	J 01074
2427		DCW	@#16.03@,G		6	12152	
2428		BNQ	AA	TEST FOR INQUIRY REQUEST	7	12154	J 01160 Q
2429		BBE	KK,TAD1,1		12	12161	W 12050 01001 1
2430	SUB-RTN	16.04	CHECK MLCS FOR CORRECT OPERATION		8		
2431	KM	CS	101		6	12173	/ 00101
2432		SW	100		6	12179	8 00100
2433		ZA	MINUS0,101	PUT 8-8-2 BITS IN LOC 00101	11	12185	M 33041 00101
2434		MLCS	VEE,101		12	12196	D 33055 00101 3
2435		BW	KN,101	SHOULD NOT BRANCH	12	12208	V 12282 00101 1
2436		BBE	KN,101,8	SHOULD NOT BRANCH	12	12220	W 12282 00101 8
2437		BBE	*&8,101,1	SHOULD BRANCH	12	12232	W 12251 00101 1
2438		B	KN		7	12244	J 12282
2439		BBE	*&8,101,4	SHOULD BRANCH	12	12251	W 12270 00101 4
2440		B	KN		7	12263	J 12282
2441		BBE	KR-19,101,S8	SHOULD EXIT ROUTINE HERE	12	12270	W 12296 00101 S8
2442	KN	B	TYPCK		7	12282	J 01074
2443		DCW	@#16.04@,G		6	12294	
2444		BNQ	AA	TEST FOR INQUIRY REQUEST	7	12296	J 01160 Q
2445		BBE	KM,TAD1,1		12	12303	W 12173 01001 1

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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
2447        ROUTINE 17.00   CHECK COMPARE OPCOD USING SINGLE CHARACTERS
2448
2449                        THIS ROUTINE COMPARES ALL SIXTY-FOUR LEGITIMATE
2450                        CHARACTERS WITH ONE ANOTHER AND INSURES THAT ALL
2451                        IDENTICAL CHARACTERS COMPARE EQUAL, THAT NO
2452                        CHARACTER COMPARES EQUAL TO ANY CHARACTER EXCEPT
2453                        ITSELF, AND THAT THE COLLATING SEQUENCE IS PROPER
2454
2455                        BEGIN BY USING SIMPLEST COMPARISONS TO VERIFY
2456                        CORRECT OPERATION OF BRANCH HI, LO, EQ, UNEQUAL
2457
2458        SUB-RTN 17.01   COMPARE A-FLD 9 WITH B-FLD @ FOR LO COMPARE
2459     KR         C       NINE,ATSIGN                              11  12315  C 33069 33027
2460                BE      KS                SHOULD NOT BRANCH       7  12326  J 12361 S
2461                BU      *&8               SHOULD BRANCH           7  12333  J 12347 /
2462                B       KS                                        7  12340  J 12361
2463                BH      *&8               SHOULD NOT BRANCH       7  12347  J 12361 U
2464                BL      KT-19             SHOULD BRANCH           7  12354  J 12375 T
2465     KS         B       TYPCK                                     7  12361  J 01074
2466                DCW     @#17.01@,G                                6  12373
2467                BNQ     AA                TEST FOR INQUIRY REQUEST 7 12375 J 01160 Q
2468                BBE     KR,TAD1,1                                12  12382  W 12315 01001 1
2469        SUB-RTN 17.02   COMPARE A-FLD @ WITH B-FLD 9 FOR HI COMPARE
2470     KT         C       ATSIGN,NINE                              11  12394  C 33027 33069
2471                BE      KU                SHOULD NOT BRANCH       7  12405  J 12440 S
2472                BU      *&8               SHOULD BRANCH           7  12412  J 12426 /
2473                B       KU                                        7  12419  J 12440
2474                BL      KU                SHOULD NOT BRANCH       7  12426  J 12440 T
2475                BH      KV-19             SHOULD BRANCH           7  12433  J 12454 U
2476     KU         B       TYPCK                                     7  12440  J 01074
2477                DCW     @#17.02@,G                                6  12452
2478                BNQ     AA                TEST FOR INQUIRY REQUEST 7 12454 J 01160 Q
2479                BBE     KT,TAD1,1                                12  12461  W 12394 01001 1
2480        SUB-RTN 17.03   COMPARE AMPERSAND WITH AMPERSAND FOR EQ COMPARE
2481     KV         C       AMPSND,AMPSND                            11  12473  C 33012 33012
2482                BU      KW                SHOULD                  7  12484  J 12512 /
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PGLIN     LABEL     OPCOD   OPERAND                                    CT  ADDRS  INSTRUCTION
2483                BH      KW                      NOT                 7  12491  J 12512 U
2484                BL      KW                       BRANCH             7  12498  J 12512 T
2485                BE      KX-19                   SHOULD BRANCH       7  12505  J 12526 S
2486      KW        B       TYPCK                                       7  12512  J 01074
2487                DCW     @#17.03@,G                                  6  12524
2488                BNQ     AA                      TEST FOR INQUIRY REQUEST 7  12526  J 01160 Q
2489                BBE     KV,TAD1,1                                  12  12533  W 12473 01001 1
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PGLIN     LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
2491        ROUTINE 18.00   IF THE THREE ROUTINES #17.01 - #17.03 CAUSED NO
2492                        ERRORS, CORRECT OPERATION OF BU, BE, BH AND BL
2493                        IS NOW ASSUMED.  PROPER OPERATION OF THESE FOUR
2494                        CONDITIONAL BRANCHES IS A NECESSARY REQUIREMENT
2495                        FOR THE SUBROUTINE #18.01 WHICH FOLLOWS.
2496
2497                        MACHINES THAT DO NOT RECOGNIZE STANDARD COLLATING
2498                        SEQUENCE CAN BE EXPECTED TO GIVE ERRORS HERE.
2499
2500        SUB-RTN 18.01   COMPARE ALL 64 CHARS VS ALL 64 CHARS.  4096 TOTAL
2501
2502                        BECAUSE THE TIME REQUIRED TO PERFORM THIS ROUTINE
2503                        IS RELATIVELY LONG, IT IS DONE THE FIRST TIME
2504                        THROUGH C0218 AND THEREAFTER ONLY WHEN THE
2505                        PASS COUNT CONSTANT WORK AREA IS REDUCED TO ZERO
2506
2507     KX         NOPWM                                                    1  12545  N
2508                B       KY                                               7  12546  J 13364
2509                ZA      &4096,LIMIT                                     11  12553  M 01395 34046
2510                CW      TYPESW&1                                         6  12564  ¤ 13034
2511                CW      X1,X2                                           11  12570  ¤ 00029 00034
2512                CW      X1-1,X2-1                                       11  12581  ¤ 00028 00033
2513                CW      X1-2,X2-2                                       11  12592  ¤ 00027 00032
2514                CW      X1-3,X2-3                                       11  12603  ¤ 00026 00031
2515                SW      X1-4,X2-4                                       11  12614  , 00025 00030
2516                SW      EQULSW&1,ANYERR&1  FORCE 1ST CMP EQ & INITIALIZATION 11  12625  , 12722 12703
2517                ZA      &64,X2                                          11  12636  M 01397 00034
2518                ZA      &63,HISTRT                                      11  12647  M 01399 34048
2519                ZA      &63,HICNT                                       11  12658  M 01399 34052
2520                ZA      &1,LOSTRT                                       11  12669  M 01300 34050
2521                ZA      &1,LOCNT                                        11  12680  M 01300 34054
2522     RETURN     ZA      &64,X1                                          11  12691  M 01397 00029
2523     ANYERR     NOPWM                                                    1  12702  N
2524                B       REINIT              BRANCH IF ANY PREVIOUS CMP ERROR 7  12703  J 13297
2525     COMPAR     C       TABLE-1&X1,TABLE-1&X2                           11  12710  C 330#5 330#5
2526     EQULSW     NOPWM                                                    1  12721  N
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PGLIN  LABEL    OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
2527            B      SBEQUL     BRANCH IF EQUAL EXPECTED      7  12722  J 12946
2528            BE     CMPERR                                   7  12729  J 13014 S
2529            DCW    @N5@                                     2  12737
2530            BU     *&10                                     7  12738  J 12754 /
2531            B      CMPERR                                   7  12745  J 13014
2532            DCW    @N6@                                     2  12753
2533    HILOSW  NOPWM                                           1  12754  N
2534            B      SBLO       BRANCH IF LO EXPECTED         7  12755  J 12854
2535            BL     CMPERR                                   7  12762  J 13014 T
2536            DCW    @N9@                                     2  12770
2537            BH     *&10                                     7  12771  J 12787 U
2538            B      CMPERR                                   7  12778  J 13014
2539            DCW    @NX@                                     2  12786
2540            B      COMMON-7                                 7  12787  J 13099
2541            S      &1,HICNT                                11  12794  S 01300 34052
2542            BZ     *&8                                      7  12805  J 12819 V
2543            B      DIMIN                                    7  12812  J 13236
2544            SW     HILOSW&1                                 6  12819  , 12755
2545            S      &1,HISTRT                               11  12825  S 01300 34048
2546            ZA     HISTRT,HICNT                            11  12836  ZAM 34048 34052
2547            B      DIMIN                                    7  12847  J 13236
2548    SBLO    BH     CMPERR                                   7  12854  J 13014 U
2549            DCW    @N7@                                     2  12862
2550            BL     *&10                                     7  12863  J 12879 T
2551            B      CMPERR                                   7  12870  J 13014
2552            DCW    @N8@                                     2  12878
2553            B      COMMON-7                                 7  12879  J 13099
2554            S      &1,LOCNT                                11  12886  S 01300 34054
2555            BZ     *&8                                      7  12897  J 12911 V
2556            B      DIMIN                                    7  12904  J 13236
2557            SW     EQULSW&1                                 6  12911  , 12722
2558            A      &1,LOSTRT                               11  12917  AQM 01300 34050
2559            ZA     LOSTRT,LOCNT                            11  12928  ZAM 34050 34054
2560            B      DIMIN                                    7  12939  J 13236
2561    SBEQUL  BU     CMPERR                                   7  12946  J 13014 /
2562            DCW    @N1@                                     2  12954
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PGLIN  LABEL    OPCOD  OPERAND                  CT  ADDRS  INSTRUCTION
2563            BH     CMPERR                    7  12955  J 13014 U
2564            DCW    @N2@                      2  12963
2565            BL     CMPERR                    7  12964  J 13014 T
2566            DCW    @N3@                      2  12972
2567            BE     *&10                      7  12973  J 12989 S
2568            B      CMPERR                    7  12980  J 13014
2569            DCW    @N4@                      2  12988
2570            B      COMMON-7                  7  12989  J 13099
2571            CW     EQULSW&1,HILOSW&1        11  12996  ¤ 12722 12755
2572            B      DIMIN                     7  13007  J 13236
2573
2574    CMPERR  SBR    X3          SAVE RETURN ADDR & ERR IND IN X3   7  13014  G 00039 B
2575            BBE    OUT,TADO,1  BRANCH IF TYPING NOT REQUIRED     12  13021  W 13086 01000 1
2576    TYPESW  NOPWM              .                                  1  13033  N
2577            B      AROUND      . BRANCH TAKEN AFTER FIRST ERROR   7  13034  J 13061
2578            SW     *-12                                           6  13041  , 13034
2579            B      TYPE                                           7  13047  J 01029
2580            DCW    @#18.01@,G                                     6  13059
2581    AROUND  MLCS   1&X3,3&X4   WHERE X4 IS INITIALLY MESAG&9      12  13061  D 000Q1 00*03 3
2582            SBR    X4          UPDATE X4                          7  13073  G 00044 B
2583            SW     ANYERR&1    INDICATE RE-INITIALIZING REQUIRED  6  13080  , 12703
2584    OUT     SW     COMMON&1    INDICATE ERROR OCCURRED            6  13086  , 13107
2585            B      2&X3        RETURN                             7  13092  J 000Q2
2586
2587            SBR    KX01&5                                         7  13099  G 13234 B
2588    COMMON  NOPWM                                                 1  13106  N
2589            B      *&8         BRANCH IF ANY COMPARE ERROR        7  13107  J 13121
2590            B      KX01-19                                        7  13114  J 13210
2591            CW     COMMON&1    RESTORE SWITCH TO NOP              6  13121  ¤ 13107
2592            BBE    MESAG&20,TADO,1  BRANCH IF TYPING NOT REQUIRED 12  13127  W 13190 01000 1
2593            MLCS   TABLE-1&X1,MESAG&1 . MOVE CHARACTERS BEING COMPARED 12  13139  D 330*5 13171 3
2594            MLCS   TABLE-1&X2,MESAG&6 . TO ERROR MESSAGE          12  13151  D 330.5 13176 3
2595            B      TYPE                                           7  13163  J 01029
2596    MESAG   DCW    @ * VS * ERR * * * *@,G  * - FILLED IN BY ER ROUTINE 19  13170
2597            BBE    *&8,TAD2,1                                    12  13190  W 13209 01002 1
2598            B      *&2                                            7  13202  J 13210
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PGLIN     LABEL     OPCOD   OPERAND                    CT  ADDRS  INSTRUCTION
2599                H                                  1  13209  .
2600                BNQ     AA          TEST FOR INQUIRY REQUEST  7  13210  J 01160 Q
2601                BBE     ANYERR,TAD1,1             12  13217  W 12702 01001 1
2602      KX01      B       0                          7  13229  J 00000
2603
2604      DIMIN     S       &1,LIMIT                  11  13236  S 01300 34046
2605                BZ      KX02        FINISHED.  CLOSE UP THIS ROUTINE  7  13247  J 13358 V
2606                S       &1,X1                     11  13254  S 01300 00029
2607                BZ      *&8                        7  13265  J 13279 V
2608                B       ANYERR                     7  13272  J 12702
2609                S       &1,X2                     11  13279  S 01300 00034
2610                B       RETURN                     7  13290  J 12691
2611
2612      REINIT    CW      ANYERR&1,MESAG&10  RESTORE SW, SET UP B-ADDR REG  11  13297  ¤ 12703 13180
2613                SBR     X4          INITIALIZE X4 TO MESAG&9  7  13308  G 00044 8
2614                MLCS    BLANK,MESAG&14  . BLANK OUT POSITIONS  12  13315  D 33006 13184 3
2615                MLCS    BLANK,MESAG&16  . WHICH MAY CONTAIN  12  13327  D 33006 13186 3
2616                MLCS    BLANK,MESAG&18  . ERROR NUMBERS  12  13339  D 33006 13188 3
2617                B       COMPAR      BACK TO COMPARE NEXT TWO CHARS  7  13351  J 12710
2618
2619      KX02      SW      KX&1                       6  13358  . 12546
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
2621          SUB-RTN 18.02  COMPARE TWO FIELDS, A LONGER THAN B, CK ADDR REGS
2622      KY          C      FIELD1,FIELD2                            11  13364  C 34032 34035
2623                  SAR    HOLDA2                                    7  13375  G 33949 A
2624                  SBR    HOLDB2                                    7  13382  G 33954 B
2625                  S      AADDR1,HOLDA2                            11  13389  S 34013 33949
2626                  BZ     *&8                SHOULD BRANCH          7  13400  J 13414 V
2627                  B      KZ                                        7  13407  J 13432
2628                  S      BADDR1,HOLDB2                            11  13414  S 34018 33954
2629                  BZ     LA-19              SHOULD BRANCH          7  13425  J 13446 V
2630      KZ          B      TYPCK                                     7  13432  J 01074
2631                  DCW    @#18.02@,G                                6  13444
2632                  BNQ    AA                 TEST FOR INQUIRY REQUEST  7  13446  J 01160 Q
2633                  BBE    KY,TAD1,1                                12  13453  W 13364 01001 1
2634          SUB-RTN 18.03  COMPARE TWO FIELDS, A LONGER THAN B, CK RESULTS
2635      LA          C      FIELD1,FIELD2      SHOULD BE LO COMPARISON  11  13465  C 34032 34035
2636                  BE     *&15                                      7  13476  J 13497 S
2637                  BH     *&8                                       7  13483  J 13497 U
2638                  BL     LB-19                                     7  13490  J 13511 T
2639                  B      TYPCK                                     7  13497  J 01074
2640                  DCW    @#18.03@,G                                6  13509
2641                  BNQ    AA                 TEST FOR INQUIRY REQUEST  7  13511  J 01160 Q
2642                  BBE    LA,TAD1,1                                12  13518  W 13465 01001 1
2643          SUB-RTN 18.04  COMPARE TWO FIELDS, B LONGER THAN A, CK ADDR REGS
2644      LB          C      FIELD3,FIELD4                            11  13530  C 34038 34042
2645                  SAR    HOLDA2                                    7  13541  G 33949 A
2646                  SBR    HOLDB2                                    7  13548  G 33954 B
2647                  S      AADDR2,HOLDA2                            11  13555  S 34023 33949
2648                  BZ     *&8                                       7  13566  J 13580 V
2649                  B      LC                                        7  13573  J 13598
2650                  S      BADDR2,HOLDB2                            11  13580  S 34028 33954
2651                  BZ     LD-19                                     7  13591  J 13612 V
2652      LC          B      TYPCK                                     7  13598  J 01074
2653                  DCW    @#18.04@,G                                6  13610
2654                  BNQ    AA                 TEST FOR INQUIRY REQUEST  7  13612  J 01160 Q
2655                  BBE    LB,TAD1,1                                12  13619  W 13530 01001 1
2656          SUB-RTN 18.05  COMPARE TWO FIELDS, B LONGER THAN A, CK RESULTS
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
2657	LD	C	FIELD3,FIELD4	SHOULD BE HI COMPARISON	11	13631	C 34038 34042
2658		BE	*&15		7	13642	J 13663 S
2659		BL	*&8		7	13649	J 13663 T
2660		BH	LE-19	SHOULD BRANCH HIGH	7	13656	J 13677 U
2661		B	TYPCK		7	13663	J 01074
2662		DCW	@#18.05@,G		6	13675	
2663		BNQ	AA	TEST FOR INQUIRY REQUEST	7	13677	J 01160 Q
2664		BBE	LD,TAD1,1		12	13684	W 13631 01001 1
2665	SUB-RTN	18.06	PERFORM COMPLICATED COMPARE				
2666	LE	C	CCON1,CCON2	REQUIRE HI & LO TO ALT W/EACH CYC	11	13696	C 34281 34346
2667		BH	*&8	SHOULD BRANCH	7	13707	J 13721 U
2668		B	LF		7	13714	J 13739
2669		C	CCON2,CCON1		11	13721	C 34346 34281
2670		BL	LK-19	SHOULD BRANCH & EXIT ROUTINE HERE	7	13732	J 13753 T
2671	LF	B	TYPCK		7	13739	J 01074
2672		DCW	@#18.06@,G		6	13751	
2673		BNQ	AA	TEST FOR INQUIRY REQUEST	7	13753	J 01160 Q
2674		BBE	LE,TAD1,1		12	13760	W 13696 01001 1

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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
2676        ROUTINE 19.00   CHECK OPERATION OF DATA MOVE INSTRUCTION
2677
2678        SUB-RTN 19.01   CHECK SCNLS FOR MOVE NO DATA
2679      LK        MLCS    NWM63,WORK6                              12  13772  D 33004 33581 3
2680                SW      WORK6                                     6  13784  , 33581
2681                SCNLS   NWM00,WORK6                              12  13790  D 32942 33581
2682                C       ALLBIT,WORK6                             11  13802  C 33011 33581
2683                BE      LL-19                                     7  13813  J 13834 S
2684                B       TYPCK                                     7  13820  J 01074
2685                DCW     @#19.01@,G                                6  13832
2686                BNQ     AA                TEST FOR INQUIRY REQUEST7  13834  J 01160 Q
2687                BBE     LK,TAD1,1                                12  13841  W 13772 01001 1
2688        SUB-RTN 19.02   CHECK MLNS FOR MOVE NUMERIC, NO ZONES, NO WM
2689      LL        MLCS    NWM62,WORK6                              12  13853  D 33003 33581 3
2690                SW      WORK6                                     6  13865  , 33581
2691                MLNS    NWM01,WORK6                              12  13871  D 32943 33581 1
2692                C       AYE,WORK6                                11  13883  C 33032 33581
2693                BE      LM-19                                     7  13894  J 13915 S
2694                B       TYPCK                                     7  13901  J 01074
2695                DCW     @#19.02@,G                                6  13913
2696                BNQ     AA                TEST FOR INQUIRY REQUEST7  13915  J 01160 Q
2697                BBE     LL,TAD1,1                                12  13922  W 13853 01001 1
2698        SUB-RTN 19.03   CHECK MLZS FOR MOVE ZONES, NO NUMERIC, NO WM
2699      LM        MLCS    NWM31,WORK6                              12  13934  D 32972 33581 3
2700                SW      WORK6                                     6  13946  , 33581
2701                MLZS    NWM32,WORK6                              12  13952  D 32973 33581 2
2702                C       DELTA,WORK6                              11  13964  C 33017 33581
2703                BE      LN-19                                     7  13975  J 13996 S
2704                B       TYPCK                                     7  13982  J 01074
2705                DCW     @#19.03@,G                                6  13994
2706                BNQ     AA                TEST FOR INQUIRY REQUEST7  13996  J 01160 Q
2707                BBE     LM,TAD1,1                                12  14003  W 13934 01001 1
2708        SUB-RTN 19.04   CHECK MLCS FOR MOVE NUMERIC, ZONE, NO WM
2709      LN        MLNS    NWM25,WORK6                              12  14015  D 32967 33581 1
2710                MLZS    NWM25,WORK6                              12  14027  D 32967 33581 2
2711                SW      WORK6                                     6  14039  , 33581
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PGLIN     LABEL      OPCOD   OPERAND                                          CT  ADDRS  INSTRUCTION
2712                 MLCS    NWM38,WORK6                                      12  14045  D 32979 33581 3
2713                 C       OH,WORK6                                         11  14057  C 33047 33581
2714                 BE      LP-19                                             7  14068  J 14089 S
2715                 B       TYPCK                                             7  14075  J 01074
2716                 DCW     @#19.04@,G                                        6  14087
2717                 BNQ     AA                    TEST FOR INQUIRY REQUEST    7  14089  J 01160 Q
2718                 BBE     LN,TAD1,1                                        12  14096  W 14015 01001 1
2719       SUB-RTN 19.05     CHECK MLWS FOR MOVE WM, NO ZONE, NO NUMERIC
2720     LP          MLCS    NWM63,WORK6                                      12  14108  D 33004 33581 3
2721                 CW      WORK6                                             6  14120  ¤ 33581
2722                 MLWS    BLANK,WORK6                                      12  14126  D 33006 33581 4
2723                 C       ALLBIT,WORK6                                     11  14138  C 33011 33581
2724                 BE      LQ-19                                             7  14149  J 14170 S
2725                 B       TYPCK                                             7  14156  J 01074
2726                 DCW     @#19.05@,G                                        6  14168
2727                 BNQ     AA                    TEST FOR INQUIRY REQUEST    7  14170  J 01160 Q
2728                 BBE     LP,TAD1,1                                        12  14177  W 14108 01001 1
2729       SUB-RTN 19.06     CHECK MLNWS FOR MOVE NUMERIC, WM, NO ZONE
2730     LQ          MLCS    NWM54,WORK6                                      12  14189  D 32995 33581 3
2731                 CW      WORK6                                             6  14201  ¤ 33581
2732                 MLNWS   NINE,WORK6                                       12  14207  D 33069 33581 5
2733                 C       EYE,WORK6                                        11  14219  C 33040 33581
2734                 BE      LR-19                                             7  14230  J 14251 S
2735                 B       TYPCK                                             7  14237  J 01074
2736                 DCW     @#19.06@,G                                        6  14249
2737                 BNQ     AA                    TEST FOR INQUIRY REQUEST    7  14251  J 01160 Q
2738                 BBE     LQ,TAD1,1                                        12  14258  W 14189 01001 1
2739       SUB-RTN 19.07     CHECK MLZWS FOR MOVE ZONE, WM, NO NUMERIC
2740     LR          MLCS    NWM31,WORK6                                      12  14270  D 32972 33581 3
2741                 CW      WORK6                                             6  14282  ¤ 33581
2742                 MLZWS   DASH,WORK6                                       12  14288  D 33018 33581 6
2743                 C       DELTA,WORK6                                      11  14300  C 33017 33581
2744                 BE      LS-19                                             7  14311  J 14332 S
2745                 B       TYPCK                                             7  14318  J 01074
2746                 DCW     @#19.07@,G                                        6  14330
2747                 BNQ     AA                    TEST FOR INQUIRY REQUEST    7  14332  J 01160 Q
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PGLIN     LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
2748                 BBE    LR,TAD1,1                                        12  14339  W 14270 01001 1
2749       SUB-RTN 19.08    CHECK MLCWS FOR MOVE CHARACTER AND WORD MARK
2750      LS         MLCS   NWM00,WORK6                                      12  14351  D 32942 33581 3
2751                 CW     WORK6                                             6  14363  ¤ 33581
2752                 MLCWS  ALLBIT,WORK6                                      12  14369  D 33011 33581 7
2753                 C      ALLBIT,WORK6                                     11  14381  C 33011 33581
2754                 BE     LT-19                                             7  14392  J 14413 S
2755                 B      TYPCK                                             7  14399  J 01074
2756                 DCW    @#19.08@,G                                        6  14411
2757                 BNQ    AA                  TEST FOR INQUIRY REQUEST      7  14413  J 01160 Q
2758                 BBE    LS,TAD1,1                                        12  14420  W 14351 01001 1
2759       SUB-RTN 19.09    CHECK SCNR FOR MOVE NO DATA, PROPER ADDR REG STEP
2760      LT         MLCWS  NWM63,100                                        12  14432  D 33004 00100 7
2761                 MLCWS  BLANK,101                                        12  14444  D 33006 00101 7
2762                 SCNR   100,101                                          12  14456  D 00100 00101 8
2763                 SAR    HOLDA2                                            7  14468  G 33949 A
2764                 SBR    HOLDB2                                            7  14475  G 33954 B
2765                 C      HOLDA2,@00101@      CK AAR FOR PROPER STEPPING    11  14482  C 33949 01386
2766                 BU     LU                  SHOULD NOT BRANCH             7  14493  J 14598 /
2767                 C      HOLDB2,@00102@      CK BAR FOR PROPER STEPPING     11  14500  C 33954 01391
2768                 BU     LU                  SHOULD NOT BRANCH             7  14511  J 14598 /
2769                 C      BLANK,101           TEST LOC 00101 FOR WM-BLANK   11  14518  C 33006 00101
2770                 BU     LU                  SHOULD NOT BRANCH             7  14529  J 14598 /
2771                 SCNR   101,100                                          12  14536  D 00101 00100 8
2772                 SAR    HOLDA2                                            7  14548  G 33949 A
2773                 SBR    HOLDB2                                            7  14555  G 33954 B
2774                 C      HOLDA2,@00102@      CK AAR FOR PROPER STEPPING    11  14562  C 33949 01391
2775                 BU     LU                  SHOULD NOT BRANCH             7  14573  J 14598 /
2776                 C      HOLDB2,@00101@      CK BAR FOR PROPER STEPPING     11  14580  C 33954 01386
2777                 BE     LV-19               SHOULD BRANCH & EXIT ROUTINE HERE  7  14591  J 14612 S
2778      LU         B      TYPCK            ** ALL #19.09 ERRORS COME HERE    7  14598  J 01074
2779                 DCW    @#19.09@,G                                        6  14610
2780                 BNQ    AA                  TEST FOR INQUIRY REQUEST      7  14612  J 01160 Q
2781                 BBE    LT,TAD1,1                                        12  14619  W 14432 01001 1
2782       SUB-RTN 19.10    CHECK MRN SIMILAR TO MLNS
2783      LV         MLCWS  NWM50,WORK6                                      12  14631  D 32991 33581 7
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PGLIN  LABEL      OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
2784               MRN   COLON,WORK6                     12  14643  D 33028 33581 9
2785               BW    *&13,WORK6       SHOULD NOT BRANCH 12  14655  V 14679 33581 1
2786               BCE   LW-19,WORK6,8      SHOULD BRANCH  12  14667  B 14693 33581 L8
2787               B     TYPCK                            7   14679  J 01074
2788               DCW   @#19.10@,G                       6   14691
2789               BNQ   AA               TEST FOR INQUIRY REQUEST 7  14693  J 01160 Q
2790               BBE   LV,TAD1,1                        12  14700  W 14631 01001 1
2791    SUB-RTN 19.11    CHECK MRZ
2792  LW           MLCWS NWM47,WORK6                      12  14712  D 32988 33581 7
2793               MRZ   SUBLNK,WORK6                     12  14724  D 33025 33581 0
2794               BW    *&13,WORK6       SHOULD NOT BRANCH 12  14736  V 14760 33581 1
2795               BCE   LX-19,WORK6,M      SHOULD BRANCH  12  14748  B 14774 33581 SM
2796               B     TYPCK                            7   14760  J 01074
2797               DCW   @#19.11@,G                       6   14772
2798               BNQ   AA               TEST FOR INQUIRY REQUEST 7  14774  J 01160 Q
2799               BBE   LW,TAD1,1                        12  14781  W 14712 01001 1
2800    SUB-RTN 19.12    CHECK MRC
2801  LX           MLCWS NWM12,WORK6                      12  14793  D 32954 33581 7
2802               MRC   SEE,WORK6                        12  14805  D 33034 33581 #
2803               BW    *&13,WORK6       SHOULD NOT BRANCH 12  14817  V 14841 33581 1
2804               BCE   LY-19,WORK6,C      SHOULD BRANCH  12  14829  B 14855 33581 C
2805               B     TYPCK                            7   14841  J 01074
2806               DCW   @#19.12@,G                       6   14853
2807               BNQ   AA               TEST FOR INQUIRY REQUEST 7  14855  J 01160 Q
2808               BBE   LX,TAD1,1                        12  14862  W 14793 01001 1
2809    SUB-RTN 19.13    CHECK MRW
2810  LY           MLCWS ALLBIT,WORK6                     12  14874  D 33011 33581 7
2811               MRW   NWM00,WORK6                      12  14886  D 32942 33581 @
2812               BW    *&13,WORK6       SHOULD NOT BRANCH 12  14898  V 14922 33581 1
2813               BCE   LZ-19,WORK6,M      SHOULD BRANCH  12  14910  B 14936 33581 GM
2814               B     TYPCK                            7   14922  J 01074
2815               DCW   @#19.13@,G                       6   14934
2816               BNQ   AA               TEST FOR INQUIRY REQUEST 7  14936  J 01160 Q
2817               BBE   LY,TAD1,1                        12  14943  W 14874 01001 1
2818    SUB-RTN 19.14    CHECK MRNW
2819  LZ           MLCWS QUESTN,WORK6                     12  14955  D 33031 33581 7
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
2820		MRNW	NWM05,WORK6		12	14967	D 32947 33581 :
2821		BW	*&13,WORK6	SHOULD NOT BRANCH	12	14979	V 15003 33581 1
2822		BCE	MA-19,WORK6,E	SHOULD BRANCH	12	14991	B 15017 33581 E
2823		B	TYPCK		7	15003	J 01074
2824		DCW	@#19.14@,G		6	15015	
2825		BNQ	AA	TEST FOR INQUIRY REQUEST	7	15017	J 01160 Q
2826		BBE	LZ,TAD1,1		12	15024	W 14955 01001 1
2827	SUB-RTN	19.15	CHECK MRZW				
2828	MA	MLCWS	TPMARK,WORK6		12	15036	D 33030 33581 7 G
2829		MRZW	NWM48,WORK6		12	15048	D 32989 33581 T
2830		BW	*&13,WORK6	SHOULD NOT BRANCH	12	15060	V 15084 33581 1 G
2831		BCE	MB-19,WORK6,G M	SHOULD BRANCH	12	15072	B 15098 33581 M
2832		B	TYPCK		7	15084	J 01074
2833		DCW	@#19.15@,G		6	15096	
2834		BNQ	AA	TEST FOR INQUIRY REQUEST	7	15098	J 01160 Q
2835		BBE	MA,TAD1,1		12	15105	W 15036 01001 1
2836	SUB-RTN	19.16	CHECK MRCW				
2837	MB	MLCWS	EMM,WORK6		12	15117	D 33045 33581 7 T
2838		MRCW	NWM27,WORK6		12	15129	D 32968 33581 M
2839		BW	*&13,WORK6	SHOULD NOT BRANCH	12	15141	V 15165 33581 1
2840		BCE	MC-19,WORK6,,	SHOULD BRANCH	12	15153	B 15179 33581 ,
2841		B	TYPCK		7	15165	J 01074
2842		DCW	@#19.16@,G		6	15177	
2843		BNQ	AA	TEST FOR INQUIRY REQUEST	7	15179	J 01160 Q
2844		BBE	MB,TAD1,1		12	15186	W 15117 01001 1
2845	SUB-RTN	19.17	CHECK SCNLA FOR MOVE NO DATA, PROPER ADDR REG STP				
2846	MC	MLCWS	LBRAKT,102		12	15198	D 33009 00102 7
2847		MLCWS	NWM02,103		12	15210	D 32944 00103 7
2848		MLCWS	LBRAKT,104		12	15222	D 33009 00104 7 S
2849		SCNLA	103,104		12	15234	D 00103 00104 B
2850		SAR	HOLDA2		7	15246	G 33949 A
2851		SBR	HOLDB2		7	15253	G 33954 B
2852		C	HOLDA2,@00101@	CHECK AAR FOR PROPER STEPPING	11	15260	C 33949 01386
2853		BU	MD	SHOULD NOT BRANCH	7	15271	J 15314 /
2854		C	HOLDB2,@00102@	CHECK BAR FOR PROPER STEPPING	11	15278	C 33954 01391
2855		BU	MD	SHOULD NOT BRANCH	7	15289	J 15314 /

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PGLIN     LABEL       OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
2856                  C      NWM61,104          TEST THAT NO DATA WERE MOVED  11  15296  C 33002 00104
2857                  BE     ME-19              SHOULD BRANCH & EXIT ROUTINE HERE  7  15307  J 15328 S
2858      MD          B      TYPCK           ** ALL #19.17 ERRORS COME HERE  7  15314  J 01074
2859                  DCW    @#19.17@,G                                     6  15326
2860                  BNQ    AA                 TEST FOR INQUIRY REQUEST    7  15328  J 01160 Q
2861                  BBE    MC,TAD1,1                                      12  15335  W 15198 01001 1
2862        SUB-RTN 19.18    CHECK MLNA
2863      ME          MLCWS  DELTA,102                                      12  15347  D 33017 00102 7
2864                  MLCWS  NWM16,103                                      12  15359  D 32958 00103 7
2865                  MLCWS  DELTA,104                                      12  15371  D 33017 00104 7
2866                  MLNA   103,104                                        12  15383  D 00103 00104 /
2867                  C      NWM32,104                                      11  15395  C 32973 00104
2868                  BE     MF-19              SHOULD BRANCH & EXIT ROUTINE HERE  7  15406  J 15427 S
2869                  B      TYPCK                                          7  15413  J 01074
2870                  DCW    @#19.18@,G                                     6  15425
2871                  BNQ    AA                 TEST FOR INQUIRY REQUEST    7  15427  J 01160 Q
2872                  BBE    ME,TAD1,1                                      12  15434  W 15347 01001 1
2873        SUB-RTN 19.19    CHECK MLZA
2874      MF          MLCWS  PERCNT,102                                     12  15446  D 33021 00102 7
2875                  MLCWS  NWM35,103                                      12  15458  D 32976 00103 7
2876                  MLCWS  PERCNT,104                                     12  15470  D 33021 00104 7
2877                  MLZA   103,104                                        12  15482  D 00103 00104 S
2878                  C      NWM44,104                                      11  15494  C 32985 00104
2879                  BE     MG-19              SHOULD BRANCH & EXIT ROUTINE HERE  7  15505  J 15526 S
2880                  B      TYPCK                                          7  15512  J 01074
2881                  DCW    @#19.19@,G                                     6  15524
2882                  BNQ    AA                 TEST FOR INQUIRY REQUEST    7  15526  J 01160 Q
2883                  BBE    MF,TAD1,1                                      12  15533  W 15446 01001 1
2884        SUB-RTN 19.20    CHECK MLCA
2885      MG          MLCWS  NWM63,WORK6                                    12  15545  D 33004 33581 7
2886                  MLCA   BLANK,WORK6                                    12  15557  D 33006 33581 7
2887                  BW     *&13,WORK6         SHOULD NOT BRANCH          12  15569  V 15593 33581 1
2888                  BCE    MH-19,WORK6,       SHOULD BRANCH              12  15581  B 15607 33581
2889                  B      TYPCK                                          7  15593  J 01074
2890                  DCW    @#19.20@,G                                     6  15605
2891                  BNQ    AA                 TEST FOR INQUIRY REQUEST    7  15607  J 01160 Q
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
2892		BBE	MG,TAD1,1		12	15614	W 15545 01001 1
2893	SUB-RTN	19.21	CHECK MLWA				
2894	MH	MLCWS	NWM53,WORK6		12	15626	D 32994 33581 7
2895		MLWA	NAUGHT,WORK6		12	15638	D 33060 33581 U
2896		C	NWM53,WORK6		11	15650	C 32994 33581
2897		BE	MI-19	SHOULD BRANCH	7	15661	J 15682 S
2898		B	TYPCK		7	15668	J 01074
2899		DCW	@#19.21@,G		6	15680	
2900		BNQ	AA	TEST FOR INQUIRY REQUEST	7	15682	J 01160 Q
2901		BBE	MH,TAD1,1		12	15689	W 15626 01001 1
2902	SUB-RTN	19.22	CHECK MLNWA				
2903	MI	MLCWS	NWM47,WORK6		12	15701	D 32988 33581 7
2904		MLNWA	SUBLNK,WORK6		12	15713	D 33025 33581 V
2905		C	NWM32,WORK6		11	15725	C 32973 33581
2906		BE	MJ-19	SHOULD BRANCH	7	15736	J 15757 S
2907		B	TYPCK		7	15743	J 01074
2908		DCW	@#19.22@,G		6	15755	
2909		BNQ	AA	TEST FOR INQUIRY REQUEST	7	15757	J 01160 Q
2910		BBE	MI,TAD1,1		12	15764	W 15701 01001 1
2911	SUB-RTN	19.23	CHECK MLZWA				
2912	MJ	MLCWS	NWM03,WORK6		12	15776	D 32945 33581 7
2913		MLZWA	LOZNGE,WORK6		12	15788	D 33008 33581 W
2914		C	NWM51,WORK6		11	15800	C 32992 33581
2915		BE	MK-19	SHOULD BRANCH	7	15811	J 15832 S
2916		B	TYPCK		7	15818	J 01074
2917		DCW	@#19.23@,G		6	15830	
2918		BNQ	AA	TEST FOR INQUIRY REQUEST	7	15832	J 01160 Q
2919		BBE	MJ,TAD1,1		12	15839	W 15776 01001 1
2920	SUB-RTN	19.24	CHECK MLCWA				
2921	MK	MLCWS	ALLBIT,102		12	15851	D 33011 00102 7
2922		MLCWS	NWM00,103		12	15863	D 32942 00103 7
2923		MLCWS	ALLBIT,104		12	15875	D 33011 00104 7
2924		MLCWA	103,104		12	15887	D 00103 00104 X
2925		BW	*&13,104	SHOULD NOT BRANCH	12	15899	V 15923 00104 1
2926		BCE	ML-19,104,	SHOULD BRANCH	12	15911	B 15936 00104
2927		B	TYPCK		7	15923	J 01074

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PGLIN     LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
2928                 DCW    @#19.24@                                         6   15935
2929                 BNQ    AA                  TEST FOR INQUIRY REQUEST     7   15936  J 01160 Q
2930                 BBE    MK,TAD1,1                                        12  15943  W 15851 01001 1
2931       SUB-RTN 19.25  CHECK SCNRR FOR MOVE NO DATA, PROPER ADDR REG STP
2932  ML           MLCWA  NWM26,101                                          12  15955  D 33005 00101 X
2933                 MLCWS  GREATR,37                                         12  15967  D 33029 00037 7
2934                 MLCWS  NWM49,36                                          12  15979  D 32990 00036 7
2935                 SCNRR  37,36                                             12  15991  D 00037 00036 Y
2936                 SAR    HOLDA2                                            7   16003  G 33949 A
2937                 SBR    HOLDB2                                            7   16010  G 33954 B
2938                 C      HOLDA2,@00102@      CHECK AAR FOR PROPER STEPPING 11  16017  C 33949 01391
2939                 BU     MM                  SHOULD NOT BRANCH            7   16028  J 16077 /
2940                 C      HOLDB2,@00101@      CHECK BAR FOR PROPER STEPPING 11  16035  C 33954 01386
2941                 BU     MM                  SHOULD NOT BRANCH            7   16046  J 16077 /
2942                 SW     38                                               6   16053  , 00038
2943                 C      NWM26,101           TEST THAT NO DATA WERE MOVED  11  16059  C 33005 00101
2944                 BE     MN-19               SHOULD BRANCH & EXIT ROUTINE HERE 7  16070  J 16091 S
2945  MM           B      TYPCK                                            7   16077  J 01074
2946                 DCW    @#19.25@,G                                       6   16089
2947                 BNQ    AA                  TEST FOR INQUIRY REQUEST     7   16091  J 01160 Q
2948                 BBE    ML,TAD1,1                                        12  16098  W 15955 01001 1
2949       SUB-RTN 19.26  CHECK MRNR
2950  MN           CW     100                                              6   16110  ¤ 00100
2951                 MRCW   K01,100                                          12  16116  D 33070 00100 M
2952                 MRNR   K02,100                                          12  16128  D 33072 00100 Z
2953                 BW     MP,100              SHOULD NOT BRANCH            12  16140  V 16202 00100 1
2954                 BW     *&8,101             SHOULD BRANCH                12  16152  V 16171 00101 1
2955                 B      MP                                               7   16164  J 16202
2956                 BCE    *&8,100,            SHOULD BRANCH                12  16171  B 16190 00100
2957                 B      MP                                               7   16183  J 16202
2958                 BCE    MQ-19,101,*                                      12  16190  B 16216 00101 *
2959  MP           B      TYPCK                                            7   16202  J 01074
2960                 DCW    @#19.26@,G                                       6   16214
2961                 BNQ    AA                  TEST FOR INQUIRY REQUEST     7   16216  J 01160 Q
2962                 BBE    MN,TAD1,1                                        12  16223  W 16110 01001 1
2963       SUB-RTN 19.27  CHECK MRZR
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PGLIN  LABEL      OPCOD  OPERAND                                                CT  ADDRS  INSTRUCTION
2964   MQ         CW     100                                                     6  16235  ¤ 00100
2965              MRCW   K03,100                                                12  16241  D 33074 00100 M
2966              MRZR   K04,100                                                12  16253  D 33076 00100 ¢
2967              BW     MR,100          SHOULD NOT BRANCH                      12  16265  V 16327 00100 1
2968              BW     *&8,101         SHOULD BRANCH                          12  16277  V 16296 00101 1
2969              B      MR                                                      7  16289  J 16327
2970              BCE    *&8,100,-       SHOULD BRANCH                          12  16296  B 16315 00100 -
2971              B      MR                                                      7  16308  J 16327
2972              BCE    MS-19,101,V     SHOULD BRANCH & EXIT ROUTINE HERE      12  16315  B 16341 00101 V
2973   MR         B      TYPCK                                                   7  16327  J 01074
2974              DCW    @#19.27@,G                                              6  16339
2975              BNQ    AA              TEST FOR INQUIRY REQUEST               7  16341  J 01160 Q
2976              BBE    MQ,TAD1,1                                              12  16348  W 16235 01001 1
2977     SUB-RTN  19.28  CHECK MRCR
2978   MS         MLCWA  K05,101                                                 12  16360  D 33079 00101 X
2979              MRCR   K06,100                                                 12  16372  D 33080 00100 ,
2980              BW     *&8,100         SHOULD BRANCH                          12  16384  V 16403 00100 1
2981              B      MT                                                      7  16396  J 16421
2982              C      101,K14&1                                              11  16403  C 00101 33097
2983              BE     MU-19           SHOULD BRANCH & EXIT ROUTINE HERE      7  16414  J 16435 S
2984   MT         B      TYPCK                                                   7  16421  J 01074
2985              DCW    @#19.28@,G                                              6  16433
2986              BNQ    AA              TEST FOR INQUIRY REQUEST               7  16435  J 01160 Q
2987              BBE    MS,TAD1,1                                              12  16442  W 16360 01001 1
2988     SUB-RTN  19.29  CHECK MRWR
2989   MU         MLCWA  K07,101                                                 12  16454  D 33083 00101 X
2990              MRWR   K08,100                                                 12  16466  D 33084 00100 %
2991              BW     MV,100          SHOULD NOT BRANCH                      12  16478  V 16540 00100 1
2992              BW     *&8,101         SHOULD BRANCH                          12  16490  V 16509 00101 1
2993              B      MV                                                      7  16502  J 16540
2994              BCE    *&8,100,I       SHOULD BRANCH                          12  16509  B 16528 00100 I
2995              B      MV                                                      7  16521  J 16540
2996              BCE    MW-19,101,N     SHOULD BRANCH & EXIT ROUTINE HERE      12  16528  B 16554 00101 N
2997   MV         B      TYPCK                                                   7  16540  J 01074
2998              DCW    @#19.29@,G                                              6  16552
2999              BNQ    AA              TEST FOR INQUIRY REQUEST               7  16554  J 01160 Q
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PGLIN  LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
3000               BBE   MU,TAD1,1                                       12  16561  W 16454 01001 1
3001        SUB-RTN 19.30 CHECK MRNWR
3002      MW       MLCWA  K09,101                                        12  16573  D 33087 00101 X
3003               MRNWR  K10,100                                        12  16585  D 33088 00100 WS
3004               BW     MX,100          SHOULD NOT BRANCH              12  16597  V 16659 00100 1
3005               BW     *&8,101         SHOULD BRANCH                  12  16609  V 16628 00101 1
3006               B      MX                                             7  16621  J 16659
3007               BCE    *&8,100,S       SHOULD BRANCH                  12  16628  B 16647 00100 SB
3008               B      MX                                             7  16640  J 16659
3009               BCE    MY-19,101,:     SHOULD BRANCH & EXIT ROUTINE HERE 12  16647  B 16673 00101 :
3010      MX       B      TYPCK                                          7  16659  J 01074
3011               DCW    @#19.30@,G                                     6  16671
3012               BNQ    AA              TEST FOR INQUIRY REQUEST       7  16673  J 01160 Q
3013               BBE    MW,TAD1,1                                      12  16680  W 16573 01001 1
3014        SUB-RTN 19.31 CHECK MRZWR
3015      MY       MLCWA  K11,101                                        12  16692  D 33091 00101 X
3016               MRZWR  K12,100                                        12  16704  D 33092 00100 BS
3017               BW     MZ,100          SHOULD NOT BRANCH              12  16716  V 16778 00100 1
3018               BW     *&8,101         SHOULD BRANCH                  12  16728  V 16747 00101 1
3019               B      MZ                                             7  16740  J 16778
3020               BCE    *&8,100,X       SHOULD BRANCH                  12  16747  B 16766 00100 X
3021               B      MZ                                             7  16759  J 16778
3022               BCE    NA-19,101,V     SHOULD BRANCH & EXIT ROUTINE HERE 12  16766  B 16792 00101 V
3023      MZ       B      TYPCK                                          7  16778  J 01074
3024               DCW    @#19.31@,G                                     6  16790
3025               BNQ    AA              TEST FOR INQUIRY REQUEST       7  16792  J 01160 Q
3026               BBE    MY,TAD1,1                                      12  16799  W 16692 01001 1
3027        SUB-RTN 19.32 CHECK MRCWR
3028      NA       CW     10C                                            6  16811  ¤ 00100
3029               MRCW   K13,100                                        12  16817  D 33094 00100 TMS
3030               MRCWR  K14,100                                        12  16829  D 33096 00100 M
3031               BW     *&8,100         SHOULD BRANCH                  12  16841  V 16860 00100 1
3032               B      NB                                             7  16853  J 16878
3033               C      101,K1461                                      11  16860  C 00101 33097
3034               BE     NC-19           SHOULD BRANCH & EXIT ROUTINE HERE 7  16871  J 16892 S
3035      NB       B      TYPCK                                          7  16878  J 01074
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PGLIN     LABEL      OPCOD   OPERAND                                          CT  ADDRS  INSTRUCTION
3036                 DCW     @#19.32@,G                                        6  16890
3037                 BNQ     AA                  TEST FOR INQUIRY REQUEST      7  16892  J 01160 Q
3038                 BBE     NA,TAD1,1                                        12  16899  W 16811 01001 1
3039       SUB-RTN 19.33     CHECK SCNLB FOR MOVE NO DATA, PROPER ADDR REG STP
3040     NC          MLCWS   TPMARK,102                                       12  16911  D 33030 00102 7
3041                 MLCWS   NWM48,103                                        12  16923  D 32989 00103 7
3042                 MLCWS   AMPSND,104                                       12  16935  D 33012 00104 7
3043                 SCNLB   104,103                                          12  16947  D 00104 00103 -
3044                 SAR     HOLDA2                                            7  16959  G 33949 A
3045                 SBR     HOLDB2                                            7  16966  G 33954 B
3046                 C       HOLDA2,@00102@                                   11  16973  C 33949 01391
3047                 BU      ND                  SHOULD NOT BRANCH             7  16984  J 17027 /
3048                 C       HOLDB2,@00101@                                   11  16991  C 33954 01386
3049                 BU      ND                  SHOULD NOT BRANCH             7  17002  J 17027 /
3050                 C       NWM15,102           TEST THAT NO DATA WERE MOVED 11  17009  C 32957 00102
3051                 BE      NE-19               SHOULD BRANCH & EXIT ROUTINE HERE 7 17020 J 17041 S
3052     ND          B       TYPCK                                             7  17027  J 01074
3053                 DCW     @#19.33@,G                                        6  17039
3054                 BNQ     AA                  TEST FOR INQUIRY REQUEST      7  17041  J 01160 Q
3055                 BBE     NC,TAD1,1                                        12  17048  W 16911 01001 1
3056       SUB-RTN 19.34     CHECK MLNB
3057     NE          MLCWS   BKSLSH,WORK6                                      12  17060  D 33023 33581 7
3058                 MLNB    NWM33,WORK6                                      12  17072  D 32974 33581 J
3059                 C       NWM17,WORK6                                      11  17084  C 32959 33581
3060                 BE      NF-19               SHOULD BRANCH                 7  17095  J 17116 S
3061                 B       TYPCK                                             7  17102  J 01074
3062                 DCW     @#19.34@,G                                        6  17114
3063                 BNQ     AA                  TEST FOR INQUIRY REQUEST      7  17116  J 01160 Q
3064                 BBE     NE,TAD1,1                                        12  17123  W 17060 01001 1
3065       SUB-RTN 19.35     CHECK MLZB
3066     NF          SW      100                                               6  17135  , 00100
3067                 MLCWS   NWM63,101                                        12  17141  D 33004 00101 7
3068                 MLZB    BLANK,101                                        12  17153  D 33006 00101 K
3069                 BW      *&13,101            SHOULD NOT BRANCH            12  17165  V 17189 00101 J
3070                 BCE     NG-19,101,M         SHOULD BRANCH                12  17177  B 17203 00101 M
3071                 B       TYPCK                                             7  17189  J 01074
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
3072		DCW	@#19.35@,G		6	17201	
3073		BNQ	AA	TEST FOR INQUIRY REQUEST	7	17203	J 01160 Q
3074		BBE	NF,TAD1,1		12	17210	W 17135 01001 1
3075	SUB-RTN	19.36	CHECK MLCB				
3076	NG	SW	100		6	17222	, 00100
3077		MLCWS	NWM52,101		12	17228	D 32993 00101 7
3078		MLCB	POUND,101		12	17240	D 33026 00101 L
3079		BW	*&13,101	SHOULD NOT BRANCH	12	17252	V 17276 00101 1
3080		BCE	NH-19,101,#	SHOULD BRANCH	12	17264	B 17290 00101 #
3081		B	TYPCK		7	17276	J 01074
3082		DCW	@#19.36@,G		6	17288	
3083		BNQ	AA	TEST FOR INQUIRY REQUEST	7	17290	J 01160 Q
3084		BBE	NG,TAD1,1		12	17297	W 17222 01001 1
3085	SUB-RTN	19.37	CHECK MLWB				
3086	NH	SW	100		6	17309	, 00100
3087		MLCWS	NWM15,101		12	17315	D 32957 00101 7
3088		MLWB	AMPSND,101		12	17327	D 33012 00101 M
3089		C	NWM15,101		11	17339	C 32957 00101
3090		BE	NI-19	SHOULD BRANCH	7	17350	J 17371 S
3091		B	TYPCK		7	17357	J 01074
3092		DCW	@#19.37@,G		6	17369	
3093		BNQ	AA	TEST FOR INQUIRY REQUEST	7	17371	J 01160 Q
3094		BBE	NH,TAD1,1		12	17378	W 17309 01001 1
3095	SUB-RTN	19.38	CHECK MLNWB				
3096	NI	SW	100		6	17390	, 00100
3097		MLCWS	NWM06,101		12	17396	D 32948 00101 7
3098		MLNWB	EYE,101		12	17408	D 33040 00101 N
3099		C	NWM09,101		11	17420	C 32951 00101
3100		BE	NJ-19	SHOULD BRANCH	7	17431	J 17452 S
3101		B	TYPCK		7	17438	J 01074
3102		DCW	@#19.38@,G		6	17450	
3103		BNQ	AA	TEST FOR INQUIRY REQUEST	7	17452	J 01160 Q
3104		BBE	NI,TAD1,1		12	17459	W 17390 01001 1
3105	SUB-RTN	19.39	CHECK MLZWB				
3106	NJ	MLCWS	ALLBIT,WORK6		12	17471	D 33011 33581 7
3107		MLZWB	NWM00,WORK6		12	17483	D 32942 33581 0

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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
3108                 BW     *&13,WORK6          SHOULD NOT BRANCH    12  17495  V 17519 33581 1
3109                 BCE    NK-19,WORK6,M       SHOULD BRANCH        12  17507  B 17533 33581 M
3110                 B      TYPCK                                     7  17519  J 01074
3111                 DCW    @#19.39@,G                                6  17531
3112                 BNQ    AA                  TEST FOR INQUIRY REQUEST  7  17533  J 01160 Q
3113                 BBE    NJ,TAD1,1                                12  17540  W 17471 01001 1
3114       SUB-RTN 19.40    CHECK MLCWB
3115     NK          MLCWS  LOZNGE,WORK6                             12  17552  D 33008 33581 7
3116                 MLCWB  NWM03,WORK6                              12  17564  D 32945 33581 P
3117                 BW     *&13,WORK6          SHOULD NOT BRANCH    12  17576  V 17600 33581 1
3118                 BCE    NL-19,WORK6,3       SHOULD BRANCH        12  17588  B 17614 33581 3
3119                 B      TYPCK                                     7  17600  J 01074
3120                 DCW    @#19.40@,G                                6  17612
3121                 BNQ    AA                  TEST FOR INQUIRY REQUEST  7  17614  J 01160 Q
3122                 BBE    NK,TAD1,1                                12  17621  W 17552 01001 1
3123       SUB-RTN 19.41    CHECK SCNRG FOR MOVE NO DATA, PROPER ADDR REG STP
3124     NL          CS     164                 INSURE 00100-00164 BLANK  6  17633  / 00164
3125                 MLCWS  ALLBIT,101          PUT TERMINAL CHARACTER IN 00101  12  17639  D 33011 00101 7
3126                 MLWA   164,100            INSURE NO WMS 00038-00100  12  17651  D 00164 00100 U
3127                 MLCWB  NINE,100            MOVE 64 CHARACTERS TO 00037-00100  12  17663  D 33069 00100 P
3128                 CW     42                  REMOVE WM FROM GROUP MARK  6  17675  ¤ 00042
3129                 SCNRG  37,36               TRY THE SCAN             12  17681  D 00037 00036 Q
3130                 SAR    HOLDA2                                    7  17693  G 33949 A
3131                 SBR    HOLDB2                                    7  17700  G 33954 B
3132                 C      HOLDA2,@00102@      CHECK AAR FOR PROPER SETTING  11  17707  C 33949 01391
3133                 BU     NM                  SHOULD NOT BRANCH     7  17718  J 17797 /
3134                 C      HOLDB2,@00101@      CHECK BAR FOR PROPER SETTING  11  17725  C 33954 01386
3135                 BU     NM                  SHOULD NOT BRANCH     7  17736  J 17797 /
3136                 BW     NM,42               SHOULD NOT BRANCH    12  17743  V 17797 00042 1
3137                 MLWA   164,100            REMOVE ALL WMS FROM 00038-00100  12  17755  D 00164 00100 U
3138                 MLCB   NINE,164           MOVE 64 CHARACTERS TO 00101-00164  12  17767  D 33069 00164 L
3139                 C      100,164             CHECK THAT SCAN MOVED NO DATA  11  17779  C 00100 00164
3140                 BE     NN-19               SHOULD BRANCH & EXIT ROUTINE HERE  7  17790  J 17811 S
3141     NM          B      TYPCK                                     7  17797  J 01074
3142                 DCW    @#19.41@,G                                6  17809
3143                 BNQ    AA                  TEST FOR INQUIRY REQUEST  7  17811  J 01160 Q
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PGLIN     LABEL       OPCOD   OPERAND                                  CT  ADDRS  INSTRUCTION
3144                  BBE     NL,TAD1,1                                12  17818  W 17830 01001 1
3145        SUB-RTN   19.42   CHECK MRNG
3146      NN          MLCWS   NWM19,101                                12  17830  D 32961 00101 7
3147                  MLCWS   SPLAT,102                                12  17842  D 33014 00102 7
3148                  MLCWS   ALLBIT,103                               12  17854  D 33011 00103 7
3149                  MRNG    102,101                                  12  17866  D 00102 00101 8
3150                  BW      *&13,101        SHOULD NOT BRANCH        12  17878  V 17902 00101 1
3151                  BCE     NP-19,101,%     SHOULD BRANCH            12  17890  B 17916 00101 %
3152                  B       TYPCK                                     7  17902  J 01074
3153                  DCW     @#19.42@,G                                6  17914
3154                  BNQ     AA              TEST FOR INQUIRY REQUEST  7  17916  J 01160 Q
3155                  BBE     NN,TAD1,1                                12  17923  W 17830 01001 1
3156        SUB-RTN   19.43   CHECK MRZG
3157      NP          MLCWS   ALLBIT,101                               12  17935  D 33011 00101 7
3158                  MLCWS   NWM00,102                                12  17947  D 32942 00102 7
3159                  MLCWS   ALLBIT,103                               12  17959  D 33011 00103 7
3160                  MRZG    102,101                                  12  17971  D 00102 00101 !
3161                  C       NWM15,101                                11  17983  C 32957 00101
3162                  BE      NQ-19           SHOULD BRANCH             7  17994  J 18015 S
3163                  B       TYPCK                                     7  18001  J 01074
3164                  DCW     @#19.43@,G                                6  18013
3165                  BNQ     AA              TEST FOR INQUIRY REQUEST  7  18015  J 01160 Q
3166                  BBE     NP,TAD1,1                                12  18022  W 17935 01001 1
3167        SUB-RTN   19.44   CHECK MRCG
3168      NQ          MLCWS   AITCH,101                                12  18034  D 33039 00101 7
3169                  MLCWS   NWM07,102                                12  18046  D 32949 00102 7
3170                  MLCWS   ALLBIT,103                               12  18058  D 33011 00103 7
3171                  MRCG    102,101                                  12  18070  D 00102 00101 $
3172                  C       NWM07,101                                11  18082  C 32949 00101
3173                  BE      NR-19           SHOULD BRANCH             7  18093  J 18114 S
3174                  B       TYPCK                                     7  18100  J 01074
3175                  DCW     @#19.44@,G                                6  18112
3176                  BNQ     AA              TEST FOR INQUIRY REQUEST  7  18114  J 01160 Q
3177                  BBE     NQ,TAD1,1                                12  18121  W 18034 01001 1
3178        SUB-RTN   19.45   CHECK MRWG
3179      NR          MLCWS   DELTA,101                                12  18133  D 33017 00101 7
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
3180		MLCWS	NWM16,102		12	18145	D 32958 00102 7
3181		MLCWS	ALLBIT,103		12	18157	D 33011 00103 7
3182		MRWG	102,101		12	18169	D 00102 00101 *
3183		BW	*&13,101	SHOULD NOT BRANCH	12	18181	V 18205 00101 1
3184		BCE	NS-19,101,L	SHOULD BRANCH	12	18193	B 18219 00101 L
3185		B	TYPCK		7	18205	J 01074
3186		DCW	@#19.45@,G		6	18217	
3187		BNQ	AA	TEST FOR INQUIRY REQUEST	7	18219	J 01160 Q
3188		BBE	NR,TAD1,1		12	18226	W 18133 01001 1
3189	SUB-RTN	19.46	CHECK MRNWG				
3190	NS	MLCWS	EXCLAM,101		12	18238	D 33041 00101 7
3191		MLCWS	NWM21,102		12	18250	D 32963 00102 7
3192		MLCWS	ALLBIT,103		12	18262	D 33011 00103 7
3193		MRNWG	102,101		12	18274	D 00102 00101 R
3194		BW	*&13,101	SHOULD NOT BRANCH	12	18286	V 18310 00101 1
3195		BCE	NT-19,101,N		12	18298	B 18324 00101 N
3196		B	TYPCK		7	18310	J 01074
3197		DCW	@#19.46@,G		6	18322	
3198		BNQ	AA	TEST FOR INQUIRY REQUEST	7	18324	J 01160 Q
3199		BBE	NS,TAD1,1		12	18331	W 18238 01001 1
3200	SUB-RTN	19.47	CHECK MRZWG				
3201	NT	MLCWS	NWM63,101		12	18343	D 33004 00101 7
3202		MLCWS	BLANK,102		12	18355	D 33006 00102 7
3203		MLCWS	ALLBIT,103		12	18367	D 33011 00103 7
3204		MRZWG	102,101		12	18379	D 00102 00101 ;
3205		C	NWM15,101		11	18391	C 32957 00101
3206		BE	NU-19	SHOULD BRANCH	7	18402	J 18423 S
3207		B	TYPCK		7	18409	J 01074
3208		DCW	@#19.47@,G		6	18421	
3209		BNQ	AA	TEST FOR INQUIRY REQUEST	7	18423	J 01160 Q
3210		BBE	NT,TAD1,1		12	18430	W 18343 01001 1
3211	SUB-RTN	19.48	CHECK MRCWG				
3212	NU	MLCWS	NWM48,101		12	18442	D 32989 00101 7
3213		MLCWS	TPMARK,102		12	18454	D 33030 00102 7
3214		MLCWS	ALLBIT,103		12	18466	D 33011 00103 7
3215		MRCWG	102,101		12	18478	D 00102 00101 L

PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
3216		C	NWM15,101		11	18490	C 32957 00101
3217		BE	NV-19	SHOULD BRANCH	7	18501	J 18522 S
3218		B	TYPCK		7	18508	J 01074
3219		DCW	@#19.48@,G		6	18520	
3220		BNQ	AA	TEST FOR INQUIRY REQUEST	7	18522	J 01160 Q
3221		BBE	NU,TAD1,1		12	18529	W 18442 01001 1
3222	SUB-RTN	19.49	CHECK SCNL FOR MOVE NO DATA, PROPER ADDR REG STEP				
3223	NV	MLCWS	JAY,102		12	18541	D 33042 00102 7
3224		MLCWS	NWM30,103		12	18553	D 32971 00103 7
3225		SCNL	102,103	TEST STOP ON A-FIELD WM	12	18565	D 00102 00103 &
3226		SAR	HOLDA2		7	18577	G 33949 A
3227		SBR	HOLDB2		7	18584	G 33954 B
3228		C	HOLDA2,@001018	CHECK AAR FOR PROPER STEPPING	11	18591	C 33949 01386
3229		BU	NW	SHOULD NOT BRANCH	7	18602	J 18720 /
3230		C	HOLDB2,@001028	CHECK BAR FOR PROPER STEPPING	11	18609	C 33954 01391
3231		BU	NW	SHOULD NOT BRANCH	7	18620	J 18720 /
3232		BW	NW,103	SHOULD NOT BRANCH WORD MARK	12	18627	V 18720 00103 1
3233		BCE	*&8,103,8S	SHOULD BRANCH	12	18639	B 18658 00103 8S
3234		B	NW		7	18651	J 18720
3235		SCNL	103,102	TEST STOP ON B-FIELD WM	12	18658	D 00103 00102 &
3236		SAR	HOLDA2		7	18670	G 33949 A
3237		SBR	HOLDB2		7	18677	G 33954 B
3238		C	HOLDA2,@001028		11	18684	C 33949 01391
3239		BU	NW	SHOULD NOT BRANCH	7	18695	J 18720 /
3240		C	HOLDB2,@001018		11	18702	C 33954 01386
3241		BE	NX-19	SHOULD BRANCH & EXIT ROUTINE HERE	7	18713	J 18734 S
3242	NW	B	TYPCK		7	18720	J 01074
3243		DCW	@#19.49@,G		6	18732	
3244		BNQ	AA	TEST FOR INQUIRY REQUEST	7	18734	J 01160 Q
3245		BBE	NV,TAD1,1		12	18741	W 18541 01001 1
3246	SUB-RTN	19.50	CHECK MLN				
3247	NX	MLCWS	NWM63,WORK6		12	18753	D 33004 33581 7
3248		MLN	BLANK,WORK6		12	18765	D 33006 33581 A
3249		BW	*&13,WORK6	SHOULD NOT BRANCH	12	18777	V 18801 33581 1
3250		BCE	NY-19,WORK6,&	SHOULD BRANCH	12	18789	B 18815 33581 &
3251		B	TYPCK		7	18801	J 01074

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PGLIN     LABEL       OPCOD   OPERAND                                  CT  ADDRS  INSTRUCTION
3252                  DCW     @#19.50@,G                                6  18813
3253                  BNQ     AA                TEST FOR INQUIRY REQUEST 7  18815  J 01160 Q
3254                  BBE     NX,TAD1,1                                 12  18822  W 18753 01001 1
3255        SUB-RTN 19.51     CHECK MLZ
3256      NY          MLCWS   NWM51,WORK6                               12  18834  D 32992 33581 7
3257                  MLZ     ATSIGN,WORK6                              12  18846  D 33027 33581 B
3258                  BW      *&13,WORK6        SHOULD NOT BRANCH       12  18858  V 18882 33581 1
3259                  BCE     NZ-19,WORK6,3     SHOULD BRANCH           12  18870  B 18896 33581 3
3260                  B       TYPCK                                      7  18882  J 01074
3261                  DCW     @#19.51@,G                                6  18894
3262                  BNQ     AA                TEST FOR INQUIRY REQUEST 7  18896  J 01160 Q
3263                  BBE     NY,TAD1,1                                 12  18903  W 18834 01001 1
3264        SUB-RTN 19.52     CHECK MLC
3265      NZ          MLCWS   NWM31,WORK6                               12  18915  D 32972 33581 7
3266                  MLC     DASH,WORK6                                12  18927  D 33018 33581 C
3267                  BW      *&13,WORK6        SHOULD NOT BRANCH       12  18939  V 18963 33581 1
3268                  BCE     PA-19,WORK6,-     SHOULD BRANCH           12  18951  B 18977 33581 -
3269                  B       TYPCK                                      7  18963  J 01074
3270                  DCW     @#19.52@,G                                6  18975
3271                  BNQ     AA                TEST FOR INQUIRY REQUEST 7  18977  J 01160 Q
3272                  BBE     NZ,TAD1,1                                 12  18984  W 18915 01001 1
3273        SUB-RTN 19.53     CHECK MLW
3274      PA          MLCWS   NWM09,WORK6                               12  18996  D 32951 33581 7
3275                  MLW     EFF,WORK6                                 12  19008  D 33037 33581 D
3276                  C       NWM09,WORK6                               11  19020  C 32951 33581
3277                  BE      PB-19             SHOULD BRANCH            7  19031  J 19052 S
3278                  B       TYPCK                                      7  19038  J 01074
3279                  DCW     @#19.53@,G                                6  19050
3280                  BNQ     AA                TEST FOR INQUIRY REQUEST 7  19052  J 01160 Q
3281                  BBE     PA,TAD1,1                                 12  19059  W 18996 01001 1
3282        SUB-RTN 19.54     CHECK MLNW
3283      PB          MLCWS   ALLBIT,WORK6                              12  19071  D 33011 33581 7
3284                  MLNW    NWM00,WORK6                               12  19083  D 32942 33581 E
3285                  BW      *&13,WORK6        SHOULD NOT BRANCH       12  19095  V 19119 33581 1
3286                  BCE     PC-19,WORK6,&     SHOULD BRANCH           12  19107  B 19133 33581 &
3287                  B       TYPCK                                      7  19119  J 01074
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
3288                 DCW    @#19.54@,G                               6  19131
3289                 BNQ    AA                 TEST FOR INQUIRY REQ  7  19133  J 01160 Q
3290                 BBE    PB,TAD1,1                               12  19140  W 19071 01001 1
3291       SUB-RTN 19.55      CHECK MLZW
3292      PC         MLCWS  PERIOD,WORK6                            12  19152  D 33007 33581 7
3293                 MLZW   NWM04,WORK6                            12  19164  D 32946 33581 F
3294                 BW     *&13,WORK6          SHOULD NOT BRANCH   12  19176  V 19200 33581 1
3295                 BCE    PD-19,WORK6,#       SHOULD BRANCH       12  19188  B 19214 33581 #
3296                 B      TYPCK                                    7  19200  J 01074
3297                 DCW    @#19.55@,G                               6  19212
3298                 BNQ    AA                 TEST FOR INQUIRY REQ  7  19214  J 01160 Q
3299                 BBE    PC,TAD1,1                               12  19221  W 19152 01001 1
3300       SUB-RTN 19.56      CHECK MLCW
3301      PD         MLCWS  DELTA,WORK6                             12  19233  D 33017 33581 7
3302                 MLCW   NWM16,WORK6                            12  19245  D 32958 33581 G
3303                 BW     *&13,WORK6          SHOULD NOT BRANCH   12  19257  V 19281 33581 1
3304                 BCE    PE-19,WORK6,@S      SHOULD BRANCH       12  19269  B 19295 33581 @S
3305                 B      TYPCK                                    7  19281  J 01074
3306                 DCW    @#19.56@,G                               6  19293
3307                 BNQ    AA                 TEST FOR INQUIRY REQ  7  19295  J 01160 Q
3308                 BBE    PD,TAD1,1                               12  19302  W 19233 01001 1
3309       SUB-RTN 19.57      CHECK SCNRM FOR MOVE NO DATA, PROPER ADDR REG STP
3310      PE         CS     165                 .       .            6  19314  / 00165
3311                 SW     102                 . SET UP FIELD .     6  19320  . 00102
3312                 MLCB   NWM26,165           .     FOR       .   12  19326  D 33005 00165 L
3313                 MLCWA  165,101             .    SCNRM      .   12  19338  D 00165 00101 X
3314                 MLWB   SEVEN,99            .               .   12  19350  D 33067 00099 M
3315                 SCNRM  38,37               TEST THE SCAN FOR STOP ON RM  12  19362  D 00038 00037 H
3316                 SAR    HOLDA2                                   7  19374  G 33949 A
3317                 SBR    HOLDB2                                   7  19381  G 33954 B
3318                 C      HOLDA2,@00102@      CHECK FOR PROPER AAR STEPPING  11  19388  C 33949 01391
3319                 BU     PF                  SHOULD NOT BRANCH    7  19399  J 19528 /
3320                 C      HOLDB2,@00101@      CHECK FOR PROPER BAR STEPPING  11  19406  C 33954 01386
3321                 BU     PF                  SHOULD NOT BRANCH    7  19417  J 19528 /
3322                 MLWA   163,99              ERASE THE EXTRANEOUS WMS  12  19424  D 00163 00099 U
3323                 C      101,165             TEST THAT SCNRM MOVED NO DATA  11  19436  C 00101 00165
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
3324                 BU     PF              SHOULD NOT BRANCH         7  19447  J 19528 /
3325                 MLCWS  ALLBIT,101                                12  19454  D 33011 00101 7
3326                 SCNRM  38,37           TRY SCAN W/RM REPLACED BY GMWM  12  19466  D 00038 00037 H
3327                 SAR    HOLDA2                                    7  19478  G 33949 A
3328                 SBR    HOLDB2                                    7  19485  G 33954 B
3329                 C      HOLDA2,@00102@                            11  19492  C 33949 01391
3330                 BU     PF              SHOULD NOT BRANCH         7  19503  J 19528 /
3331                 C      HOLDB2,@00101@                            11  19510  C 33954 01386
3332                 BE     PG-19           SHOULD BRANCH & EXIT ROUTINE HERE  7  19521  J 19542 S
3333      PF         B      TYPCK           ** ALL #19.57 ERRORS COME HERE  7  19528  J 01074
3334                 DCW    @#19.57@,G                                6  19540
3335                 BNQ    AA              TEST FOR INQUIRY REQUEST  7  19542  J 01160 Q
3336                 BBE    PE,TAD1,1                                 12  19549  W 19314 01001 1
3337        SUB-RTN 19.58    CHECK MRNM
3338      PG         MLCWS  ALLBIT,100                                12  19561  D 33011 00100 7
3339                 MLCWS  NWM00,101                                 12  19573  D 32942 00101 7
3340                 MLCWS  RCDMRK,102                                12  19585  D 33051 00102 7
3341                 MRNM   101,100                                   12  19597  D 00101 00100 I
3342                 C      NWM48,100                                 11  19609  C 32989 00100
3343                 BE     PH-19           SHOULD BRANCH             7  19620  J 19641 S
3344                 B      TYPCK                                     7  19627  J 01074
3345                 DCW    @#19.58@,G                                6  19639
3346                 BNQ    AA              TEST FOR INQUIRY REQUEST  7  19641  J 01160 Q
3347                 BBE    PG,TAD1,1                                 12  19648  W 19561 01001 1
3348        SUB-RTN 19.59    CHECK MRZM
3349      PH         MLCWS  GEE,100                                   12  19660  D 33038 00100 7
3350                 MLCWS  NWM08,101                                 12  19672  D 32950 00101 7
3351                 MLCWS  ALLBIT,102                                12  19684  D 33011 00102 7
3352                 MRZM   101,100                                   12  19696  D 00101 00100 M
3353                 C      NWM07,100                                 11  19708  C 32949 00100
3354                 BE     PI-19           SHOULD BRANCH             7  19719  J 19740 S
3355                 B      TYPCK                                     7  19726  J 01074
3356                 DCW    @#19.59@,G                                6  19738
3357                 BNQ    AA              TEST FOR INQUIRY REQUEST  7  19740  J 01160 Q
3358                 BBE    PH,TAD1,1                                 12  19747  W 19660 01001 1
3359        SUB-RTN 19.60    CHECK MRCM
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PGLIN     LABEL       OPCOD   OPERAND                                  CT  ADDRS  INSTRUCTION
3360      PI          MLCWS   TPMARK,100                               12  19759  D 33030 00100 7
3361                  MLCWS   NWM48,101                                12  19771  D 32989 00101 7
3362                  MLCWS   RCDMRK,102                               12  19783  D 33051 00102 7
3363                  MRCM    101,100                                  12  19795  D 00101 00100 .
3364                  C       NWM48,100                                11  19807  C 32989 00100
3365                  BE      PJ-19           SHOULD BRANCH             7  19818  J 19839 S
3366                  B       TYPCK                                     7  19825  J 01074
3367                  DCW     @#19.60@,G                                6  19837
3368                  BNQ     AA              TEST FOR INQUIRY REQUEST  7  19839  J 01160 Q
3369                  BBE     PI,TAD1,1                                12  19846  W 19759 01001 1
3370        SUB-RTN 19.61     CHECK MRWM
3371      PJ          MLCWS   RBRAKT,100                               12  19858  D 33015 00100 7
3372                  MLCWS   NWM18,101                                12  19870  D 32960 00101 7
3373                  MLCWS   ALLBIT,102                               12  19882  D 33011 00102 7
3374                  MRWM    101,100                                  12  19894  D 00101 00100 ¤
3375                  BW      *£13,100        SHOULD NOT BRANCH        12  19906  V 19930 00100 1R
3376                  BCE     PK-19,100,8     SHOULD BRANCH            12  19918  B 19944 00100 8R
3377                  B       TYPCK                                     7  19930  J 01074
3378                  DCW     @#19.61@,G                                6  19942
3379                  BNQ     AA              TEST FOR INQUIRY REQUEST  7  19944  J 01160 Q
3380                  BBE     PJ,TAD1,1                                12  19951  W 19858 01001 1
3381        SUB-RTN 19.62     CHECK MRNWM
3382      PK          MLCWS   NWM63,100                                12  19963  D 33004 00100 7
3383                  MLCWS   BLANK,101                                12  19975  D 33006 00101 7
3384                  MLCWS   RCDMRK,102                               12  19987  D 33051 00102 7
3385                  MRNWM   101,100                                  12  19999  D 00101 00100 8L
3386                  C       NWM48,100                                11  20011  C 32989 00100
3387                  BE      PL-19           SHOULD BRANCH             7  20022  J 20043 S
3388                  B       TYPCK                                     7  20029  J 01074
3389                  DCW     @#19.62@,G                                6  20041
3390                  BNQ     AA              TEST FOR INQUIRY REQUEST  7  20043  J 01160 Q
3391                  BBE     PK,TAD1,1                                12  20050  W 19963 01001 1
3392        SUB-RTN 19.63     CHECK MRZWM
3393      PL          MLCWS   NWM62,100                                12  20062  D 33003 00100 7
3394                  MLCWS   ONE,101                                  12  20074  D 33061 00101 7
3395                  MLCWS   ALLBIT,102                               12  20086  D 33011 00102 7
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUC..ON	
3396		MRZWM	101,100		12	20098	D 00101 00100	L T
3397		C	NWM14,100		11	20110	C 32956 00100	
3398		BE	PM-19	SHOULD BRANCH	7	20121	J 20142 S	
3399		B	TYPCK		7	20128	J 01074	
3400		DCW	a#19.63a,G		6	20140		
3401		BNQ	AA	TEST FOR INQUIRY REQUEST	7	20142	J 01160 Q	
3402		BBE	PL,TAD1,1		12	20149	W 20062 01001 1	
3403	SUB-RTN	19.64	CHECK MRCWM					
3404	PM	MLCWS	NWM15,100		12	20161	D 32957 00100	7
3405		MLCWS	AMPSND,101		12	20173	D 33012 00101	7
3406		MLCWS	ACUMRK,102		12	20185	D 33091 00102	7 G
3407		MRCWM	101,100		12	20197	D 00101 00100	M
3408		C	NWM48,100		11	20209	C 32989 00100	
3409		BE	QG-19	SHOULD BRANCH	7	20220	J 20241 S	
3410		B	TYPCK		7	20227	J 01074	
3411		DCW	a#19.64a,G		6	20239		
3412		BNQ	AA	TEST FOR INQUIRY REQUEST	7	20241	J 01160 Q	
3413		BBE	PM,TAD1,1		12	20248	W 20161 01001 1	

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PGLIN    LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
3415       ROUTINE 22.00   TEST TABLE LOOK UP INSTRUCTION
3416
3417       SUB-RTN 22.01   TEST LOOK UP TO END OF TABLE
3418     QG           LND   ENDITM,ENDTBL                            12  20260  T 33624 33691
3419                  SAR   HOLDA3                                   7  20272  G 33949 A
3420                  SBR   HOLDB3                                   7  20279  G 33954 B
3421                  BE    QH                 SHOULD NOT BRANCH     7  20286  J 20350 S
3422                  BL    QH                 SHOULD NOT BRANCH     7  20293  J 20350 T
3423                  BH    *&8                SHOULD BRANCH, LOOK UP TO  7  20300  J 20314 U
3424                                           END OF TABLE SETS HI COMP IND
3425                  B     QH                                        7  20307  J 20350
3426                  C     HOLDA3,ENDA                              11  20314  C 33949 33622
3427                  BU    QH                                        7  20325  J 20350 /
3428                  C     HOLDB3,&ENDITM                           11  20332  C 33954 01404
3429                  BE    QI-19                                     7  20343  J 20364 S
3430     QH           B     TYPCK                                     7  20350  J 01074
3431                  DCW   @#22.01@,G                                6  20362
3432                  BNQ   AA                 TEST FOR INQUIRY REQUEST  7  20364  J 01160 Q
3433                  BBE   QG,TAD1,1                                12  20371  W 20260 01001 1
3434       SUB-RTN 22.02   TEST LOOK UP LOW
3435     QI           LL    TO1,LTBL                                 12  20383  T 33698 33708 1
3436                  SAR   HOLDA3                                   7  20395  G 33949 A
3437                  SBR   HOLDB3                                   7  20402  G 33954 B
3438                  BL    *&8                SHOULD BRANCH         7  20409  J 20423 T
3439                  B     QII                                       7  20416  J 20466
3440                  C     HOLDA3,LLCON                             11  20423  C 33949 33696
3441                  BE    *&8                                       7  20434  J 20448 S
3442                  B     QII                                       7  20441  J 20466
3443                  C     HOLDB3,&LSTP                             11  20448  C 33954 01409
3444                  BE    QJ-19              SHOULD BRANCH         7  20459  J 20480 S
3445     QII          B     TYPCK                                     7  20466  J 01074
3446                  DCW   @#22.02@,G                                6  20478
3447                  BNQ   AA                 TEST FOR INQUIRY REQUEST  7  20480  J 01160 Q
3448                  BBE   QI,TAD1,1                                12  20487  W 20383 01001 1
3449       SUB-RTN 22.03   TEST LOOK UP EQUAL
3450     QJ           LE    TO2,ETBL                                 12  20499  T 33710 33720 2
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
3451                 SBR    HOLDB3                                    7  20511  G 33954 B
3452                 BU     *&19                SHOULD NOT BRANCH     7  20518  J 20543 /
3453                 C      HOLDB3,&ESTP                             11  20525  C 33954 01414
3454                 BE     QK-19               SHOULD BRANCH         7  20536  J 20557 S
3455                 B      TYPCK                                     7  20543  J 01074
3456                 DCW    @#22.03@,G                                6  20555
3457                 BNQ    AA                  TEST FOR INQUIRY REQUEST  7  20557  J 01160 Q
3458                 BBE    QJ,TAD1,1                                12  20564  W 20499 01001 1
3459       SUB-RTN 22.04    TEST LOOK UP LOW OR EQUAL, STOP ON LOW
3460     QK          LLE    T03,LETBL1                               12  20576  T 33722 33729 3
3461                 SBR    HOLDB3                                    7  20588  G 33954 B
3462                 BL     *&8                 SHOULD BRANCH         7  20595  J 20609 T
3463                 B      *&19                                      7  20602  J 20627
3464                 C      HOLDB3,&LESTP1                           11  20609  C 33954 01419
3465                 BE     QL-19                                     7  20620  J 20641 S
3466                 B      TYPCK                                     7  20627  J 01074
3467                 DCW    @#22.04@,G                                6  20639
3468                 BNQ    AA                  TEST FOR INQUIRY REQUEST  7  20641  J 01160 Q
3469                 BBE    QK,TAD1,1                                12  20648  W 20576 01001 1
3470       SUB-RTN 22.05    TEST LOOK UP LOW OR EQUAL, STOP ON EQUAL
3471     QL          LLE    T03,LETBL2                               12  20660  T 33722 33736 3
3472                 SBR    HOLDB3                                    7  20672  G 33954 B
3473                 BU     *&19                SHOULD NOT BRANCH     7  20679  J 20704 /
3474                 C      HOLDB3,&LESTP2                           11  20686  C 33954 01424
3475                 BE     QM-19               SHOULD BRANCH         7  20697  J 20718 S
3476                 B      TYPCK                                     7  20704  J 01074
3477                 DCW    @#22.05@,G                                6  20716
3478                 BNQ    AA                  TEST FOR INQUIRY REQUEST  7  20718  J 01160 Q
3479                 BBE    QL,TAD1,1                                12  20725  W 20660 01001 1
3480       SUB-RTN 22.06    TEST LOOK UP HIGH
3481     QM          LH     T04,HTBL                                 12  20737  T 33738 33748 4
3482                 SBR    HOLDB3                                    7  20749  G 33954 B
3483                 BH     *&8                 SHOULD BRANCH         7  20756  J 20770 U
3484                 B      *&19                                      7  20763  J 20788
3485                 C      HOLDB3,&HSTP                             11  20770  C 33954 01429
3486                 BE     QN-19               SHOULD BRANCH         7  20781  J 20802 S
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
3487                 B      TYPCK                                    7  20788  J 01074
3488                 DCW    @#22.06@,G                               6  20800
3489                 BNQ    AA                 TEST FOR INQUIRY REQUEST 7  20802  J 01160 Q
3490                 BBE    QM,TAD1,1                               12  20809  W 20737 01001 1
3491       SUB-RTN 22.07  TEST LOOK UP LOW OR HIGH, STOP ON LOW
3492     QN          LLH    TO5,LHTBL1                              12  20821  T 33750 33757 5
3493                 SBR    HOLDB3                                   7  20833  G 33954 B
3494                 BL     *&8                SHOULD BRANCH         7  20840  J 20854 T
3495                 B      *&19                                     7  20847  J 20872
3496                 C      HOLDB3,&LHSTP1                          11  20854  C 33954 01434
3497                 BE     QP-19              SHOULD BRANCH         7  20865  J 20886 S
3498                 B      TYPCK                                    7  20872  J 01074
3499                 DCW    @#22.07@,G                               6  20884
3500                 BNQ    AA                 TEST FOR INQUIRY REQUEST 7  20886  J 01160 Q
3501                 BBE    QN,TAD1,1                               12  20893  W 20821 01001 1
3502       SUB-RTN 22.08  TEST LOOK UP LOW OR HIGH, STOP ON HIGH
3503     QP          LLH    TO5,LHTBL2                              12  20905  T 33750 33764 5
3504                 SBR    HOLDB3                                   7  20917  G 33954 B
3505                 BH     *&8                SHOULD BRANCH         7  20924  J 20938 U
3506                 B      *&19                                     7  20931  J 20956
3507                 C      HOLDB3,&LHSTP2                          11  20938  C 33954 01439
3508                 BE     QQ-19              SHOULD BRANCH         7  20949  J 20970 S
3509                 B      TYPCK                                    7  20956  J 01074
3510                 DCW    @#22.08@,G                               6  20968
3511                 BNQ    AA                 TEST FOR INQUIRY REQUEST 7  20970  J 01160 Q
3512                 BBE    QP,TAD1,1                               12  20977  W 20905 01001 1
3513       SUB-RTN 22.09  TEST LOOK UP EQUAL OR HIGH, STOP ON EQUAL
3514     QQ          LEH    TO6,EHTBL1                              12  20989  T 33766 33773 6
3515                 SBR    HOLDB3                                   7  21001  G 33954 B
3516                 BU     *&19               SHOULD NOT BRANCH     7  21008  J 21033 /
3517                 C      HOLDB3,&EHSTP1                          11  21015  C 33954 01444
3518                 BE     QR-19              SHOULD BRANCH         7  21026  J 21047 S
3519                 B      TYPCK                                    7  21033  J 01074
3520                 DCW    @#22.09@,G                               6  21045
3521                 BNQ    AA                 TEST FOR INQUIRY REQUEST 7  21047  J 01160 Q
3522                 BBE    QQ,TAD1,1                               12  21054  W 20989 01001 1
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
3523        SUB-RTN 22.10   TEST LOOK UP EQUAL OR HIGH, STOP ON HIGH
3524      QR           LEH  T06,EHTBL2                               12  21066  T 33766 33780 6
3525                   SBR  HOLDB3                                    7  21078  G 33954 B
3526                   BH   *&8                 SHOULD BRANCH         7  21085  J 21099 U
3527                   B    *&19                                      7  21092  J 21117
3528                   C    HOLDB3,&EHSTP2                           11  21099  C 33954 01449
3529                   BE   QS-19               SHOULD BRANCH         7  21110  J 21131 S
3530                   B    TYPCK                                     7  21117  J 01074
3531                   DCW  @#22.10@,G                                6  21129
3532                   BNQ  AA                  TEST FOR INQUIRY REQUEST  7  21131  J 01160 Q
3533                   BBE  QR,TAD1,1                                12  21138  W 21066 01001 1
3534        SUB-RTN 22.11   TEST LOOK UP ANY, STOP ON LOW
3535      QS           LA   T07,ANY1&2                               12  21150  T 33782 33786 7
3536                   SBR  HOLDB3                                    7  21162  G 33954 B
3537                   BL   *&8                 SHOULD BRANCH         7  21169  J 21183 T
3538                   B    *&19                                      7  21176  J 21201
3539                   C    HOLDB3,&ANY1                             11  21183  C 33954 01454
3540                   BE   QT-19               SHOULD BRANCH         7  21194  J 21215 S
3541                   B    TYPCK                                     7  21201  J 01074
3542                   DCW  @#22.11@,G                                6  21213
3543                   BNQ  AA                  TEST FOR INQUIRY REQUEST  7  21215  J 01160 Q
3544                   BBE  QS,TAD1,1                                12  21222  W 21150 01001 1
3545        SUB-RTN 22.12   TEST LOOK UP ANY, STOP ON EQUAL
3546      QT           LA   T07,ANY2&2                               12  21234  T 33782 33790 7
3547                   SBR  HOLDB3                                    7  21246  G 33954 B
3548                   BU   *&19                SHOULD NOT BRANCH     7  21253  J 21278 /
3549                   C    HOLDB3,&ANY2                             11  21260  C 33954 01459
3550                   BE   QU-19               SHOULD BRANCH         7  21271  J 21292 S
3551                   B    TYPCK                                     7  21278  J 01074
3552                   DCW  @#22.12@,G                                6  21290
3553                   BNQ  AA                  TEST FOR INQUIRY REQUEST  7  21292  J 01160 Q
3554                   BBE  QT,TAD1,1                                12  21299  W 21234 01001 1
3555        SUB-RTN 22.13   TEST LOOK UP ANY, STOP ON HIGH
3556      QU           LA   T07,ANY3&2                               12  21311  T 33782 33794 7
3557                   SBR  HOLDB3                                    7  21323  G 33954 B
3558                   BH   *&8                 SHOULD BRANCH         7  21330  J 21344 U
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PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
3559                B      *&19                                      7  21337  J 21362
3560                C      HOLD83,&ANY3                             11  21344  C 33954 01464
3561                BE     QV-19              SHOULD BRANCH          7  21355  J 21376 S
3562                B      TYPCK                                     7  21362  J 01074
3563                DCW    @#22.13@,G                                6  21374
3564                BNQ    AA                 TEST FOR INQUIRY REQUEST  7  21376  J 01160 Q
3565                BBE    QU,TAD1,1                                12  21383  W 21311 01001 1
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PGLIN     LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
3567        ROUTINE 23.00   TEST MULTIPLY OPERATION
3568
3569        SUB-RTN 23.01   MULTIPLY ALL 64 CHARACTERS BY EACH OTHER.
3570                        CHECK RESULTS FOR PROPER SIGN, ZERO BALANCE,
3571                        AND THAT PRODUCT OF M X N EQUALS N X M.
3572
3573                        BECAUSE THE TIME REQUIRED TO PERFORM THIS ROUTINE
3574                        IS RELATIVELY LONG, IT IS DONE ONLY THE FIRST
3575                        TIME THROUGH AND THEREAFTER ONLY WHEN THE PASS
3576                        COUNT WORK AREA IS REDUCED TO ZERO.
3577
3578      QV        NOPWM                                                    1  21395  N
3579                B       QW                                               7  21396  J 22541
3580                CW      QVERSW&1                                         6  21403  ¤ 22501
3581                MLCWA   &04096,X14      INDEX REG 14 USED ONLY AS COUNTER 12 21409  D 01469 00094 X
3582                MLCWA   &00064,X12                                       12 21421  D 01474 00084 X
3583      QVA       MLCWA   &00064,X13                                       12 21433  D 01474 00089 X
3584                MLCS    MPYTBL&X12,WORK7                                 12 21445  D 34A53 33582 3
3585      QVB       MLCS    MPYTBL&X13,WORK8                                 12 21457  D 34AV3 33583 3
3586                ZA      WORK7,WORK9     TEST ONE FACTOR FOR ZERO NUMERIC 11 21469  M 33582 33584
3587                BZ      QVI                                              7  21480  J 21720 V
3588                ZA      WORK8,WORK9     TEST OTHER FACTOR FOR ZERO NUM   11 21487  M 33583 33584
3589                BZ      QVI                                              7  21498  J 21720 V
3590                CW      QVE&1           SET UP FOR NON-ZERO PRODUCT      6  21505  ¤ 21577
3591      QVC       BZN     QVJ,WORK7,-     TEST ONE FACTOR FOR NEGATIVE SIGN 12 21511  V 21744 33582 K
3592                BZN     QVK,WORK8,-     TEST OTHER FACTOR FOR NEG SIGN   12 21523  V 21756 33583 K
3593      QVD       CW      QVF&1           SET UP FOR POSITIVE PRODUCT      6  21535  ¤ 21592
3594      QVD1      MLCWS   WORK7,P1-2                                       12 21541  D 33582 33955 7
3595      QVD2      MLCWS   WORK8,P2-2                                       12 21553  D 33583 33958 7
3596
3597                M       WORK7,P2        MULTIPLY FACTOR1 BY FACTOR2      11 21565  @ 33582 33960
3598      QVE       NOPWM                                                    1  21576  N
3599                B       QVL             BRANCH IF ZERO PROD ANTICIPATED  7  21577  J 21769
3600                BZ      QVM             SHOULD NOT BRANCH                7  21584  J 21907 V
3601      QVF       NOPWM                                                    1  21591  N
3602                B       QVN             BRANCH IF NEGATIVE PROD EXPECTED 7  21592  J 22036
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PGLIN  LABEL   OPCOD  OPERAND          CT  ADDRS  INSTRUCTION
3603           BZN    QVP,P2,-         12  21599  V 22178 33960 K
3604   QVG     M      WORK8,P1         11  21611  @ 33583 33957
3605           C      P1,P2            11  21622  C 33957 33960
3606           BU     QVQ               7  21633  J 22308 /
3607           BNQ    AA                7  21640  J 01160 Q
3608           BBE    QVB-12,TAD1,1    12  21647  W 21445 01001 1
3609   QVH     S      &1,X14           11  21659  S 01300 00094
3610           BZ     QVR               7  21670  J 22535 V
3611           S      &1,X13           11  21677  S 01300 00089
3612           BZ     *&8               7  21688  J 21702 V
3613           B      QVB               7  21695  J 21457
3614           S      &1,X12           11  21702  S 01300 00084
3615           B      QVA               7  21713  J 21433
3616
3617   QVI     SW     QVE&1             6  21720  . 21577
3618           ZA     &1,WORK9         11  21726  M 01300 33584
3619           B      QVC               7  21737  J 21511
3620
3621   QVJ     BZN    QVD,WORK8,-      12  21744  V 21535 33583 K
3622   QVK     SW     QVF&1             6  21756  . 21592
3623           B      QVC1              7  21762  J 21541
3624
3625   QVL     BZ     QVF               7  21769  J 21591 V
3626           B      QVERR             7  21776  J 22481
3627           BBE    ERSKP1,TAD0,1    12  21783  W 21861 01000 1
3628           MLCS   WORK7,ZROMSG&1    12  21795  D 33582 21839 3
3629           MLCS   WORK8,ZROMSG&2    12  21807  D 33583 21840 3
3630           MLCB   P2,ZROMSG&11      12  21819  D 33960 21849 L
3631           B      TYPE              7  21831  J 01029
3632   ZROMSG  DCW    @ ** PROD &       9  21838
3633           @***; S/B ZERO@,G        13  21859
3634   ERSKP1  BBE    *&8,TAD2,1       12  21861  W 21880 01002 1
3635           B      *&2               7  21873  J 21881
3636           H                        1  21880  .
3637           BNQ    AA                7  21881  J 01160 Q
3638           BBE    QVD2,TAD1,1      12  21888  W 21553 01001 1
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PGLIN  LABEL    OPCOD  OPERAND                        CT  ADDRS  INSTRUCTION
3639            B      QVF                             7  21900  J 21591
3640
3641    QVM     B      QVERR                           7  21907  J 22481
3642            BBE    ERSKP2,TADC,1                  12  21914  W 21990 01000 1
3643            MLCS   WORK7,NZMSG&1                  12  21926  D 33582 21970 3
3644            MLCS   WORK8,NZMSG&2.                 12  21938  D 33583 21971 3
3645            MLCB   P2,NZMSG&11                    12  21950  D 33960 21980 L
3646            B      TYPE                            7  21962  J 01029
3647     NZMSG  DCW    @ ** PROD @     ASTERISKS FILLED IN  9  21969
3648                   @***; S/B NZ@,G    BY ERROR ROUTINE 11  21988
3649    ERSKP2  BBE    *&8,TAD2,1                     12  21990  W 22009 01002 1
3650            B      *&2                             7  22002  J 22010
3651            H                                      1  22009  .
3652            BNQ    AA              TEST FOR INQUIRY REQUEST  7  22010  J 01160 Q
3653            BBE    QVD2,TAD1,1                    12  22017  W 21553 01001 1
3654            B      QVF                             7  22029  J 21591
3655
3656    QVN     BZN    QVG,P2,-        SHOULD BRANCH  12  22036  V 21611 33960 K
3657            B      QVERR                           7  22048  J 22481
3658            BBE    ERSKP3,TADC,1                  12  22055  W 22132 01000 1
3659            MLCS   WORK7,NEGMSG&1                 12  22067  D 33582 22111 3
3660            MLCS   WORK8,NEGMSG&2                 12  22079  D 33583 22112 3
3661            MLCB   P2,NEGMSG&11                   12  22091  D 33960 22121 L
3662            B      TYPE                            7  22103  J 01029
3663     NEGMSG DCW    @ ** PROD @     ASTERISKS FILLED IN  9  22110
3664                   @***; S/B NEG@,G   BY ERROR ROUTINE 12  22130
3665    ERSKP3  BBE    *&8,TAD2,1                     12  22132  W 22151 01002 1
3666            B      *&2                             7  22144  J 22152
3667            H                                      1  22151  .
3668            BNQ    AA              TEST FOR INQUIRY REQUEST  7  22152  J 01160 Q
3669            BBE    QVD2,TAD1,1                    12  22159  W 21553 01001 1
3670            B      QVG                             7  22171  J 21611
3671
3672    QVP     B      QVERR                           7  22178  J 22481
3673            BBE    ERSKP4,TADC,1                  12  22185  W 22262 01000 1
3674            MLCS   WORK7,POSMSG&1                 12  22197  D 33582 22241 3
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PGLIN  LABEL    OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
3675            MLCS   WORK8,POSMSG&2                   12  22209  D 33583 22242 3
3676            MLCB   P2,POSMSG&11                     12  22221  D 33960 22251 L
3677            B      TYPE                              7  22233  J 01029
3678    POSMSG  DCW    @ ** PROD @       ASTERISKS FILLED IN
3679                   @***; S/B POS@,G     BY ERROR ROUTINE
3680    ERSKP4  BBE    *&8,TAD2,1                       12  22262  W 22281 01002 1
3681            B      *&2                               7  22274  J 22282
3682            H                                        1  22281  .
3683            BNQ    AA                TEST FOR INQUIRY REQUEST  7  22282  J 01160 Q
3684            BBE    QVD2,TAD1,1                      12  22289  W 21553 01001 1
3685            B      QVG                               7  22301  J 21611
3686
3687    QVQ     B      QVERR                             7  22308  J 22481
3688            BBE    ERSKP5,TAD0,1                    12  22315  W 22435 01000 1
3689            MLCS   WORK7,NEQMSG&1                   12  22327  D 33582 22407 3
3690            MLCS   WORK8,NEQMSG&2                   12  22339  D 33583 22408 3
3691            MLCB   P2,NEQMSG&11                     12  22351  D 33960 22417 L
3692            MLCS   WORK8,NEQMSG&17                  12  22363  D 33583 22423 3
3693            MLCS   WORK7,NEQMSG&18                  12  22375  D 33582 22424 3
3694            MLCB   P1,NEQMSG&27                     12  22387  D 33957 22433 L
3695            B      TYPE                              7  22399  J 01029
3696    NEQMSG  DCW    @ ** PROD @       ASTERISKS
3697                   @***; NE ** PROD @   FILLED IN BY  16  22430
3698                   @***@,G                ERROR ROUTINE  3  22433
3699    ERSKP5  BBE    *&8,TAD2,1                       12  22435  W 22454 01002 1
3700            B      *&2                               7  22447  J 22455
3701            H                                        1  22454  .
3702            BNQ    AA                TEST FOR INQUIRY REQUEST  7  22455  J 01160 Q
3703            BBE    QVD1,TAD1,1                      12  22462  W 21541 01001 1
3704            B      QVH                               7  22474  J 21659
3705
3706    QVERR   SBR    QVEXIT&5                          7  22481  G 22533 B
3707            BBE    QVEXIT,TAD0,1                    12  22488  W 22528 01000 1
3708    QVERSW  NOPWM                                    1  22500  N
3709            B      QVEXIT                            7  22501  J 22528
3710            SW     *-12                              6  22508  , 22501
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PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
3711		B	TYPE	7	22514	J 01029
3712		DCW	a#23.01a,G	6	22526	
3713	QVEXIT	B	0	7	22528	J 00000
3714	QVR	SW	QV&1	6	22535	. 21396

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PGLIN     LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
3716        SUB-RTN 23.02   MAMMOTH MULTIPLY.  MAXIMUM CYCLES AND CARRYS
3717      QW           MLCA  FIVE4S,BIGANS-17                                 12  22541  D 34070 34135 T
3718                   M     MANY9S,BIGANS                                    11  22553  @ 34086 34152
3719                   C     BIGANS,PRODCT                                    11  22564  C 34152 34119
3720                   BE    QX-19                                             7  22575  J 22596 S
3721                   B     TYPCK                                             7  22582  J 01074
3722                   DCW   @#23.02@,G                                        6  22594
3723                   BNQ   AA                 TEST FOR INQUIRY REQUEST      7  22596  J 01160 Q
3724                   BBE   QW,TAD1,1                                        12  22603  W 22541 01001 1
3725        SUB-RTN 23.03   CHECK ADDRESS REGISTERS FOLLOWING MULTIPLY
3726      QX           ZA    FIVE4S-13,BIGANS-30                              11  22615  Q
                                                                                         M 34057 34122
3727                   M     MANY9S-15,BIGANS-28  A-FLD LENGTH 1, B-FLD LENGTH 5  11  22626  @ 34071 34124
3728                   SAR   HOLDA3                                            7  22637  G 33949 A
3729                   SBR   HOLDB3                                            7  22644  G 33954 B
3730                   C     HOLDA3,K16                                       11  22651  C 33949 33107
3731                   BU    *&19               SHOULD NOT BRANCH             7  22662  J 22687 /
3732                   C     HOLDB3,K17                                       11  22669  C 33954 33112
3733                   BE    QY-19              SHOULD BRANCH                 7  22680  J 22701 S
3734                   B     TYPCK                                             7  22687  J 01074
3735                   DCW   @#23.03@,G                                        6  22699
3736                   BNQ   AA                 TEST FOR INQUIRY REQUEST      7  22701  J 01160 Q
3737                   BBE   QX,TAD1,1                                        12  22708  W 22615 01001 1
3738        SUB-RTN 23.04   SIMILAR TO #23.03 WITH FIELD LENGTHS REVERSED
3739      QY           ZA    MANY9S-15,BIGANS-32                              11  22720  Q
                                                                                         M 34071 34120
3740                   M     FIVE4S-13,BIGANS-28  A-FLD LENGTH 3, B-FLD LENGTH 5  11  22731  @ 34057 34124
3741                   SAR   HOLDA3                                            7  22742  G 33949 A
3742                   SBR   HOLDB3                                            7  22749  G 33954 B
3743                   C     HOLDA3,K18                                       11  22756  C 33949 33117
3744                   BU    *&19               SHOULD NOT BRANCH             7  22767  J 22792 /
3745                   C     HOLDB3,K17                                       11  22774  C 33954 33112
3746                   BE    RA-19              SHOULD BRANCH & EXIT ROUTINE HERE  7  22785  J 22806 S
3747                   B     TYPCK                                             7  22792  J 01074
3748                   DCW   @#23.04@,G                                        6  22804
3749                   BNQ   AA                 TEST FOR INQUIRY REQUEST      7  22806  J 01160 Q
3750                   BBE   QY,TAD1,1                                        12  22813  W 22720 01001 1
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
3752        ROUTINE  24.00  TEST DIVIDE OPERATION
3753
3754        SUB-RTN  24.01  INSURE DIVIDE OVERFLOW OFF
3755      RA         BCV    *&1                TURN OFF DIV OFLOW     7  22825  J 22832 W
3756                 BCV    *&8                SHOULD NOT BRANCH      7  22832  J 22846 W
3757                 B      RB-19                                     7  22839  J 22860
3758                 B      TYPCK                                     7  22846  J 01074
3759                 DCW    @#24.01@,G                                6  22858
3760                 BNQ    AA                 TEST FOR INQUIRY REQUEST 7 22860  J 01160 Q
3761                 BBE    RA,TAD1,1                                12  22867  W 22825 01001 1
3762        SUB-RTN  24.02  DIVIDE NUMBERS 0 THRU 9 BY NUMBERS 1 THRU 9
3763      RB         CW     RBERSW&1           RESET ERROR SWITCH     6  22879  ¤ 23137
3764                 MLCWA  -00009,X9          INITIALIZE INDEX REGS 9 & 10 12 22885  D 01479 00069 X
3765      RBA        MLCWA  -0C010,X10                                12  22897  D 01484 00074 X
3766      RBA1       ZA     DTABLE&1&X9,DIVSOR  GET DIVISOR FROM TABLE 11 22909  M 33Q¢5 33582
3767      RBB        ZA     DTABLE&1&X10,DIVDND GET DIVIDEND FROM TABLE 11 22920  M 33Q.5 33583
3768      RBC        ZA     DIVDND,QUOREM      PUT DIVIDEND IN QUOT-REMNDR FIELD 11 22931 M 33583 33957
3769                 D      DIVSOR,QUOREM      PERFORM 1-CHARACTER DIVISION 11 22942  % 33582 33957
3770                 BDV    RBD                SHOULD NEVER BRANCH    7  22953  J 23091 W
3771                 ZA     QUOREM-2,QUOTNT    SAVE THE QUOTIENT      11 22960  M 33955 33585
3772                 ZA     QUOREM,WORK9       SAVE THE REMAINDER     11 22971  M 33957 33584
3773                 M      DIVSOR,QUOREM      MULTIPLY DIVISOR AND QUOTIENT 11 22982 @ 33582 33957
3774                 A      WORK9,QUOREM       ADD REMAINDER TO PRODUCT 11 22993  A 33584 33957
3775                 C      QUOREM,DIVDND      TEST FOR EQUALITY      11 23004  C 33957 33583
3776                 BU     RBE                SHOULD NOT BRANCH      7  23015  J 23111 /
3777                 BNQ    AA                 TEST FOR INQUIRY REQUEST 7 23022  J 01160 Q
3778                 BBE    RBC,TAD1,1                               12  23029  W 22931 01001 1
3779                 A      &1,X10                                   11  23041  A 01300 00074
3780                 BZ     *&8                                      7  23052  J 23066 V
3781                 B      RBB                                      7  23059  J 22920
3782                 A      &1,X9                                    11  23066  A 01300 00069
3783                 BZ     RBG                                      7  23077  J 23431 V
3784                 B      RBA                                      7  23084  J 22897
3785
3786      RBD        SBR    X8                                       7  23091  G 00064 B
3787                 SW     RBOFLO&1           SET SW TO IND DIV OFLOW OCCURRED 6 23098 , 23165
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PGLIN   LABEL     OPCOD   OPERAND                                  CT  ADDRS  INSTRUCTION
3788              B       RBERR                                     7  23104  J 23124
3789
3790    RBE       SBR     X8                                        7  23111  G 00064 B
3791              CW      RBOFLO&1          SET SW TO IND COMP UNEQUAL OCC  6  23118  ¤ 23165
3792
3793    RBERR     BBE     RBOFLO,TADO,1                            12  23124  W 23164 01000 1
3794    RBERSW    NOPWM                                             1  23136  N
3795              B       RBOFLO                                    7  23137  J 23164
3796              SW      *-12                                      6  23144  . 23137
3797              B       TYPE                                      7  23150  J 01029
3798              DCW     @#24.02@,G                                6  23162
3799    RBOFLO    NOPWM                                             1  23164  N
3800              B       RBF               BRANCH IF ERROR WAS DIV OFLOW   7  23165  J 23357
3801              BBE     ERSKP6,TADO,1                            12  23172  W 23311 01000 1
3802              MLCS    DIVDND,DVMSG1&1                          12  23184  D 33583 23276 3
3803              MLCS    DIVSOR,DVMSG1&3                          12  23196  D 33582 23278 3
3804              MLCS    QUOTNT,DVMSG1&8                          12  23208  D 33585 23283 3
3805              MLCS    WORK9,DVMSG1&15                          12  23220  D 33584 23290 3
3806              MLCS    DIVSOR,DVMSG1&23                         12  23232  D 33582 23298 3
3807              MLCS    QUOTNT,DVMSG1&26                         12  23244  D 33585 23301 3
3808              MLCS    WORK9,DVMSG1&34                          12  23256  D 33584 23309 3
3809              B       TYPE                                      7  23268  J 01029
3810    DVMSG1    DCW     @ */* EQ *, REM *, NEQ B*BB*B PLUS *@,G  35  23275
                                                  L RL R
3811    ERSKP6    BBE     *&8,TAD2,1                               12  23311  W 23330 01002 1
3812              B       *&2                                       7  23323  J 23331
3813              H                                                 1  23330  .
3814              BNQ     AA                                        7  23331  J 01160 Q
3815              BBE     RBC,TAD1,1                               12  23338  W 22931 01001 1
3816              B       O&X8                                      7  23350  J 00.00
3817
3818    RBF       BBE     ERSKP6,TADO,1                            12  23357  W 23311 01000 1
3819              MLCS    DIVDND,DVMSG2&3                          12  23369  D 33583 23403 3
3820              MLCS    DIVSOR,DVMSG2&5                          12  23381  D 33582 23405 3
3821              B       TYPE                                      7  23393  J 01029
3822    DVMSG2    DCW     @ CO*/* CAUSED DIV OFLOW@,G              23  23400
3823              B       ERSKP6                                    7  23424  J 23311
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PGLIN    LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
3824
3825     RBG        ZS     RBA1   . THESE THREE OPERATIONS CHANGE THE OP CODES  6  23431  : 22909
3826                ZS     *&1    . AT RBA1 & RBB SO THAT IN FOUR PASSES ALL   6  23437  : 23443
3827                ZS     RBB    . PLUS & MINUS NO.S ARE DIVIDED BY EACH OTHER 6  23443  : 22920
3828       SUB-RTN 24.03   CHECK DIVICE OVERFLOW
3829     RC         BDV    *&1                                                 7  23449  J 23456 W
3830                ZA     *-10,QUOREM          ZERO OUT DIVIDEND-QUOTIENT FIELD 11 23456  M 23456 33957
3831                ZA     *-10,DIVSOR          PUT ZERO IN DIVISOR            11  23467  M 23467 33582
3832                D      DIVSOR,QUOREM        DIVIDE ZERO BY ZERO            11  23478  % 33582 33957
3833                BDV    *&8                  SHOULD BRANCH & TURN OFF DIV OFLO 7  23489  J 23503 W
3834                B      *&15                                                7  23496  J 23517
3835                BDV    *&8                  SHOULD NOT BRANCH NOW          7  23503  J 23517 W
3836                B      RD-19                EXIT ROUTINE HERE              7  23510  J 23531
3837                B      TYPCK                                               7  23517  J 01074
3838                DCW    @#24.03@,G                                          6  23529
3839                BNQ    AA                   TEST FOR INQUIRY REQUEST       7  23531  J 01160 Q
3840                BBE    RC,TAD1,1                                           12 23538  W 23449 01001 1
3841       SUB-RTN 24.04   TEST 8-BIT RECOGNITION CKTS
3842     RD         MLCWA  @**YI@,WORK11        NUMERIC 0089, ZONES A A A BA   12 23550  D 01488 33589 X
3843                D      -8,WORK11-1          DIVIDE **YI BY MINUS 8         11 23562  % 01290 33588
3844                C      WORK11,@/J*A@                                       11 23573  C 33589 01492
3845                BE     RE-19                SHOULD BRANCH EQUAL            7  23584  J 23605 S
3846                B      TYPCK                                               7  23591  J 01074
3847                DCW    @#24.04@,G                                          6  23603
3848                BNQ    AA                   TEST FOR INQUIRY REQUEST       7  23605  J 01160 Q
3849                BBE    RD,TAD1,1                                           12 23612  W 23550 01001 1
3850       SUB-RTN 24.05   INSURE NO INTERFERENCE BY WDMKS IN B-FIELD
3851     RE         ZS     -8,WORK11                                           11 23624  : 01290 33589
3852                SW     WORK11,WORK11-1                                     11 23635  , 33589 33588
3853                D      -8,WORK11                                           11 23646  % 01290 33589
3854                BW     *&8,WORK11           TEST UNITS POS FOR WM          12 23657  V 23676 33589 1
3855                B      RF                   SHOULD NOT TAKE THIS ONE       7  23669  J 23724
3856                BW     *&8,WORK11-1         TEST TENS POS FOR WM           12 23676  V 23695 33588 1
3857                B      RF                   SHOULD NOT TAKE THIS ONE, EITHER 7 23688  J 23724
3858                CW     WORK11,WORK11-1                                     11 23695  ¤ 33589 33588
3859                C      WORK11,@0J0M@                                       11 23706  C 33589 01496
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
3860		BE	RG-19	EXIT ROUTINE HERE	7	23717	J 23749 S
3861	RF	B	TYPCK		7	23724	J 01074
3862		DCW	@#24.05@,G		6	23736	
3863		CW	WORK11,WORK11-1		11	23738	¤ 33589 33588
3864		BNQ	AA	TEST FOR INQUIRY REQUEST	7	23749	J 01160 Q
3865		BBE	RE,TAD1,1		12	23756	W 23624 01001 1
3866	SUB-RTN	24.06	PERFORM DIABOLIC DIVIDE				
3867	RG	ZA	K19,BIGANS-2		11	23768	Q M 33137 34150
3868		D	K20,BIGANS-21		11	23779	% 33147 34131
3869		C	BIGANS-2,K21		11	23790	C 34150 33178
3870		BE	RH-19		7	23801	J 23822 S
3871		B	TYPCK		7	23808	J 01074
3872		DCW	@#24.06@,G		6	23820	
3873		BNQ	AA	TEST FOR INQUIRY REQUEST	7	23822	J 01160 Q
3874		BBE	RG,TAD1,1		12	23829	W 23768 01001 1
3875	SUB-RTN	24.07	CHECK ADDRESS REGISTERS FOLLOWING DIVIDE				
3876	RH	ZA	DTABLE,WORK11		11	23841	Q M 33804 33589
3877		D	K20-8,WORK11		11	23852	% 33139 33589
3878		SAR	HOLDA3		7	23863	G 33949 A
3879		SBR	HOLDB3		7	23870	G 33954 B
3880		C	HOLDA3,K23		11	23877	C 33949 33188
3881		BU	•£19		7	23888	J 23913 /
3882		C	HOLDB3,K22		11	23895	C 33954 33183
3883		BE	RI-19		7	23906	J 23927 S
3884		B	TYPCK		7	23913	J 01074
3885		DCW	@#24.07@,G		6	23925	
3886		BNQ	AA	TEST FOR INQUIRY REQUEST	7	23927	J 01160 Q
3887		BBE	RH,TAD1,1		12	23934	W 23841 01001 1

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PGLIN     LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
3889        ROUTINE 25.00   CHECK OPERATION MOVE CHARACTERS & SUPPRESS ZEROS
3890
3891          SUB-RTN 25.01 TEST FOR ZONE BIT REMOVAL, UNITS POSN, B-FIELD
3892        RI          ZS  -8,P1                PUT DATA IN AREA P1      11  23946  .  01290 33957
3893                    MCS -8,P1                                         11  23957  Z  01290 33957
3894                    BZN RJ-19,P1,            SHOULD BRANCH            12  23968  V  23994 33957 2
3895                    B   TYPCK                                         7  23980  J  01074
3896                    DCW @#25.01@,G                                    6  23992
3897                    BNQ AA                   TEST FOR INQUIRY REQUEST 7  23994  J  01160 Q
3898                    BBE RI,TAD1,1                                     12  24001  W  23946 01001 1
3899          SUB-RTN 25.02 TEST THAT B-FIELD WORD MARKS ARE REMOVED BY MCS
3900        RJ          SW  P1,P1-1              PLACE TWO WORD MARKS     11  24013  ,  33957 33956
                            SS
3901                    MCS @BB@,P1                                       11  24024  Z  01498 33957
3902                    BW  *&20,P1              SHOULD NOT BRANCH        12  24035  V  24066 33957 1
3903                    BW  *&8,P1-1             SHOULD NOT BRANCH        12  24047  V  24066 33956 1
3904                    B   RK-19                                         7  24059  J  24091
3905                    B   TYPCK                                         7  24066  J  01074
3906                    DCW @#25.02@,G                                    6  24078
3907                    CW  P1,P1-1              INSURE WORD MARKS REMOVED 11  24080  ¤  33957 33956
3908                    BNQ AA                   TEST FOR INQUIRY REQUEST 7  24091  J  01160 Q
3909                    BBE RJ,TAD1,1                                     12  24098  W  24013 01001 1
3910          SUB-RTN 25.03 CHECK PROPER OPERATION OF EDIT SKID CYCLE
3911        RK          MLCWA @XX @-1,P1         PUT WM DATA IN P1 AREA   12  24110  D  01500 33957 X
                            SS
3912                    MCS @BB@-1,P1                                     11  24122  Z  01497 33957
3913                    C   @XX @,P1                                      11  24133  C  01501 33957
3914                    CW  P1-1                 REMOVE WM FROM P1 AREA   6  24144  ¤  33956
3915                    BE  RL-19                SHOULD BRANCH            7  24150  J  24171 S
3916                    B   TYPCK                                         7  24157  J  01074
3917                    DCW @#25.03@,G                                    6  24169
3918                    BNQ AA                   TEST FOR INQUIRY REQUEST 7  24171  J  01160 Q
3919                    BBE RK,TAD1,1                                     12  24178  W  24110 01001 1
3920          SUB-RTN 25.04 TEST ZERO SUPPRESS LATCH ON AT START OF SECOND
3921                        SCAN AND NOT RESET BY DECIMAL PT OR MINUS SIGN
3922        RL          BBE *&30,EEBIT,1         BRANCH IF EUROPEAN EDIT FEATURE 12  24190  W  24231 01261 1
3923                    MCS K24,WORK12                                    11  24202  Z  33195 33597
3924                    C   WORK12,K28                                    11  24213  C  33597 33237
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
3925                 B      *&23                                      7  24224  J 24253
3926                 MCS    K24A,WORK12                              11  24231  Z 33202 33597
3927                 C      WORK12,K28A                              11  24242  C 33597 33244
3928                 BE     RM-19                                     7  24253  J 24274 S
3929                 B      TYPCK                                     7  24260  J 01074
3930                 DCW    @#25.04@,G                                6  24272
3931                 BNQ    AA                TEST FOR INQUIRY REQUEST 7  24274  J 01160 Q
3932                 BBE    RL,TAD1,1                                12  24281  W 24190 01001 1
3933       SUB-RTN 25.05    TEST ZERO SUPPRESS LATCH ON AT START OF SECOND
3934                        SCAN AND NOT RESET BY ZERO, BLANK OR COMMA
3935     RM          BBE    *&19,EEBIT,1      BRANCH IF EUROPEAN EDIT FEATURE 12 24293 W 24323 01261 1
3936                 MCS    K25,WORK12                               11  24305  Z 33208 33597
3937                 B      *&12                                      7  24316  J 24334
3938                 MCS    K25A,WORK12                              11  24323  Z 33214 33597
3939                 C      WORK12,K29                               11  24334  C 33597 33250
3940                 BE     RN-19                                     7  24345  J 24366 S
3941                 B      TYPCK                                     7  24352  J 01074
3942                 DCW    @#25.05@,G                                6  24364
3943                 BNQ    AA                TEST FOR INQUIRY REQUEST 7  24366  J 01160 Q
3944                 BBE    RM,TAD1,1                                12  24373  W 24293 01001 1
3945       SUB-RTN 25.06    TEST THAT FIRST SIGNIFICANT DIGIT TURNS OFF ZERO
3946                        SUPPRESS LATCH AND IT REMAINS OFF THROUGHOUT
3947     RN          MCS    K26,WORK12                               11  24385  Z 33220 33597
3948                 C      WORK12,K30                               11  24396  C 33597 33256
3949                 BE     RP-19                                     7  24407  J 24428 S
3950                 B      TYPCK                                     7  24414  J 01074
3951                 DCW    @#25.06@,G                                6  24426
3952                 BNQ    AA                TEST FOR INQUIRY REQUEST 7  24428  J 01160 Q
3953                 BBE    RN,TAD1,1                                12  24435  W 24385 01001 1
3954       SUB-RTN 25.07    TEST THAT FIRST NON-SIGNIFICANT DIGIT TURNS ON
3955                        ZERO SUPPRESS LATCH
3956     RP          BBE    *&30,EEBIT,1      BRANCH IF EUROPEAN EDIT FEATURE 12 24447 W 24488 01261 1
3957                 MCS    K27,WORK12                               11  24459  Z 33225 33597
3958                 C      WORK12,K31                               11  24470  C 33597 33261
3959                 B      *&23                                      7  24481  J 24510
3960                 MCS    K27A,WORK12                              11  24488  Z 33230 33597
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
3961                 C      WORK12,K31A                              11  24499  C 33597 33266
3962                 BE     RR-19                                     7  24510  J 24531 S
3963                 B      TYPCK                                     7  24517  J 01074
3964                 DCW    @#25.07@,G                                6  24529
3965                 BNQ    AA                TEST FOR INQUIRY REQUEST 7  24531  J 01160 Q
3966                 BBE    RP,TAD1,1                                12  24538  W 24447 01001 1
3967       SUB-RTN 25.08    CHECK ADDRESS REGISTERS FOLLOWING MCS INSTRUCTION
3968     RR          MCS    WORK11,WORK12                            11  24550  Z 33589 33597
3969                 SAR    HOLDA3                                    7  24561  G 33949 A
3970                 SBR    HOLDB3                                    7  24568  G 33954 B
3971                 C      HOLDA3,K22                               11  24575  C 33949 33183
3972                 BU     *&19              SHOULD NOT BRANCH       7  24586  J 24611 /
3973                 C      HOLDB3,K32                               11  24593  C 33954 33271
3974                 BE     SA-19                                     7  24604  J 24625 S
3975                 B      TYPCK                                     7  24611  J 01074
3976                 DCW    @#25.08@,G                                6  24623
3977                 BNQ    AA                TEST FOR INQUIRY REQUEST 7  24625  J 01160 Q
3978                 BBE    RR,TAD1,1                                12  24632  W 24550 01001 1
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PGLIN     LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
3980          ROUTINE 26.00  CHECK EDIT INSTRUCTION
3981                         ALL #26.XX ROUTINES END OPERATION AFTER 1ST SCAN
3982        SUB-RTN 26.01    CHECK MCE FOR PROPER STEPPING OF AAR AND BAR
3983      SA          MLCWA  &50,WORK13          PUT DATA IN WORK13           12  24644  D 01503 33599 X
3984                  SW     WORK13              MAKE CONTROL FIELD LENGTH 1 CHAR  6  24656  , 33599
3985                  MCE    WORK13-1,WCRK13                                  11  24662  E 33598 33599
3986                  SAR    HOLDA3                                            7  24673  G 33949 A
3987                  SBR    HOLDB3                                            7  24680  G 33954 B
3988                  C      HOLDA3,K33          CHECK AAR                    11  24687  C 33949 33276
3989                  BU     *&19                                              7  24698  J 24723 /
3990                  C      HOLDB3,K34          CHECK BAR                    11  24705  C 33954 33281
3991                  BE     SB-19               SHOULD BRANCH                 7  24716  J 24737 S
3992                  B      TYPCK                                             7  24723  J 01074
3993                  DCW    @#26.01@,G          IND EDIT POSS NOT STOP IN 1 SCAN  6  24735
3994                  BNQ    AA                  TEST FOR INQUIRY REQUEST      7  24737  J 01160 Q
3995                  BBE    SA,TAD1,1                                        12  24744  W 24644 01001 1
3996        SUB-RTN 26.02    CHECK WM ELIMINATION IN B-FLD AND MOVE NO DATA
3997      SB          MLCWA  &50,WORK13                                       12  24756  D 01503 33599 X
3998                  SW     WORK13                                            6  24768  , 33599
3999                  MCE    WORK13-1,WCRK13                                  11  24774  E 33598 33599
4000                  C      WORK13,&50                                       11  24785  C 33599 01503
4001                  BU     *&19                                              7  24796  J 24821 /
4002                  C      &50,WORK13                                       11  24803  C 01503 33599
4003                  BE     SC-19               SHOULD BRANCH                 7  24814  J 24835 S
4004                  B      TYPCK                                             7  24821  J 01074
4005                  DCW    @#26.02@,G                                        6  24833
4006                  BNQ    AA                  TEST FOR INQUIRY REQUEST      7  24835  J 01160 Q
4007                  BBE    SB,TAD1,1                                        12  24842  W 24756 01001 1
4008        SUB-RTN 26.03    CHECK REPLACEMENT OF AMPERSAND BY BLANK
4009      SC          MLCWA  @M&@,WORK13         CTL FLD AMPERSAND, DATA FLD GM  12  24854  D 01505 33599 X
                             G
4010                  SW     WORK13                                            6  24866  , 33599
4011                  MCE    WORK13-1,WCRK13                                  11  24872  E 33598 33599
4012                  SBR    HOLDB3                                            7  24883  G 33954 B
4013                  C      HOLDB3,K34                                       11  24890  C 33954 33281
4014                  BU     *&13                SHOULD NOT BRANCH             7  24901  J 24920 /
4015                  BCE    SD-19,WORK13,       SHOULD BRANCH                12  24908  B 24934 33599
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PGLIN    LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
4016                B      TYPCK                                    7  24920  J 01074
4017                DCW    @#26.03@,G                               6  24932
4018                BNQ    AA                  TEST FOR INQUIRY REQUEST  7  24934  J 01160 Q
4019                BBE    SC,TAD1,1                               12  24941  W 24854 01001 1
4020          SUB-RTN 26.04  CONTROL FIELD BLANK, DATA FIELD NEGATIVE
4021      SD        MLCWA  @J @,WORK13                             12  24953  D 01507 33599 X
4022                SW     WORK13                                   6  24965  , 33599
4023                MCE    WORK13-1,WORK13                         11  24971  E 33598 33599
4024                SBR    HOLDB3                                   7  24982  G 33954 B
4025                C      HOLDB3,K34                              11  24989  C 33954 33281
4026                BU     *&13                SHOULD NOT BRANCH    7  25000  J 25019 /
4027                BCE    SE-19,WORK13,1      SHOULD BRANCH       12  25007  B 25033 33599 1
4028                B      TYPCK                                    7  25019  J 01074
4029                DCW    @#26.04@,G                               6  25031
4030                BNQ    AA                  TEST FOR INQUIRY REQUEST  7  25033  J 01160 Q
4031                BBE    SD,TAD1,1                               12  25040  W 24953 01001 1
4032          SUB-RTN 26.05  CONTROL FIELD MINUS SIGN, DATA FIELD NEGATIVE
4033      SE        MLCWA  @J-@,WORK13                             12  25052  D 01509 33599 X
4034                SW     WORK13                                   6  25064  , 33599
4035                MCE    WORK13-1,WORK13                         11  25070  E 33598 33599
4036                SBR    HOLDB3                                   7  25081  G 33954 B
4037                C      HOLDB3,K34                              11  25088  C 33954 33281
4038                BU     *&13                SHOULD NOT BRANCH    7  25099  J 25118 /
4039                BCE    SF-19,WORK13,-                          12  25106  B 25132 33599 -
4040                B      TYPCK                                    7  25118  J 01074
4041                DCW    @#26.05@,G                               6  25130
4042                BNQ    AA                  TEST FOR INQUIRY REQUEST  7  25132  J 01160 Q
4043                BBE    SE,TAD1,1                               12  25139  W 25052 01001 1
4044          SUB-RTN 26.06  CONTROL FIELD LETTERS ZR, DATA FIELD POSITIVE
4045      SF        MLCWA  @AZR@,WORK14                            12  25151  D 01512 33602 X
4046                SW     WORK14-1                                 6  25163  , 33601
4047                MCE    WORK14-2,WORK14                         11  25169  E 33600 33602
4048                SBR    HOLDB3                                   7  25180  G 33954 B
4049                C      HOLDB3,K35                              11  25187  C 33954 33286
4050                BU     *&19                SHOULD NOT BRANCH    7  25198  J 25223 /
4051                C      WORK14,@AZ @                            11  25205  C 33602 01515
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
4052		BE	SG-19		7	25216	J 25237 S
4053		B	TYPCK		7	25223	J 01074
4054		DCW	a#26.06a,G		6	25235	
4055		BNQ	AA	TEST FOR INQUIRY REQUEST	7	25237	J 01160 Q
4056		BBE	SF,TAD1,1		12	25244	W 25151 01001 1
4057	SUB-RTN 26.07		TURN ON EXTENSION LATCH AND NOT BODY LATCH				
4058	SG	MLCWA	aM. a,WORK14	CTL FLD PERIOD BLANK, DATA FLD GM	12	25256	D 01518 33602 X
4059		BBE	*&13,EEBIT,1	BRANCH IF EUROPEAN EDIT FEATURE	12	25268	W 25292 01261 1
4060		MLCWA	aM, a,WORK14	CTL FLD COMMA BLANK, DATA FLD GM	12	25280	D 01521 33602 X
4061		SW	WORK14-1		6	25292	, 33601
4062		MCE	WORK14-2,WORK14		11	25298	E 33600 33602
4063		SBR	HOLDB3		7	25309	G 33954 B
4064		C	HOLDB3,K35		11	25316	C 33954 33286
4065		BU	*&19	SHOULD NOT BRANCH	7	25327	J 25352 /
4066		C	WORK14,aM Ma		11	25334	C 33602 01524
4067		BE	SH-19		7	25345	J 25366 S
4068		B	TYPCK		7	25352	J 01074
4069		DCW	a#26.07a,G		6	25364	
4070		BNQ	AA	TEST FOR INQUIRY REQUEST	7	25366	J 01160 Q
4071		BBE	SG,TAD1,1		12	25373	W 25256 01001 1
4072	SUB-RTN 26.08		TURN ON BODY LATCH AND NOT EXTENSION LATCH				
4073	SH	MLCWA	a.BC a,WORK15		12	25385	D 01528 33606 X
4074		SW	WORK15-1		6	25397	, 33605
4075		MCE	WORK15-2,WORK15		11	25403	E 33604 33606
4076		SBR	HOLDB3		7	25414	G 33954 B
4077		C	HOLDB3,K36		11	25421	C 33954 33291
4078		BU	*&19	SHOULD NOT BRANCH	7	25432	J 25457 /
4079		C	WORK15,a.BC a		11	25439	C 33606 01528
4080		BE	SI-19		7	25450	J 25471 S
4081		B	TYPCK		7	25457	J 01074
4082		DCW	a#26.08a,G		6	25469	
4083		BNQ	AA	TEST FOR INQUIRY REQUEST	7	25471	J 01160 Q
4084		BBE	SF,TAD1,1		12	25478	W 25151 01001 1
4085	SUB-RTN 26.09		TURN ON BODY AND EXTENSION LATCHES				
4086	SI	MLCWA	a□□.* a,WORK14	FILL BOTH WORK14 AND WORK13	12	25490	D 01533 33602 X
4087		SW	WORK14-2		6	25502	, 33600

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PGLIN     LABEL      OPCOD   OPERAND                        CT  ADDRS  INSTRUCTION
4088                 MCE     WORK13,WORK14                  11  25508  E 33599 33602
4089                 SBR     HOLDB3                          7  25519  G 33954 B
4090                 C       HOLDB3,K37                     11  25526  C 33954 33296
4091                 BU      *&19                           7  25537  J 25562 /
4092                 C       WORK14,@.¤@@                   11  25544  C 33602 01536
4093                 BE      SJ-19                          7  25555  J 25576 S
4094                 B       TYPCK                          7  25562  J 01074
4095                 DCW     @#26.09@,G                     6  25574
4096                 BNQ     AA                             7  25576  J 01160 Q
4097                 BBE     SI,TAD1,1                      12 25583  W 25490 01001 1
4098       SUB-RTN 26.10 CHECK REMAINDER OF 1ST SCAN CIRCUITRY
4099                 WITHOUT PROCEEDING TO 2ND SCAN
4100       SJ        MLCWA   @%-$& @,WORK14                 12 25595  D 01541 33602 X
4101                 MCE     @ZR@,WORK14                    11 25607  E 01543 33602
4102                 SBR     HOLDB3                         7  25618  G 33954 B
4103                 C       HOLDB3,K33                     11 25625  C 33954 33276
4104                 BU      *&19                           7  25636  J 25661 /
4105                 C       WORK14,@%-Z 9@                 11 25643  C 33602 01548
4106                 BE      SK-19                          7  25654  J 25675 S
4107                 B       TYPCK                          7  25661  J 01074
4108                 DCW     @#26.10@,G                     6  25673
4109                 BNQ     AA                             7  25675  J 01160 Q
4110                 BBE     SJ,TAD1,1                      12 25682  W 25595 01001 1
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
4112        ROUTINE 27.00   CHECK EDIT INSTRUCTION, CONTINUED
4113                        ALL #27.XX ROUTINES END OPERATION AFTER 2ND SCAN
4114        SUB-RTN 27.01   TURN ON ZERO SUPPRESS LATCH, STORE NON-ZERO CHAR
4115      SK            MLCWA  @E0@,WORK13                          12  25694  D 01550 33599 X
4116                    SW     WORK13                                6  25706  , 33599
4117                    MCE    WORK13-1,WORK13                      11  25712  E 33598 33599
4118                    SBR    HOLDB3                                7  25723  G 33954 B
4119                    C      HOLDB3,K38                           11  25730  C 33954 33301
4120                    BU     *&19                 SHOULD NOT BRANCH 7  25741  J 25766 /
4121                    C      WORK13,@E5@                          11  25748  C 33599 01552
4122                    BE     SL-19                SHOULD BRANCH    7  25759  J 25780 S
4123                    B      TYPCK                                 7  25766  J 01074
4124                    DCW    @#27.01@,G                            6  25778
4125                    BNQ    AA                   TEST FOR INQUIRY REQUEST 7  25780  J 01160 Q
4126                    BBE    SK,TAD1,1                            12  25787  W 25694 01001 1
4127        SUB-RTN 27.02   ZERO IN B-FLD WITH ZERO SUPPRESS ALREADY ON AND
4128                        CHECK REGEN EXT & 2ND SCAN LATCH IN SECOND SCAN
4129      SL            MLCWA  @&G00@,WORK15                        12  25799  D 01556 33606 X
4130                    SW     WORK15-1                              6  25811  , 33605
4131                    MCE    WORK15-2,WORK15                      11  25817  E 33604 33606
4132                    SBR    HOLDB3                                7  25828  G 33954 B
4133                    C      HOLDB3,K39                           11  25835  C 33954 33306
4134                    BU     *&19                 SHOULD NOT BRANCH 7  25846  J 25871 /
4135                    C      WORK15,@&M&M@                        11  25853  C 33606 01560
4136                    BE     SM-19                SHOULD BRANCH    7  25864  J 25885 S
4137                    B      TYPCK                                 7  25871  J 01074
4138                    DCW    @#27.02@,G                            6  25883
4139                    BNQ    AA                   TEST FOR INQUIRY REQUEST 7  25885  J 01160 Q
4140                    BBE    SL,TAD1,1                            12  25892  W 25799 01001 1
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PGLIN  LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
4142       SUB-RTN 27.03  CHECK ASTERISK FILL, DOLLAR SIGN TO LEFT IGNORED
4143   SM          MLCWA  88*&0@,WORK15                                   12  25904  D 01564 33606 X
4144               BBE    *&26,EEBIT,1        BRANCH IF EUROPEAN EDIT FEATURE 12  25916  W 25953 01261 1
4145               MCE    @7,0/@,WORK15                                   11  25928  E 01568 33606
4146               SBR    HOLD83                                           7  25939  G 33954 B
4147               B      *&19                                             7  25946  J 25971
4148               MCE    @7.0/@,WORK15                                   11  25953  E 01572 33606
4149               SBR    HOLD83                                           7  25964  G 33954 B
4150               C      HOLD83,K39                                      11  25971  C 33954 33306
4151               BU     *&19                SHOULD NOT BRANCH            7  25982  J 26007 /
4152               C      WORK15,@***1@                                   11  25989  C 33606 01576
4153               BE     SN-19               SHOULD BRANCH                7  26000  J 26021 S
4154               B      TYPCK                                            7  26007  J 01074
4155               DCW    @#27.03@,G                                       6  26019
4156               BNQ    AA                  TEST FOR INQUIRY REQUEST     7  26021  J 01160 Q
4157               BBE    SM,TAD1,1                                       12  26028  W 25904 01001 1
4158       SUB-RTN 27.04  CHECK ASTERISK FILL AND DECIMAL CONTROL
4159   SN          MLCWA  @ ,*0@,WORK15                                   12  26040  D 01580 33606 X
4160               BBE    *&13,EEBIT,1        BRANCH IF EUROPEAN EDIT FEATURE 12  26052  W 26076 01261 1
4161               MLCWA  @ .*0@,WORK15                                   12  26064  D 01584 33606 X
4162               MCE    &070,WORK15                                     11  26076  E 01587 33606
4163               SBR    HOLD83                                           7  26087  G 33954 B
4164               C      HOLD83,K39                                      11  26094  C 33954 33306
4165               BU     *&42                SHOULD NOT BRANCH            7  26105  J 26153 /
4166               C      WORK15,@*,70@                                   11  26112  C 33606 01591
4167               BBE    *&12,EEBIT,1        BRANCH IF EUROPEAN EDIT FEATURE 12  26123  W 26146 01261 1
4168               C      WORK15,@*.70@                                   11  26135  C 33606 01595
4169               BE     SP-19               SHOULD BRANCH                7  26146  J 26167 S
4170               B      TYPCK                                            7  26153  J 01074
4171               DCW    @#27.04@,G                                       6  26165
4172               BNQ    AA                  TEST FOR INQUIRY REQUEST     7  26167  J 01160 Q
4173               BBE    SN,TAD1,1                                       12  26174  W 26040 01001 1
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PGLIN     LABEL       OPCOD   OPERAND                                  CT  ADDRS  INSTRUCTION
4175        SUB-RTN 27.05     PROVE THAT NON-SIGNIFICANT DIGIT SETS ZERO SUPPR
4176      SP          MLCWA   @    0@,WORK15      LINK WORK15 TO WORK14   12  26186  D 01600 33606 X
4177                  MCE     @10X02@,WORK15                              11  26198  E 01605 33606
4178                  SBR     HOLD83                                       7  26209  G 33954 B
4179                  C       HOLD83,K39                                  11  26216  C 33954 33306
4180                  BU      *&19           SHOULD NOT BRANCH             7  26227  J 26252 /
4181                  C       WORK15,@10X 2@                              11  26234  C 33606 01610
4182                  BE      SQ-19          SHOULD BRANCH                 7  26245  J 26266 S
4183                  B       TYPCK                                        7  26252  J 01074
4184                  DCW     @#27.05@,G                                   6  26264
4185                  BNQ     AA             TEST FOR INQUIRY REQUEST      7  26266  J 01160 Q
4186                  BBE     SP,TAD1,1                                   12  26273  W 26186 01001 1
4187        SUB-RTN 27.06     PROVE THAT PERIOD AND ZERO SUPPRESS OFF
4188                          DOES NOT SET DECIMAL CONTROL ON
4189      SQ          BBE     *&38,EEBIT,1   BRANCH IF EUROPEAN EDIT FEATURE 12  26285  W 26334 01261 1
4190                  MLCWA   @0.*,0@,WORK15 LINK WORK 15 TO WORK 14       12  26297  D 01615 33606 X
4191                  MCE     @5@,@,WORK15   DATA FLD IS FIVE, AT SIGN, COMMA 11  26309  E 01618 33606
4192                  SBR     HOLD83                                       7  26320  G 33954 B
4193                  B       *&31                                         7  26327  J 26364
4194                  MLCWA   @0,*.0@,WORK15 LINK WORK 15 TO WORK 14       12  26334  D 01623 33606 X
4195                  MCE     @5@.@,WORK15   DATA FLD IS FIVE, AT SIGN, PERIOD 11  26346  E 01626 33606
4196                  SBR     HOLD83                                       7  26357  G 33954 B
4197                  C       HOLD83,K39                                  11  26364  C 33954 33306
4198                  BU      *&42           SHOULD NOT BRANCH             7  26375  J 26423 /
4199                  C       WORK15,@5,@*#@ FIVE, COMMA, AT, SPLAT, POUND 11  26382  C 33606 01631
4200                  BBE     *&12,EEBIT,1   BRANCH IF EUROPEAN EDIT FEATURE 12  26393  W 26416 01261 1
4201                  C       WORK15,@5.@*#@ FIVE, POINT, AT, SPLAT, POUND 11  26405  C 33606 01636
4202                  BE      SR-19          SHOULD BRANCH                 7  26416  J 26437 S
4203                  B       TYPCK                                        7  26423  J 01074
4204                  DCW     @#27.06@,G                                   6  26435
4205                  BNQ     AA             TEST FOR INQUIRY REQUEST      7  26437  J 01160 Q
4206                  BBE     SQ,TAD1,1                                   12  26444  W 26285 01001 1
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
4208	SUB-RTN 27.07		PROVE DEC CTL ON, PROPER TREATMENT OF MINUS SIGN				
4209	SR	MLCWA	K41A,WORK15	K41A IS @ - X,Y 0@	12	26456	D 33327 33606 X
4210		BBE	*&13,EEBIT,1	BRANCH IF EUROPEAN EDIT FEATURE	12	26468	W 26492 01261 1
4211		MLCWA	K41,WORK15	K41 IS @ - X,Y 0@	12	26480	D 33319 33606 X
4212		MCE	-7007,WORK15		11	26492	E 01640 33606
4213		SBR	HOLDB3		7	26503	G 33954 B
4214		C	HOLDB3,K39		11	26510	C 33954 33306
4215		BU	*&42	SHOULD NOT BRANCH	7	26521	J 26569 /
4216		C	WORK15,K42A	K42A IS @7-0X,Y07@	11	26528	C 33606 33343
4217		BBE	*&12,EEBIT,1	BRANCH IF EUROPEAN EDIT FEATURE	12	26539	W 26562 01261 1
4218		C	WORK15,K42	K42 IS @7-0X,Y07@	11	26551	C 33606 33335
4219		BE	SS-19	SHOULD BRANCH	7	26562	J 26583 S
4220		B	TYPCK		7	26569	J 01074
4221		DCW	@#27.07@,G		6	26581	
4222		BNQ	AA	TEST FOR INQUIRY REQUEST	7	26583	J 01160 Q
4223		BBE	SR,TAD1,1		12	26590	W 26456 01001 1

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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
4225          ROUTINE 28.00  CHECK EDIT INSTRUCTION, CONCLUDED
4226                         ALL #28.XX ROUTINES REQUIRE THREE SCANS
4227            SUB-RTN 28.01  CHECK FLOATING DOLLAR SIGN AND SKID CYCLE, SCAN 3
4228          SS         MLCWA  @$0V@,WORK14                         12  26602  D 01643 33602 X
4229                     MCE    £00,WORK14-1                         11  26614  E 01645 33601
4230                     SBR    HOLDB3                                7  26625  G 33954 B
4231                     C      HOLDB3,K35                           11  26632  C 33954 33286
4232                     BU     *£19                 SHOULD NOT BRANCH 7  26643  J 26668 /
4233                     C      WORK14,@ $V@                         11  26650  C 33602 01648
4234                     BE     ST-19                SHOULD BRANCH    7  26661  J 26682 S
4235                     B      TYPCK                                 7  26668  J 01074
4236                     DCW    @#28.01@,G                            6  26680
4237                     BNQ    AA                   TEST FOR INQUIRY REQUEST 7  26682  J 01160 Q
4238                     BBE    SS,TAD1,1                            12  26689  W 26602 01001 1
4239            SUB-RTN 28.02  GO TO 3RD SCAN BECAUSE DEC CTRL AND ZERO SUPPR ON
4240                         PROVE NON-SIGNIFICANT DEC & ZERO REPL WITH BLANKS
4241          ST         MLCWA  @,C@,WORK14                          12  26701  D 01650 33602 X
4242                     BBE    *£13,EEBIT,1         BRANCH IF EUROPEAN EDIT FEATURE 12  26713  W 26737 01261 1
4243                     MLCWA  @,0@,WORK14                          12  26725  D 01652 33602 X
4244                     MCE    £0,WORK14                            11  26737  E 01345 33602
4245                     SBR    HOLDB3                                7  26748  G 33954 B
4246                     C      HOLDB3,K35                           11  26755  C 33954 33286
4247                     BU     *£19                 SHOULD NOT BRANCH 7  26766  J 26791 /
4248                     C      WORK14,@  @                          11  26773  C 33602 01654
4249                     BE     SU-19                SHOULD BRANCH    7  26784  J 26805 S
4250                     B      TYPCK                                 7  26791  J 01074
4251                     DCW    @#28.02@,G                            6  26803
4252                     BNQ    AA                   TEST FOR INQUIRY REQUEST 7  26805  J 01160 Q
4253                     BBE    ST,TAD1,1                            12  26812  W 26701 01001 1
4254            SUB-RTN 28.03  PROVE ASTERISKS REPLACE ZERO, DECIMAL IN 3RD SCAN
4255          SU         MLCWA  @,*0@,WORK14                         12  26824  D 01657 33602 X
4256                     BBE    *£13,EEBIT,1         BRANCH IF EUROPEAN EDIT FEATURE 12  26836  W 26860 01261 1
4257                     MLCWA  @,*0@,WORK14                         12  26848  D 01660 33602 X
4258                     MCE    £00,WORK14                           11  26860  E 01645 33602
4259                     SBR    HOLDB3                                7  26871  G 33954 B
4260                     C      HOLDB3,K37                           11  26878  C 33954 33296
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
4261                 BU     *&19                 SHOULD NOT BRANCH    7  26889  J 26914 /
4262                 C      WORK14,@***1@-1      NOTE THAT DIGIT 1 IS NOT INCLUDED  11  26896  C 33602 01575
4263                 BE     SV-19                SHOULD BRANCH        7  26907  J 26928 S
4264                 B      TYPCK                                     7  26914  J 01074
4265                 DCW    @#28.03@,G                                6  26926
4266                 BNQ    AA                   TEST FOR INQUIRY REQUEST  7  26928  J 01160 Q
4267                 BBE    SU,TAD1,1                                12  26935  W 26824 01001 1
4268       SUB-RTN 28.04     RETAIN CHARACTER & REPLACE BLANK WITH ASTERISK
4269     SV          MLCWA  @*,M0@,WORK14                            12  26947  D 01664 33602 X
4270                 BBE    *&13,EEBIT,1         BRANCH IF EUROPEAN EDIT FEATURE  12  26959  W 26983 01261 1
4271                 MLCWA  @*,M0@,WORK14                            12  26971  D 01668 33602 X
4272                 MCE    @Z @,WORK14                              11  26983  E 01670 33602
4273                 SBR    HOLDB3                                    7  26994  G 33954 B
4274                 C      HOLDB3,K37                               11  27001  C 33954 33296
4275                 BU     *&19                 SHOULD NOT BRANCH    7  27012  J 27037 /
4276                 C      WORK14,@Z*M*@                            11  27019  C 33602 01674
4277                 BE     SW-19                SHOULD BRANCH        7  27030  J 27051 S
4278                 B      TYPCK                                     7  27037  J 01074
4279                 DCW    @#28.04@,G                                6  27049
4280                 BNQ    AA                   TEST FOR INQUIRY REQUEST  7  27051  J 01160 Q
4281                 BBE    SV,TAD1,1                                12  27058  W 26947 01001 1
4282       SUB-RTN 28.05     CHECK THAT BLANK IN UNITS POSN RETAINED IN SCAN 3
4283     SW          BBE    *&38,EEBIT,1         BRANCH IF EUROPEAN EDIT FEATURE  12  27070  W 27119 01261 1
4284                 MLCWA  @0.0@,WORK14                             12  27082  D 01677 33602 X
4285                 MCE    @, @,WORK14                              11  27094  E 01679 33602
4286                 SBR    HOLDB3                                    7  27105  G 33954 B
4287                 B      *&31                                      7  27112  J 27149
4288                 MLCWA  @0,0@,WORK14                             12  27119  D 01682 33602 X
4289                 MCE    @. @,WORK14                              11  27131  E 01684 33602
4290                 SBR    HOLDB3                                    7  27142  G 33954 B
4291                 C      HOLDB3,K35                               11  27149  C 33954 33286
4292                 BU     *&19                 SHOULD NOT BRANCH    7  27160  J 27185 /
4293                 C      WORK14,@    0@-2     B-FLD IS BLANK, BLANK, BLANK  11  27167  C 33602 01598
4294                 BE     SX-19                SHOULD BRANCH        7  27178  J 27199 S
4295                 B      TYPCK                                     7  27185  J 01074
4296                 DCW    @#28.05@,G                                6  27197
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
4297                 BNQ    AA                TEST FOR INQUIRY REQUEST  7  27199  J 01160 Q
4298                 BBE    SW,TAD1,1                                12  27206  W 27070 01001 1
4299       SUB-RTN 28.06    ZERO SUPPRESS & DECIMAL CONTROL BOTH OFF, SCAN 3
4300                        INSURE THAT * TO LEFT OF $ IGNORED IN SCAN 2
4301       SX       MLCWA  @ *$0@,WORK15                            12  27218  D 01688 33606 X
4302                MCE    @6.0@,WORK15                             11  27230  E 01691 33606
4303                SBR    HOLDB3                                    7  27241  G 33954 B
4304                C      HOLDB3,K40                               11  27248  C 33954 33311
4305                BU     *&19              SHOULD NOT BRANCH       7  27259  J 27284 /
4306                C      WORK15,@$6.0@                            11  27266  C 33606 01695
4307                BE     SY-19             SHOULD BRANCH           7  27277  J 27298 S
4308                B      TYPCK                                     7  27284  J 01074
4309                DCW    @#28.06@,G                                6  27296
4310                BNQ    AA                TEST FOR INQUIRY REQUEST  7  27298  J 01160 Q
4311                BBE    SX,TAD1,1                                12  27305  W 27218 01001 1
4312       SUB-RTN 28.07    ZERO SUPPRESS OFF, DECIMAL CONTROL ON, SCAN 3
4313       SY       MLCWA  @00$0@,WORK14                            12  27317  D 01699 33602 X
4314                BBE    *&26,EEBIT,1      BRANCH IF EUROPEAN EDIT FEATURE  12  27329  W 27366 01261 1
4315                MCE    @.30@,WORK14                             11  27341  E 01702 33602
4316                SBR    HOLDB3                                    7  27352  G 33954 B
4317                B      *&19                                      7  27359  J 27384
4318                MCE    @,30@,WORK14                             11  27366  E 01705 33602
4319                SBR    HOLDB3                                    7  27377  G 33954 B
4320                C      HOLDB3,K37                               11  27384  C 33954 33296
4321                BU     *&42              SHOULD NOT BRANCH       7  27395  J 27443 /
4322                C      WORK14,@ ,30@     NOTE ABSENCE OF FLOATING DOLLAR  11  27402  C 33602 01709
4323                BBE    *&12,EEBIT,1      BRANCH IF EUROPEAN EDIT FEATURE  12  27413  W 27436 01261 1
4324                C      WORK14,@ .30@     NOTE ABSENCE OF FLOATING DOLLAR  11  27425  C 33602 01713
4325                BE     SZ-19             SHOULD BRANCH           7  27436  J 27457 S
4326                B      TYPCK                                     7  27443  J 01074
4327                DCW    @#28.07@,G                                6  27455
4328                BNQ    AA                TEST FOR INQUIRY REQUEST  7  27457  J 01160 Q
4329                BBE    SY,TAD1,1                                12  27464  W 27317 01001 1
4330       SUB-RTN 28.08    PERFORM ELABORATE EDIT
4331       SZ       BBE    *&42,EEBIT,1      BRANCH IF EUROPEAN EDIT FEATURE  12  27476  W 27529 01261 1
4332                MLCWA  K43,BIGANS                               12  27488  D 33363 34152 X
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
4333		MCE	K44,BIGANS		11	27500	E 33393 34152
4334		C	BIGANS,K45		11	27511	C 34152 33423
4335		B	*&35		7	27522	J 27563
4336		MLCWA	K43A,BIGANS		12	27529	D 33383 34152 X
4337		MCE	K44A,BIGANS		11	27541	E 33403 34152
4338		C	BIGANS,K45A		11	27552	C 34152 33443
4339		BE	TA-19	SHOULD BRANCH	7	27563	J 27584 S
4340		B	TYPCK		7	27570	J 01074
4341		OCW	@#28.08@,G		6	27582	
4342		BNQ	AA	TEST FOR INQUIRY REQUEST	7	27584	J 01160 Q
4343		BBE	SZ,TAD1,1		12	27591	W 27476 01001 1

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PGLIN     LABEL      OPCOD  OPERAND                                    CT  ADDRS  INSTRUCTION

4345        ROUTINE 29.00   CHECK CHAINED OPERATIONS
4346
4347        SUB-RTN 29.01   CHAINED BRANCH-ON-WORD-MARK INSTRUCTIONS
4348      TA          CS    202                INSURE TEST AREA BLANK   6  27603  / 00202
4349                  SW    200                                         6  27609  , 00200
4350                  BW    *&8,202            SHOULD NOT BRANCH        12 27615  V 27634 00202 1
4351                  BW                       I-ADDR SAME, B-ADDR 00201, NO BR  1  27627  V
4352                  BW    TB-19              NEW I-ADDR, B-ADDR 00200, BRANCH  6  27628  V 27648
4353                  B     TYPCK                                       7  27634  J 01074
4354                  DCW   @#29.01@,G                                  6  27646
4355                  BNQ   AA                 TEST FOR INQUIRY REQUEST 7  27648  J 01160 Q
4356                  BBE   TA,TAD1,1                                   12 27655  W 27603 01001 1
4357        SUB-RTN 29.02   CHAINED SET WORD MARK INSTRUCTIONS
4358      TB          CS    206                INSURE TEST AREA BLANK   6  27667  / 00206
4359                  SW    206,202            ESTABLISH A & B ADDRESSES 11 27673  , 00206 00202
4360                  SW                       SHOULD SET WMS AT 00205, 00201    1  27684  ,
4361                  SW    204                SHOULD CHANGE BOTH AAR & BAR      6  27685  , 00204
4362                  SW                       SHOULD SET WM ONLY AT 00203       1  27691  ,
4363                  BW    *&8,205            SHOULD BRANCH            12 27692  V 27711 00205 1
4364                  B     TC                                          7  27704  J 27768
4365                  BW    *&8,203            SHOULD BRANCH            12 27711  V 27730 00203 1
4366                  B     TC                                          7  27723  J 27768
4367                  BW    *&8,201            SHOULD BRANCH            12 27730  V 27749 00201 1
4368                  B     TC                                          7  27742  J 27768
4369                  BW    *&8,200            SHOULD NOT BRANCH        12 27749  V 27768 00200 1
4370                  B     TD-19                                       7  27761  J 27782
4371      TC          B     TYPCK                                       7  27768  J 01074
4372                  DCW   @#29.02@,G                                  6  27780
4373                  BNQ   AA                 TEST FOR INQUIRY REQUEST 7  27782  J 01160 Q
4374                  BBE   TB,TAD1,1                                   12 27789  W 27667 01001 1
4375        SUB-RTN 29.03   CHAINED CLEAR WORD MARK INSTRUCTIONS
4376      TD          SW    205,202            SET WMS OVER 00200-00205 11 27801  , 00205 00202
4377                  SW                                                1  27812  ,
4378                  SW                                                1  27813  ,
4379                  CW    206,202            ESTABLISH A & B ADDRESSES 11 27814  ¤ 00206 00202
4380                  CW                       SHOULD CLEAR WMS AT 00205, 00201  1  27825  ¤
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PGLIN     LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
4381                 CW     204                SHOULD CHANGE BOTH AAR & BAR   6  27826  ¤ 00204
4382                 CW                        SHOULD CLEAR WM ONLY AT 00203  1  27832  ¤
4383                 BW     TE,205             SHOULD NOT BRANCH             12  27833  V 27855 00205 1
4384                 BW                        DITTO                          1  27845  V
4385                 BW                        DITTO                          1  27846  V
4386                 BW                        DITTO                          1  27847  V
4387                 BW                        DITTO                          1  27848  V
4388                 BW     TF-19              EXAMINE LOC 00200.  SHOULD BRANCH  6  27849  V 27869
4389      TE         B      TYPCK                                             7  27855  J 01074
4390                 DCW    @#29.03@,G                                        6  27867
4391                 BNQ    AA                 TEST FOR INQUIRY REQUEST       7  27869  J 01160 Q
4392                 BBE    TD,TAD1,1                                        12  27876  W 27801 01001 1
4393        SUB-RTN 29.04    CHAINED BRANCH UNCONDITIONAL
4394      TF         BCE    TG-19,TF,          SETS UP I-ADDR, D-MCD.  NO BRANCH  12  27888  B 27915 27888
4395                 DCW    @J@                HOME MADE 1-CHAR BRANCH OP CODE  1  27900
4396                 B      TYPCK                                             7  27901  J 01074
4397                 DCW    @#29.04@,G                                        6  27913
4398                 BNQ    AA                 TEST FOR INQUIRY REQUEST       7  27915  J 01160 Q
4399                 BBE    TF,TAD1,1                                        12  27922  W 27888 01001 1
4400        SUB-RTN 29.05    CHAINED CONDITIONAL BRANCH.  SIMILAR TO #29.04
4401      TG         BCE    *&9,TG,S           SETS I-ADDR, D-MOD, UNEQ COMP  12  27934  B 27954 27934 S
4402                 DCW    @J@                PREV D-MOD SIMULATES BR EQL HERE  1  27946
4403                 B      TH-19              SHOULD TAKE THIS ONE           7  27947  J 27968
4404                 B      TYPCK                                             7  27954  J 01074
4405                 DCW    @#29.05@,G                                        6  27966
4406                 BNQ    AA                 TEST FOR INQUIRY REQUEST       7  27968  J 01160 Q
4407                 BBE    TG,TAD1,1                                        12  27975  W 27934 01001 1
4408        SUB-RTN 29.06    CHAINED CLEAR STORAGE INSTRUCTION
4409      TH         MLWA   *-3,TADHLD                                       12  27987  D 27995 33969 U
4410                 MLCWB  199,TADHLD         SAVE LOCATIONS 00191-00199    12  27999  D 00199 33969 P
4411                 MLCWA  @X@@,200           MOVE DATA TO LOC 00199, 00200  12  28011  D 01715 00200 X
4412                 SW     200                                               6  28023  , 00200
4413                 CS     300                CLEAR LOCATION 00300, STOP     6  28029  / 00300
4414                 CS                        SHOULD CLEAR 00200-00299       1  28035  /
4415                 C      @ X @,200          TEST LOCATIONS 00199, 00200   11  28036  C 01718 00200
4416                 MLWA   *-3,199            . RESTORE LOCATIONS           12  28047  D 28055 00199 U
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PGLIN     LABEL      OPCOD   OPERAND                                          CT  ADDRS  INSTRUCTION
4417                 MLCWB   TADHLD,199          . 00191-00199               12  28059  D 33969 00199 P
4418                 BE      TI-19               SHOULD BRANCH                7  28071  J 28092 S
4419                 B       TYPCK                                            7  28078  J 01074
4420                 DCW     @#29.06@,G                                       6  28090
4421                 BNQ     AA                  TEST FOR INQUIRY REQUEST     7  28092  J 01160 Q
4422                 BBE     TH,TAD1,1                                       12  28099  W 27987 01001 1
4423       SUB-RTN 29.07     CHAINED CLEAR STORAGE & BRANCH INSTRUCTION
4424     TI          MRCWR   *&8,200             RELOCATE FOLLOWING SHORT ROUTINE 12  28111  D 28130 00200 SM
4425                 B       20C                 BRANCH TO IT                 7  28123  J 00200
4426                 CS      212,300   * RELOC TO 00200, CLEARS & BR TO LOC 00212 11  28130  / 00212 00300
4427                 H                 * RELOC TO 00211, NEVER EXECUTED         1  28141  .
4428                 CS                * RELOC TO 00212, SHOULD CLEAR 00211-00200 1  28142  /
4429                 B       TJ        * RELOC TO 00213, RETURN TO MAIN PROGRAM  7  28143  J 28151
4430                 DCW     @+@       * RELOC TO 00220, TERMINAL CHAR FOR MRCWR 1  28150
4431     TJ          BCE     TK-19,200,          EXAMINE LOC 00200.  SHOULD BRANCH 12  28151  B 28177 00200
4432                 B       TYPCK                                            7  28163  J 01074
4433                 DCW     @#29.07@,G                                       6  28175
4434                 BNQ     AA                  TEST FOR INQUIRY REQUEST     7  28177  J 01160 Q
4435                 BBE     TI,TAD1,1                                       12  28184  W 28111 01001 1
4436       SUB-RTN 29.08     CHAINED DATA MOVE INSTRUCTIONS
4437     TK          CS      214                                              6  28196  / 00214
4438                 MLCWA   @5.@*#@,214         MOVE DATA TO 00210-00214    12  28202  D 01636 00214 X
4439                 MLCWA   214                 ALTER A-ADDR, CHAIN B-ADDR   6  28214  D 00214
4440                 MLCWA                       CHAIN BOTH A & B ADDRESS     1  28220  D
4441                 C       204,@5.@*#@         TEST ORIGINAL DATA NOW AT 00204 11  28221  C 00204 01636
4442                 BE      TL-19               SHOULD BRANCH                7  28232  J 28253 S
4443                 B       TYPCK                                            7  28239  J 01074
4444                 DCW     @#29.08@,G                                       6  28251
4445                 BNQ     AA                  TEST FOR INQUIRY REQUEST     7  28253  J 01160 Q
4446                 BBE     TK,TAD1,1                                       12  28260  W 28196 01001 1
4447       SUB-RTN 29.09     CHAINED ZERO-ADD INSTRUCTION
4448     TL          CS      209                                              6  28272  / 00209
4449                 SW      200,205                                         11  28278  . 00200 00205
4450                 ZA      DTABLE,209          PUT 00001 INTO 00205-00209  11  28289  ZM 33804 00209
4451                 ZA                          SHOULD PUT 0000H INTO 00200-00204 1  28300  ZM
4452                 C       204,&00008                                      11  28301  C 00204 01723
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
4453                 BE     TM-19              SHOULD BRANCH          7  28312  J 28333 S
4454                 B      TYPCK                                     7  28319  J 01074
4455                 DCW    @#29.09@,G                                6  28331
4456                 BNQ    AA                 TEST FOR INQUIRY REQUEST  7  28333  J 01160 Q
4457                 BBE    TL,TAD1,1                                12  28340  W 28272 01001 1
4458       SUB-RTN 29.10  CHAINED ZERO-SUBTRACT.  SIMILAR TO #29.09
4459     TM          CS     202                                       6  28352  / 00202
4460                 SW     200,202                                  11  28358  , 00200 00202
4461                 ZS     @Z*M*@,202         B-FLD LENGTH LESS THAN A-FLD  11  28369  : 01674 00202
4462                 ZS                                               1  28380  :
4463                 C      201,&44                                  11  28381  C 00201 01725
4464                 BE     TN-19              SHOULD BRANCH          7  28392  J 28413 S
4465                 B      TYPCK                                     7  28399  J 01074
4466                 DCW    @#29.10@,G                                6  28411
4467                 BNQ    AA                 TEST FOR INQUIRY REQUEST  7  28413  J 01160 Q
4468                 BBE    TM,TAD1,1                                12  28420  W 28352 01001 1
4469       SUB-RTN 29.11  CHAINED ADD INSTRUCTION
4470     TN          CS     203                                       6  28432  / 00203
4471                 SW     200,202                                  11  28438  , 00200 00202
4472                 A      DTABLE,202         SET UP ADDRESS REGISTERS  11  28449  A 33804 00202
4473                 A                         SHOULD ADD PLUS 8 TO TWO BLANKS  1  28460  A
4474                 C      201,@08@                                 11  28461  C 00201 01727
4475                 BE     TP-19              SHOULD BRANCH          7  28472  J 28493 S
4476                 B      TYPCK                                     7  28479  J 01074
4477                 DCW    @#29.11@,G                                6  28491
4478                 BNQ    AA                 TEST FOR INQUIRY REQUEST  7  28493  J 01160 Q
4479                 BBE    TN,TAD1,1                                12  28500  W 28432 01001 1
4480       SUB-RTN 29.12  CHAINED SUBTRACT INSTRUCTION
4481     TP          MLCWA  -00009,204                               12  28512  D 01479 00204 X
4482                 SW     201,204                                  11  28524  , 00201 00204
4483                 S      204,203            A-FLD LENGTH 1, B-FLD LENGTH 3  11  28535  S 00204 00203
4484                 S                         SHOULD SUBTRACT 00203 FROM 00200  1  28546  S
4485                 BCE    TQ-19,200,R        SHOULD BRANCH.  R IS MINUS 9  12  28547  B 28573 00200 R
4486                 B      TYPCK                                     7  28559  J 01074
4487                 DCW    @#29.12@,G                                6  28571
4488                 BNQ    AA                 TEST FOR INQUIRY REQUEST  7  28573  J 01160 Q
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PGLIN     LABEL      OPCOD  OPERAND                                                    CT  ADDRS  INSTRUCTION
4489                 BBE    TP,TAD1,1                                                  12  28580  W 28512 01001 1
4490       SUB-RTN 29.13    CHAINED MULTIPLY INSTRUCTIONS
4491     TQ            CS     211                 .                 .                  6  28592  / 00211
4492                   SW     211                 . SET             .                  6  28598  , 00211
4493                   SW                         .  UP             .                  1  28604  ,
4494                   SW     209,206             .   WORK          .                 11  28605  , 00209 00206
4495                   SW     203,200             .    FIELD        .                 11  28616  , 00203 00200
4496                   ZA     DTABLE,211          .     WITH        .                 11  28627  M 33804 00211
4497                   ZS                         .      CONSTANTS  .                  1  28638  ,
4498                   ZA                         .       FROM      .                  1  28639  M
4499                   ZS     DTABLE-3,206        .        DIVIDE   .                 11  28640  , 33801 00206
4500                   ZS     DTABLE-4,203        .         TABLE   .                 11  28651  , 33800 00203
4501                   ZS     DTABLE-5,200        .                 .                 11  28662  , 33799 00200
4502                   M      209,208             ESTABLISH A & B ADDR REG SETTINGS    11  28673  @ 00209 00208
4503                   M      211                 ALTER A-FLD ADDR, CHAIN B-ADDR        6  28684  @ 00211
4504                   M                          CHAIN BOTH A & B ADDRESSES            1  28690  @
4505                   C      205,-045            TEST EFFECT OF 1ST CHAINED MPY       11  28691  C 00205 01730
4506                   BU     *&19                SHOULD NOT BRANCH                     7  28702  J 28727 /
4507                   C      202,&032            TEST EFFECT OF 2ND CHAINED MPY       11  28709  C 00202 01733
4508                   BE     TR-19               SHOULD BRANCH                         7  28720  J 28741 S
4509                   B      TYPCK                                                     7  28727  J 01074
4510                   DCW    @#29.13@,G                                                6  28739
4511                   BNQ    AA                  TEST FOR INQUIRY REQUEST              7  28741  J 01160 Q
4512                   BBE    TQ,TAD1,1                                                12  28748  W 28592 01001 1
4513
4514       SUB-RTN 29.14    CHAINED DIVIDE INSTRUCTION. B-ADDR ONLY
4515     TR            MLCWA  @001 @,203                                               12  28760  D 01737 00203 X
4516                   CW     203                 DUMMY OP TO ESTABLISH A & B ADDR      6  28772  ¤ 00203
4517                   D      &5                  NEW A-ADDR, B-ADDR LOCATION 00202     6  28778  % 01303
4518                   C      202,@AOD@           PLUS 1, REMAINDER PLUS 4             11  28784  C 00202 01740
4519                   BE     TS-19                                                     7  28795  J 28816 S
4520                   B      TYPCK                                                     7  28802  J 01074
4521                   DCW    @#29.14@,G                                                6  28814
4522                   BNQ    AA                  TEST FOR INQUIRY REQUEST              7  28816  J 01160 Q
4523                   BBE    TR,TAD1,1                                                12  28823  W 28760 01001 1
4524       SUB-RTN 29.15    CHAINED DIVIDE INSTRUCTION, A & B ADDRESSES
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PGLIN  LABEL      OPCOD  OPERAND                          CT  ADDRS  INSTRUCTION
4525   TS         MLCWA  @N00E@,203                       12  28835  D 01744 00203 X
4526              SW     201,204          DEFINE FLD LENGTHS, SET A & B ADR  11  28847  , 00201 00204
4527              D                       SHOULD DIV LOC 00200 INTO 00203    1  28858  %
4528              C      203,@JOM@                         11  28859  C 00203 01747
4529              BE     TT-19                              7  28870  J 28891 S
4530              B      TYPCK                              7  28877  J 01074
4531              DCW    @#29.15@,G                         6  28889
4532              BNQ    AA               TEST FOR INQUIRY REQUEST          7  28891  J 01160 Q
4533              BBE    TS,TAD1,1                         12  28898  W 28835 01001 1
4534        SUB-RTN 29.16  CHAINED BRANCH ON BIT EQUAL
4535   TT         BBE    TU,*&1,R         SET BAR, D-MOD. SHOULD NOT BRANCH  12  28910  W 28948 28922 R
4536              BBE    *&8              SHOULD BRANCH                      6  28922  W 28935
4537              B      TU                                  7  28928  J 28948
4538              MLWS   TU1&1,*&1        DUMMY OP TO SET AAR, BAR, D-MOD   12  28935  D 28963 28947 4
4539              BBE                     SHOULD BRANCH                      1  28947  W
4540   TU         B      TYPCK                               7  28948  J 01074
4541              DCW    @#29.16@,G                          6  28960
4542   TU1        NOP                                        1  28962  N
4543              BNQ    AA               TEST FOR INQUIRY REQUEST          7  28963  J 01160 Q
4544              BBE    TT,TAD1,1                          12  28970  W 28910 01001 1
4545        SUB-RTN 29.17  CHAINED BRANCH ON CHARACTER EQUAL
4546   TV         BCE    TW,*&1,Z         SET BAR, D-MOD. SHOULD NOT BRANCH  12  28982  B 29020 28994 Z
4547              BCE    *&8              SHOULD BRANCH                      6  28994  B 29007
4548              B      TW                                  7  29000  J 29020
4549              MLWS   TW1&1,*&1        DUMMY OP TO SET AAR, BAR, D-MOD   12  29007  D 29035 29019 4
4550              BCE                     SHOULD BRANCH                      1  29019  B
4551   TW         B      TYPCK                               7  29020  J 01074
4552              DCW    @#29.17@,G                          6  29032
4553   TW1        NOP                                        1  29034  N
4554              BNQ    AA               TEST FOR INQUIRY REQUEST          7  29035  J 01160 Q
4555              BBE    TV&1,TAD1,1                        12  29042  W 28983 01001 1
4556        SUB-RTN 29.18  CHAINED COMPARE INSTRUCTIONS
4557   TX         C      K46,K47          9 VS 8 MUST SET B LESS THAN A     11  29054  C 33444 33445
4558              C      K46              COMPARE TWO IDENTICAL NUMBER 9S    6  29065  C 33444
4559              BE     *&8              SHOULD BRANCH                      7  29071  J 29085 S
4560              B      *&9                                 7  29078  J 29093
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
4561                 C                                               1  29085  C
4562                 BH     TY-19          SHOULD BRANCH            7  29086  J 29107 U
4563                 B      TYPCK                                   7  29093  J 01074
4564                 DCW    @#29.18@,G                              6  29105
4565                 BNQ    AA             TEST FOR INQUIRY REQUEST 7  29107  J 01160 Q
4566                 BBE    TX&1,TAD1,1                            12  29114  W 29055 01001 1
4567       SUB-RTN 29.19    CHAINED TABLE LOOK-UP INSTRUCTIONS
4568       TY        LL     DTABLE-3,DTABLE  SET AAR, BAR, OP-MOD REGISTERS 12  29126  T 33801 33804 1
4569                 LL     DTABLE-6                                6  29138  T 33798
4570                 SBR    *&11                                    7  29144  G 29161 B
4571                 BCE    *&8,0,A        SHOULD BRANCH, A IS PLUS 1 12  29151  B 29170 00000 A
4572                 B      TZ                                      7  29163  J 29202
4573                 MLZS   DTABLE-6,DTABLE  SET AAR, BAR, OP-MOD REGISTERS 12  29170  D 33798 33804 2
4574                 LE                                             1  29182  T
4575                 SBR    *&11                                    7  29183  G 29200 B
4576                 BCE    UA-19,0,A      SHOULD BRANCH            12  29190  B 29216 00000 A
4577       TZ        B      TYPCK                                   7  29202  J 01074
4578                 DCW    @#29.19@,G                              6  29214
4579                 BNQ    AA             TEST FOR INQUIRY REQUEST 7  29216  J 01160 Q
4580                 BBE    TY,TAD1,1                              12  29223  W 29126 01001 1
4581       SUB-RTN 29.20    CHAINED MOVE AND ZERO SUPPRESS INSTRUCTIONS
4582       UA        BBE    UA1,EEBIT,1    BRANCH IF EUROPEAN EDIT FEATURE 12  29235  W 29312 01261 1
4583                 MCS    K51,WORK16-1   ESTABLISH A & B ADDR REG SETTINGS 11  29247  Z 33463 33613
4584                 MCS    K51            ALTER AAR, CHAIN BAR     6  29258  Z 33463
4585                 C      WORK16,K54                              11  29264  C 33614 33487
4586                 BU     UB             SHOULD NOT BRANCH        7  29275  J 29377 /
4587                 MCS    K51,WORK16-1   ESTABLISH A & B ADDR REG SETTINGS 11  29282  Z 33463 33613
4588                 MCS                   CHAIN BOTH AAR & BAR     1  29293  Z
4589                 C      WORK16,K53                              11  29294  C 33614 33481
4590                 B      UA2                                     7  29305  J 29370
4591       UA1       MCS    K51A,WORK16-1  ESTABLISH A & B ADDR REG SETTINGS 11  29312  Z 33475 33613
4592                 MCS    K51A           ALTER AAR, CHAIN BAR     6  29323  Z 33475
4593                 C      WORK16,K54A                             11  29329  C 33614 33493
4594                 BU     UB             SHOULD NOT BRANCH        7  29340  J 29377 /
4595                 MCS    K51A,WORK16-1  ESTABLISH A & B ADDR REG SETTINGS 11  29347  Z 33475 33613
4596                 MCS                   CHAIN BOTH AAR & BAR     1  29358  Z
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PGLIN     LABEL      OPCOD  OPERAND                                                  CT  ADDRS  INSTRUCTION
4597                 C      WORK16,K53                                               11  29359  C 33614 33481
4598      UA2        BE     UC-19              SHOULD BRANCH & EXIT ROUTINE HERE      7  29370  J 29391 S
4599      UB         B      TYPCK                                                     7  29377  J 01074
4600                 DCW    @#29.20@,G                                                6  29389
4601                 BNQ    AA                 TEST FOR INQUIRY REQUEST               7  29391  J 01160 Q
4602                 BBE    UA,TAD1,1                                                12  29398  W 29235 01001 1
4603        SUB-RTN 29.21   CHAINED MOVE CHARACTERS AND EDIT INSTRUCTION, #1
4604      UC         MLCWA  @X0 00@,204        SET UP CONTROL FIELDS                 12  29410  D 01752 00204 X
4605                 SW     202                . SET UP                               6  29422  , 00202
4606                 SW                        . FIELD LENGTHS                        1  29428  ,
4607                 MCE    &50,203            ESTABLISH A & B REG SETTINGS          11  29429  E 01503 00203
4608                 MCE    &50                ALTER AAR, CHAIN BAR                   6  29440  E 01503
4609                 C      204,@X 550@        TEST WORK AREA                        11  29446  C 00204 01757
4610                 BE     UD-19              SHOULD BRANCH                          7  29457  J 29478 S
4611                 B      TYPCK                                                     7  29464  J 01074
4612                 DCW    @#29.21@,G                                                6  29476
4613                 BNQ    AA                 TEST FOR INQUIRY REQUEST               7  29478  J 01160 Q
4614                 BBE    UC,TAD1,1                                                12  29485  W 29410 01001 1
4615        SUB-RTN 29.22   CHAINED MOVE CHARACTERS AND EDIT INSTRUCTION, #2
4616      UD         MLCWA  @ ,0@,202          SET UP CONTROL FIELDS                 12  29497  D 01760 00202 X
4617                 BBE    *&13,EEBIT,1       BRANCH IF EUROPEAN EDIT FEATURE       12  29509  W 29533 01261 1
4618                 MLCWA  @ .0@,202          SET UP CONTROL FIELDS                 12  29521  D 01763 00202 X
4619                 SW     201                                                       6  29533  , 00201
4620                 MCE    K48,202            ESTABLISH A & B REG SETTINGS          11  29539  E 33446 00202
4621                 MCE                       CHAIN BOTH AAR & BAR                   1  29550  E
4622                 C      202,@8  @                                                11  29551  C 00202 01766
4623                 BE     UE-19              SHOULD BRANCH                          7  29562  J 29583 S
4624                 B      TYPCK                                                     7  29569  J 01074
4625                 DCW    @#29.22@,G                                                6  29581
4626                 BNQ    AA                 TEST FOR INQUIRY REQUEST               7  29583  J 01160 Q
4627                 BBE    UD,TAD1,1                                                12  29590  W 29497 01001 1
4628        SUB-RTN 29.23   TEST FOR NO RESET OF D-MODIFIER REGISTER
4629      UE         BCE    *&8,*&1,J          SET D-MODIFIER, SHOULD NOT BRANCH     12  29602  B 29621 29614 J
4630                 CW     UF-18              ESTABLISH A & B ADDR REG SETTINGS      6  29614  ¤ 29636
4631                 BCE                       SHOULD BRANCH                          1  29620  B
4632                 B      TYPCK                                                     7  29621  J 01074
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
4633                 DCW    @#29.23@,G                               6  29633
4634                 BNQ    AA                 TEST FOR INQUIRY REQUEST  7  29635  J 01160 Q
4635                 BBE    UE,TAD1,1                                12  29642  W 29602 01001 1
4636       SUB-RTN 29.24    TEST FOR RESET OF D-MODIFIER REGISTER
4637       UF        BAV    *&1                DUMMY OP SETS D-MOD RESGITER TO Z  7  29654  J 29661 Z
4638                 CW     UG&1,UG-1          DUMMY OP SETS AAR, BAR, RESET D  11  29661  W 29691 29689
4639                 BCE                       SHOULD BRANCH TO NEXT ROUTINE    1  29672  B
4640                 B      TYPCK                                       7  29673  J 01074
4641                 DCW    @#29.24@,G                                  6  29685
4642                        @N Z@                                       3  29689
4643       UG        BNQ    AA                 TEST FOR INQUIRY REQUEST  7  29690  J 01160 Q
4644                 BBE    UF,TAD1,1                                12  29697  W 29654 01001 1
4645       SUB-RTN 29.25    TEST THAT NOP HAS NO EFFECT ON CHAINED OPERATION
4646       UG1       MLWS   UG2&1,*&1           SETS AAR, BAR, OP MOD REGISTERS  12  29709  D 29749 29721 4
4647                 DCW    @N%B9876543210@                             12  29732
4648                 BCE                       SHOULD BRANCH TO NEXT ROUTINE    1  29733  B
4649                 B      TYPCK                                       7  29734  J 01074
4650                 DCW    @#29.25@,G                                  6  29746
4651       UG2       NOP                                                1  29748  N
4652                 BNQ    AA                 TEST FOR INQUIRY REQUEST  7  29749  J 01160 Q
4653                 BBE    UG1,TAD1,1                               12  29756  W 29709 01001 1
4654       SUB-RTN 29.26    TEST THAT SBR INST DOES NOT EFFECT AAR OR BAR
4655                        BUT DOES ALTER THE OP MOD REGISTER
4656       UG3       MLWS   UG4,*&9             ESTABLISH A & B ADDR REG SETTINGS  12  29768  D 29803 29788 4
4657                 SBR    HOLD84             DUMMY OP TO CHANGE OP MOD REG    7  29780  G 33954 B
4658                 BCE                       SHOULD BRANCH TO NEXT ROUTINE    1  29787  B
4659                 B      TYPCK                                       7  29788  J 01074
4660                 DCW    @#29.26@,G                                  6  29800
4661                 NOP                                                1  29802  N
4662       UG4       BNQ    AA                 TEST FOR INQUIRY REQUEST  7  29803  J 01160 Q
4663                 BBE    UG3,TAD1,1                               12  29810  W 29768 01001 1
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PGLIN     LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
4665        ROUTINE 30.00   TEST PROGRAM AND COMPUTER RESETS, ONLY ONE TIME
4666
4667                        IT IS RECOMMENDED THAT ONCE, DURING THE EXECUTION
4668                        OF C021B, TAD4 AT LOCATION 01004 BE ALTERED TO
4669                        A 1 SO THAT CERTAIN FUNCTIONS OF THE RESET KEYS
4670                        MAY BE TESTED
4671
4672        SUB-RTN 30.01   TEST PROGRAM RESET, OPTIONAL
4673     UH         BBE     *&8,TAD4,1          ONLY DO ROUTINE IF TAD4 IS 1  12  29822  W 29841 01004 1
4674                B       US                  OTHERWISE, SKIP WHOLE THING    7  29834  J 30247
4675                ZA      &500,WORK16-5                                     11  29841  M 01769 33609
4676                A       WORK16-5            TURN ON ZERO BAL, ARITH OVERFLOW  6  29852  A 33609
4677                D       &0,WORK16-5         TURN ON DIVIDE OVERFLOW       11  29858  % 01345 33609
4678                C       *,*                 TURN ON B EQUAL A             11  29869  C 29879 29879
4679                MLCA    &UJ,6               ALTER LOC 00002-00006         12  29880  D 01774 00006 T
4680     UI         B       TYPE                                               7  29892  J 01029
4681                DCW     @PRESS PROGRAM RESET & START@,G                   27  29925
4682                H       UI                                                 6  29927  . 29892
4683     UJ         MLCA    &RESET,6            RESTORE LOCATIONS 00002-00006 12  29933  D 01361 00006 T
4684                BE      *&12                SHOULD BRANCH                  7  29945  J 29963 S
4685                CW      UK&1,UL&1                                         11  29952  ¤ 30018 30052
4686                BAV     *&12                SHOULD BRANCH                  7  29963  J 29981 Z
4687                CW      UK&1,UM&1                                         11  29970  ¤ 30018 30084
4688                BDV     *&12                SHOULD BRANCH                  7  29981  J 29999 W
4689                CW      UK&1,UN&1                                         11  29988  ¤ 30018 30118
4690                BZ      *&12                SHOULD BRANCH                  7  29999  J 30017 V
4691                CW      UK&1,UP&1                                         11  30006  ¤ 30018 30150
4692     UK         NOP                                                        1  30017  N
4693                B       US-19               EXIT HERE IF NO ERRORS         7  30018  J 30228
4694                B       TYPCK                                              7  30025  J 01074
4695                DCW     @#30.01@,G                                         6  30037
4696                BBE     UQ,TAD0,1                                         12  30039  W 30180 01000 1
4697     UL         NOP                                                        1  30051  N
4698                B       UM                                                 7  30052  J 30083
4699                B       TYPE                                               7  30059  J 01029
4700                DCW     @ B EQUAL A RESET@,G                              16  30081
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
4701	UM	NOP			1	30083	N
4702		B	UN		7	30084	J 30117
4703		B	TYPE		7	30091	J 01029
4704		DCW	@ ARITH OFLOW RESET@,G		18	30115	
4705	UN	NOP			1	30117	N
4706		B	UP		7	30118	J 30149
4707		B	TYPE		7	30125	J 01029
4708		DCW	@ DIV OFLOW RESET@,G		16	30147	
4709	UP	NOP			1	30149	N
4710		B	UQ		7	30150	J 30180
4711		B	TYPE		7	30157	J 01029
4712		DCW	@ ZERO BAL RESET@,G		15	30178	
4713	UQ	BBE	*&8,TAD2,1		12	30180	W 30199 01002 1
4714		B	*&2		7	30192	J 30200
4715		H			1	30199	.
4716		SW	UK&1,UL&1		11	30200	, 30018 30052
4717		SW	UM&1,UN&1		11	30211	, 30084 30118
4718		SW	UP&1		6	30222	, 30150
4719		BNQ	AA	TEST FOR INQUIRY REQUEST	7	30228	J 01160 Q
4720		BBE	UH,TAD1,1		12	30235	W 29822 01001 1

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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
4722        SUB-RTN 30.02   TEST COMPUTER RESET, OPTIONAL.  SIMILAR TO #30.01
4723      US         BBE    *&8,TAD4,1          ONLY DO ROUTINE IF TAD4 IS 1  12  30247  W 30266 01004 1
4724                 B      VB1                 OTHERWISE, FORGET IT          7  30259  J 30720
4725                 ZA     &500,WORK16-5       .                            11  30266  M 01769 33609
4726                 A      WORK16-5            . JUST LIKE #30.01            6  30277  A 33609
4727                 D      &0,WORK16-5         .                            11  30283  % 01345 33609
4728                 C      *,*                 .                            11  30294  C 30304 30304
4729                 MLCA   &UU,6               ALTER LOC 00002-00006        12  30305  D 01779 00006 T
4730      UT         B      TYPE                                              7  30317  J 01029
4731                 DCW    @PRESS COMPUTER RESET & START@,G                 28  30351
4732                 H      UT                                                6  30353  . 30317
4733      UU         MLCA   &RESET,6            RESTORE LOCATIONS 00002-00006 12  30359  D 01361 00006 T
4734                 BL     *&12                SHOULD BRANCH                 7  30371  J 30389 T
4735                 CW     UV&1,UW&1                                        11  30378  ¤ 30465 30499
4736                 BAV    *&8                 SHOULD NOT BRANCH             7  30389  J 30403 Z
4737                 B      *&12                                              7  30396  J 30414
4738                 CW     UV&1,UX&1                                        11  30403  ¤ 30465 30533
4739                 BEV    *&8                 SHOULD NOT BRANCH             7  30414  J 30428 W
4740                 B      *&12                                              7  30421  J 30439
4741                 CW     UV&1,UY&1                                        11  30428  ¤ 30465 30571
4742                 BZ     *&8                 SHOULD NOT BRANCH             7  30439  J 30453 V
4743                 B      *&12                                              7  30446  J 30464
4744                 CW     UV&1,UZ&1                                        11  30453  ¤ 30465 30607
4745      UV         NOP                                                      1  30464  N
4746                 B      VB-19               EXIT HERE IF NO ERRORS        7  30465  J 30689
4747                 B      TYPCK                                             7  30472  J 01074
4748                 DCW    @#30.02@,G                                        6  30484
4749                 BBE    VA,TAD0,1                                        12  30486  W 30641 01000 1
4750      UW         NOP                                                      1  30498  N
4751                 B      UX                                                7  30499  J 30532
4752                 B      TYPE                                              7  30506  J 01029
4753                 DCW    @ FAIL TO SET B T A@,G                           18  30530
4754      UX         NOP                                                      1  30532  N
4755                 B      UY                                                7  30533  J 30570
4756                 B      TYPE                                              7  30540  J 01029
4757                 DCW    @ ARITH OFLOW NOT RESET@,G                       22  30568
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PGLIN  LABEL  OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
4758   UY     NOP                                                     1  30570  N
4759          B      UZ                                               7  30571  J 30606
4760          B      TYPE                                             7  30578  J 01029
4761          DCW    @ DIV OFLOW NOT RESET@,G                        20  30604
4762   UZ     NOP                                                     1  30606  N
4763          B      VA                                               7  30607  J 30641
4764          B      TYPE                                             7  30614  J 01029
4765          DCW    @ ZERO BAL NOT RESET@,G                         19  30639
4766   VA     BBE    *&8,TAD2,1                                      12  30641  W 30660 01002 1
4767          B      *&2                                              7  30653  J 30661
4768          H                                                       1  30660  .
4769          SW     UV&1,UW&1                                       11  30661  , 30465 30499
4770          SW     UX&1,UY&1                                       11  30672  , 30533 30571
4771          SW     UZ&1                                             6  30683  , 30607
4772          BNQ    AA                TEST FOR INQUIRY REQUEST       7  30689  J 01160 Q
4773          BBE    US,TAD1,1                                       12  30696  W 30247 01001 1
4774   VB     MLCS   @ &,TAD4          PREVENT REPEAT OF #30.01 & #30.02  12  30708  D 01780 01004 3
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PGLIN     LABEL      OPCOD  OPERAND                                          CT  ADDRS  INSTRUCTION
4776        ROUTINE 31.00   MISCELLANEOUS LONG ROUTINES
4777
4778                        BECAUSE THE TIME REQUIRED TO PERFORM THIS ROUTINE
4779                        AND THE NEXT IS RELATIVELY LONG, THEY ARE DONE
4780                        ONLY THE FIRST TIME THROUGH AND THEREAFTER ONLY
4781                        WHEN THE PASS COUNT WORK AREA IS REDUCED TO ZERO.
4782
4783        SUB-RTN 31.01   FILL AVAILABLE STORAGE ABOVE LOCATION 34978 WITH
4784                        WORD-MARK D.  THEN EXECUTE THESE DS AS AT LEAST
4785                        FIVE-THOUSAND CHAINED DATA MOVE INSTRUCTIONS.
4786                        CHECK ADDRESS REGISTERS AT CONCLUSION.
4787     VB1        NOPWM                                                    1  30720  N
4788                B       VE2                                              7  30721  J 30951
4789     VC         SW      MEMSIZ           PREPARE FOR TABLE LOOK-UP       6  30728  , 01257
4790                LEH     MEMSIZ,SIZTBL    . IF MEMSIZ IS NOT IN TABLE,   12  30734  T 01257 33846 6
4791                SBR     *&6              . ASSUME 40K STORAGE CAPACITY   7  30746  G 30758 B
4792                MLCWA   0,X1                                            12  30753  D 00000 00029 X
4793                CW      MEMSIZ                                           6  30765  ¤ 01257
4794                SW      34900            . CLEAR STORAGE                 6  30771  , 34900
4795                CS      39999&X1         . FROM                          6  30777  / 39929
4796                SBR     *&6              . HIGHEST AVAILABLE LOCATION    7  30783  G 30795 B
4797                CS      0                . THROUGH                       6  30790  / 00000
4798                SBR     *-7              . STORAGE LOCATION              7  30796  G 30795 B
4799                BW      *-24,34900       . 34900                        12  30803  V 30790 34900 1
4800                MRCWR   K56,39977&X1     PUT SHORT ROUTINE AT TOP OF STOR 12  30815  D 33506 399X7 S
4801                SW      34978            .                               6  30827  , 34978          M
4802                MLCWS   *-11,39976&X1    . FILL AVAIL STORAGE WITH WDMK-DS 12  30833  D 30833 399X6 7
4803                MLCWB   39976&X1,39975&X1 .                             12  30845  D 399X6 399X5 P
4804                MLCWA   K55&11,34977     PLACE INITIAL INSTR OF SERIES  12  30857  D 33505 34977 X
4805                B       34966            BRANCH TO IT                    7  30869  J 34966
4806     VD         C       HOLDA4,@0CC00@   RETURN TO THIS POINT           11  30876  C 33949 01785
4807                BU      VE               SHOULD NOT BRANCH               7  30887  J 30912 /
4808                C       HOLDB4,@34999@                                  11  30894  C 33954 01790
4809                BE      VE1-19                                           7  30905  J 30926 S
4810     VE         B       TYPCK                                            7  30912  J 01074
4811                DCW     @#31.01@,G                                       6  30924
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
4812                 BNQ    AA                  TEST FOR INQUIRY REQUEST  7  30926  J 01160 Q
4813                 BBE    VC,TAD1,1                                12  30933  W 30728 01001 1
4814      VE1        SW     VB1&1                                     6  30945  , 30721
4815
4816        SUB-RTN 31.02    FILL STORAGE - EXCEPT FOR APPROX THE LOWER 35100
4817                         POSITIONS - WITH A SERIES OF INDEXED BRANCH
4818                         INSTRUCTIONS ALTERNATED WITH STORE B REGISTER
4819                         INSTRUCTIONS.  THIS ROUTINE, WHICH PROVIDES NO
4820                         ERROR TYPEOUT, IS EXPECTED TO PROVE THE
4821                         RELIABILITY OF INDEXING AND SBR INSTRUCTION.
4822                         INDEX REGISTER #1 IS USED BY THE ROUTINE ITSELF,
4823                         AND INDEX REGISTERS 2 THROUGH 15 ARE TESTED.
4824
4825      VE2        NOPWM                                             1  30951  N
4826                 B      VG                                        7  30952  J 31250
4827      VF         MLCWA  TRASH,X15           FILL ENTIRE IX REG AREA W/JUNK  12  30959  D 34421 00099 X
4828                 SW     X15                                       6  30971  , 00099
4829                 MLWB   X15,X15-1           SET WMS OVER EVERY POSITION  12  30977  D 00099 00098 M
4830                 SW     MEMSIZ              .                     6  30989  , 01257
4831                 LEH    MEMSIZ,KTABLE       .                    12  30995  T 01257 33944 6
4832                 SBR    *&6                 . JUST LIKE #31.01    7  31007  G 31019 B
4833                 MLCA   0,X1                .                    12  31014  D 00000 00029 T
4834                 CW     MEMSIZ              .                     6  31026  ¤ 01257
4835                 MLCWA  &00014,XR0                               12  31032  D 01795 00024 X
4836                 MLCA   &LTABLE,*&6                              12  31044  D 01800 31061 T
4837      COMBAK     MLCA   0,K57&12                                 12  31056  D 00000 33540 T
4838                 SAR    *&6                                       7  31068  G 31080 A
4839                 MLCA   0,K57&4                                  12  31075  D 00000 33532 T
4840                 SAR    COMBAK&5                                  7  31087  G 31061 A
4841                 MLCA   K57&12,K58&5                             12  31094  D 33540 33561 T
4842                 SW     35000               .                     6  31106  , 35000
4843                 CS     39999&X1            .                     6  31112  / 39929
4844                 SBR    *&6                 . JUST LIKE #31.01    7  31118  G 31130 B
4845                 CS     0                   .                     6  31125  / 00000
4846                 SBR    *-7                 .                     7  31131  G 31130 B
4847                 BW     *-24,35000          .                    12  31138  V 31125 35000 1
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PGLIN     LABEL     OPCOD   OPERAND                                  CT  ADDRS  INSTRUCTION
4848                SW      35091                                     6  31150  , 35091
4849                MRCWG   K57,39977&X1                             12  31156  D 33528 399X7 DL
4850                MLCWB   39990&X1,39976&X1  FILL AVAIL STOR W BR & SBR INSTRS  12  31168  D 399Z0 399X6 P
4851                MLCWA   K58&6,35090                              12  31180  D 33562 35090 X
4852                MLCWA                                             1  31192  D
4853                B       35C78             BR TO FIRST INSTR OF SEQUENCE  7  31193  J 35078
4854      TOHERE    BNQ     AA                AND RETURN TO THIS INSTRUCTION  7  31200  J 01160 Q
4855                BBE     *-25,TAD1,1                               12  31207  W 31193 01001 1
4856                S       &1,XR0                                    11  31219  S 01300 00024
4857                BZ      *&8               EXIT ROUTINE HERE AFTER 14 LOOPS  7  31230  J 31244 V
4858                B       COMBAK                                    7  31237  J 31056
4859                SW      VE2&1                                     6  31244  , 30952
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PGLIN     LABEL      OPCOD  OPERAND                        CT  ADDRS  INSTRUCTION
4861        ROUTINE 32.00   TEST 7010 INSTRUCTIONS STORE & RESTORE INDICATORS
4862
4863      VG         BCE    VH,CPU,X          BRANCH IF CPU IS A 7010,     12  31250  B 31269 01256 X
4864                 B      WB                OTHERWISE SKIP #32 - #33.XX GROUP  7  31262  J 32817
4865
4866        SUB-RTN 32.01   TEST STORE INDICATORS AND WORD-MARK ELIMINATION
4867      VH         ZA     &500,WORK16-5      . TURN ON                    11  31269  Q M 01769 33609
4868                 A      WORK16-5           . ZERO BALANCE & ARITH OVERFLOW,  6  31280  A 33609
4869                 D      &0,WORK16-5        . DIVIDE OVERFLOW,           11  31286  % 01345 33609
4870                 C      *-10,*-10          . AND COMPARE EQUAL          11  31297  C 31297 31297
4871                 MLCWS  SIX,WORK17         PUT COMPLEMENTARY CHAR IN WORK17  12  31308  D 33066 33615 7
4872                 STCPU  WORK17                                           7  31320  $ 33615 S
4873                 BW     *&13,WORK17        SHOULD NOT BRANCH            12  31327  V 31351 33615 1
4874                 BCE    VI-19,WORK17,1     SHOULD BRANCH                12  31339  B 31365 33615 1
4875                 B      TYPCK                                           7  31351  J 01074
4876                 DCW    @#32.01@,G                                      6  31363
4877                 BNQ    AA                 TEST FOR INQUIRY REQUEST     7  31365  J 01160 Q
4878                 BBE    VH,TAD1,1                                      12  31372  W 31269 01001 1
4879        SUB-RTN 32.02   TEST RESTORE INDICATORS
4880      VI         C      K47,K46            TURN ON B GREATER THAN A     11  31384  C 33445 33444
4881                 STCPU  WORK17                                          7  31395  $ 33615 S
4882                 BH     *&8                SHOULD BRANCH                7  31402  J 31416 U
4883                 B      *&26                                            7  31409  J 31441
4884                 C      K46,K47            TURN ON B LESS THAN A        11  31416  C 33444 33445
4885                 RSCPU  WORK17                                          7  31427  $ 33615 R
4886                 BH     VJ-19              SHOULD BRANCH                7  31434  J 31455 U
4887                 B      TYPCK                                           7  31441  J 01074
4888                 DCW    @#32.02@,G                                      6  31453
4889                 BNQ    AA                 TEST FOR INQUIRY REQUEST     7  31455  J 01160 Q
4890                 BBE    VI,TAD1,1                                      12  31462  W 31384 01001 1
4891        SUB-RTN 32.03   FURTHER TEST RESTORE INDICATORS
4892      VJ         C      K47,K46            TURN ON B GREATER THAN A     11  31474  C 33445 33444
4893                 MLCWS  FOUR,WORK17                                    12  31485  D 33064 33615 7
4894                 RSCPU  WORK17                                          7  31497  $ 33615 R
4895                 BL     *&8                SHOULD BRANCH                7  31504  J 31518 T
4896                 B      VK                                              7  31511  J 31618
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PGLIN  LABEL      OPCOD  OPERAND                                                CT  ADDRS  INSTRUCTION
4897                MLCWS  EYE,WORK17                                          12  31518  D 33040 33615 7
4898                RSCPU  WORK17                                              7  31530  $ 33615 R
4899                BE     *&15              SHOULD BRANCH                     7  31537  J 31558 S
4900                BU     VK                                                  7  31544  J 31618 /
4901                B      VK                                                  7  31551  J 31618
4902                BZ     *&8               SHOULD BRANCH                     7  31558  J 31572 V
4903                B      VK                                                  7  31565  J 31618
4904                BAV    *&8               SHOULD BRANCH                     7  31572  J 31586 Z
4905                B      VK                                                  7  31579  J 31618
4906                BCV    *&8               SHOULD BRANCH                     7  31586  J 31600 W
4907                B      VK                                                  7  31593  J 31618
4908                C      NWM57,WORK17      TEST THAT WORK 17 UNCHANGED      11  31600  C 32998 33615
4909                BE     VL-19                                               7  31611  J 31632 S
4910  VK            B      TYPCK                                               7  31618  J 01074
4911                DCW    @#32.03@,G                                          6  31630
4912                BNQ    AA                TEST FOR INQUIRY REQUEST          7  31632  J 01160 Q
4913                BBE    VJ,TAD1,1                                          12  31639  W 31474 01001 1
4914      SUB-RTN 32.04    CHECK ADDRESS REGISTERS AFTER INDEXED STORE AND
4915                       RESTORE INDICATOR OPERATIONS
4916  VL            MLCWA  FIVE9S,X1                                          12  31651  D 34008 00029 X
4917                STCPU  WORK17-99999&X1   EFFECTIVE ADDRESS IS WORK 17      7  31663  $ 33676 S
4918                SAR    HOLDA             SAVE AAR                          7  31670  G 33949 A
4919                SBR    HOLDB             SAVE BAR                          7  31677  G 33954 B
4920                C      HOLDA,&WORK17     TEST AAR                         11  31684  C 33949 01805
4921                BU     VM                SHOULD NOT BRANCH                 7  31695  J 31777 /
4922                C      HOLDB,K49         TEST BAR                         11  31702  C 33954 33451
4923                BU     VM                SHOULD NOT BRANCH                 7  31713  J 31777 /
4924                RSCPU  WORK17-99999&X1   EFFECTIVE ADDRESS IS WORK 17      7  31720  $ 33676 R
4925                SAR    HOLDA                                               7  31727  G 33949 A
4926                SBR    HOLDB                                               7  31734  G 33954 B
4927                C      HOLDA,&WORK17                                      11  31741  C 33949 01805
4928                BU     VM                SHOULD NOT BRANCH                 7  31752  J 31777 /
4929                C      HOLDB,K49                                          11  31759  C 33954 33451
4930                BE     VN-19             SHOULD BRANCH & EXIT ROUTINE HERE 7  31770  J 31791 S
4931  VM            B      TYPCK                                               7  31777  J 01074
4932                DCW    @#32.04@,G                                          6  31789
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PGLIN     LABEL      OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
4933                 BNQ    AA                TEST FOR INQUIRY REQUEST  7  31791  J 01160 Q
4934                 BBE    VL,TAD1,1                                12  31798  W 31651 01001 1
4935       SUB-RTN 32.05    TEST RESTORE EXTERNAL STATUS INDICATORS, CHNL 1
4936     VN          BA1    *&1               INSURE CHANNEL INTERLOCK RESET  7  31810  R 31817 GM
4937                 MLCWS  ALLBIT,WORK17                            12  31817  D 33011 33615 7
4938                 REC    WORK17                                   7  31829  $ 33615 1
4939                 BA1    *&8               SHOULD BRANCH AND RESET INTERLOCK  7  31836  R 31850 GM
4940                 B      VP                                       7  31843  J 31969
4941                 BNR1   *&1               NOT READY SHOULD NOT BE RESET  7  31850  R 31857 1
4942                 BNR1   *&8               SHOULD BRANCH            7  31857  R 31871 1
4943                 B      VP                                       7  31864  J 31969
4944                 BCB1   *&1               BUSY SHOULD NOT BE RESET  7  31871  R 31878 2
4945                 BCB1   *&8               SHOULD BRANCH            7  31878  R 31892 2
4946                 B      VP                                       7  31885  J 31969
4947                 BER1   *&1               DATA CHECK SHOULD NOT BE RESET  7  31892  R 31899 4
4948                 BER1   *&8               SHOULD BRANCH            7  31899  R 31913 4
4949                 B      VP                                       7  31906  J 31969
4950                 BEF1   *&1               CONDITION SHOULD NOT BE RESET  7  31913  R 31920 8
4951                 BEF1   *&8               SHOULD BRANCH            7  31920  R 31934 8
4952                 B      VP                                       7  31927  J 31969
4953                 BNT1   *&1               NO TRANSFER SHOULD NOT BE RESET  7  31934  R 31941 SB
4954                 BNT1   *&8               SHOULD BRANCH            7  31941  R 31955 SB
4955                 B      VP                                       7  31948  J 31969
4956                 BWL1   *&1               W.L.R. SHOULD NOT BE RESET  7  31955  R 31962 -
4957                 BWL1   VQ-19             SHOULD BRANCH & EXIT ROUTINE HERE  7  31962  R 31983 -
4958     VP          B      TYPCK                                    7  31969  J 01074
4959                 DCW    @#32.05@,G                               6  31981
4960                 BNQ    AA                TEST FOR INQUIRY REQUEST  7  31983  J 01160 Q
4961                 BBE    VN,TAD1,1                                12  31990  W 31810 01001 1
4962       SUB-RTN 32.06    FURTHER TEST RESTORE EXTERNAL STATUS INDICATORS
4963     VQ          BA1    *&1               INSURE CHANNEL INTERLOCK RESET  7  32002  R 32009 GM
4964                 MLCWS  NWM63,WORK17                             12  32009  D 33004 33615 7
4965                 REC    WORK17            ATTEMPT TO TURN ON ALL INDICATORS  7  32021  $ 33615 1
4966                 MLCWS  NWM00,WORK17                             12  32028  D 32942 33615 7
4967                 REC    WORK17            ATTEMPT TO RESET ALL INDICATORS  7  32040  $ 33615 1
4968                 BNR1   *&43              . SHOULD NOT             7  32047  R 32096 1
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PGLIN     LABEL      OPCOD  OPERAND                        CT  ADDRS  INSTRUCTION
4969                 BCB1   *&36          . TAKE           7  32054  R 32096 2
4970                 BER1   *&29          . ANY            7  32061  R 32096 4
4971                 BEF1   *&22          . OF             7  32068  R 32096 8
4972                 BNT1   *&15          . THESE          7  32075  R 32096 S B
4973                 BWL1   *&8           . BRANCHES       7  32082  R 32096 -
4974                 B      VR-19                          7  32089  J 32110
4975                 B      TYPCK                          7  32096  J 01074
4976                 DCW    @#32.06@,G                     6  32108
4977                 BNQ    AA            TEST FOR INQUIRY REQUEST  7  32110  J 01160 Q
4978                 BBE    VQ,TAD1,1                     12  32117  W 32002 01001 1
4979       SUB-RTN 32.07  FURTHER TEST RESTORE EXTERNAL STATUS INDICATORS
4980     VR          BA1    *&1           INSURE CHANNEL INTERLOCK RESET  7  32129  R 32136 G M
4981                 MLCWS  NWM00,WORK17                   12  32136  D 32942 33615 7
4982                 REC    WORK17        RESET EXTERNAL STATUS INDICATORS  7  32148  $ 33615 1
4983                 MLCWS  ALLBIT,WORK17                  12  32155  D 33011 33615 7
4984                 REC    WORK17        ATTEMPT TO TURN ON EXTNL STAT INS  7  32167  $ 33615 1
4985                 BA1    *&8           SHOULD BRANCH    7  32174  R 32188 G M
4986                 B      VS                             7  32181  J 32265
4987                 BNR1   *&8           SHOULD BRANCH    7  32188  R 32202 1
4988                 B      VS                             7  32195  J 32265
4989                 BCB1   *&8           SHOULD BRANCH    7  32202  R 32216 2
4990                 B      VS                             7  32209  J 32265
4991                 BER1   *&8           SHOULD BRANCH    7  32216  R 32230 4
4992                 B      VS                             7  32223  J 32265
4993                 BEF1   *&8           SHOULD BRANCH    7  32230  R 32244 8
4994                 B      VS                             7  32237  J 32265
4995                 BNT1   *&8           SHOULD BRANCH    7  32244  R 32258 S B
4996                 B      VS                             7  32251  J 32265
4997                 BWL1   VT-19         SHOULD BRANCH & EXIT ROUTINE HERE  7  32258  R 32279 -
4998     VS          B      TYPCK                          7  32265  J 01074
4999                 DCW    @#32.07@,G                     6  32277
5000                 BNQ    AA            TEST FOR INQUIRY REQUEST  7  32279  J 01160 Q
5001                 BBE    VR,TAD1,1                     12  32286  W 32129 01001 1
5002       SUB-RTN 32.08  TEST STORE EXTERNAL STATUS INDICATORS
5003     VT          BA1    *&1           INSURE CHANNEL INTERLOCK RESET  7  32298  R 32305 G M
5004                 MLCWS  VEE,WORK17                     12  32305  D 33055 33615 7
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PGLIN     LABEL      OPCOD   OPERAND                          CT  ADDRS  INSTRUCTION
5005                 REC     WORK17          SET INDICATORS WITH BIT-OH CHAR   7  32317  $ 33615 1
5006                 MLCWS   NWM42,WORK17    MOVE COMPLEMENT BIT-OH CHARACTER 12  32324  D 32983 33615 7
5007                 SEC     WORK17          STORE E CHANNEL INDICATORS        7  32336  $ 33615 E
5008                 C       NWM21,WORK17    TEST THAT PROPER CHAR WAS STORED 11  32343  C 32963 33615
5009                 BU      VU              SHOULD NOT BRANCH                 7  32354  J 32404 /
5010                 MLCWS   EXCLAM,WORK17                                    12  32361  D 33041 33615 7
5011                 SEC     WORK17          STORE E CHANNEL INDICATORS AGAIN  7  32373  $ 33615 E
5012                 BW      VU,WORK17       TEST CHNL INTLK RESET - NO BRANCH 12  32380  V 32404 33615 1
5013                 BCE     VV-19,WORK17,V  SHOULD BRANCH                    12  32392  B 32418 33615 V
5014      VU         B       TYPCK                                            7  32404  J 01074
5015                 DCW     @#32.08@,G                                       6  32416
5016                 BNQ     AA              TEST FOR INQUIRY REQUEST         7  32418  J 01160 Q
5017                 BBE     VT,TAD1,1                                        12  32425  W 32298 01001 1
5018        SUB-RTN 32.09    CHAINED STORE INDICATORS
5019      VV         MLCWS   QUESTN,WORK17                                    12  32437  D 33031 33615 7
5020                 RSCPU   WORK17          TURN ON B GREATER THAN A,        7  32449  $ 33615 R
5021                                         ZERO BALANCE, ARITH & DIV OFLO
5022                 MLCWA   @55@,WORK18      MOVE COMPLEMENTARY CHARACTERS    12  32456  D 01807 33617 X
5023                 STCPU   WORK18          STORE CPU STATUS INDICATORS      7  32468  $ 33617 S
5024                 DCW     @$@             CHAINED STORE STATUS INDICATORS  1  32475
5025                 SAR     HOLDA                                            7  32476  G 33949 A
5026                 SBR     HOLDB                                            7  32483  G 33954 B
5027                 C       HOLDA,&WORK18                                    11  32490  C 33949 01812
5028                 BU      VW              SHOULD NOT BRANCH                7  32501  J 32557 /
5029                 C       HOLDB,K15                                        11  32508  C 33954 33102
5030                 BU      VW              SHOULD NOT BRANCH                7  32519  J 32557 /
5031                 BCE     *&8,WORK18,Q/M  TEST CHAR AT WORK18, SHOULD BRNCH 12  32526  B 32545 33617 Q/M
5032                 B       VW                                               7  32538  J 32557
5033                 BCE     VX-19,WORK18-1,Q/M TEST CHAR AT WORK18-1.  BRANCH 12  32545  B 32571 33616 Q/M
5034      VW         B       TYPCK                                            7  32557  J 01074
5035                 DCW     @#32.09@,G                                       6  32569
5036                 BNQ     AA              TEST FOR INQUIRY REQUEST         7  32571  J 01160 Q
5037                 BBE     VV,TAD1,1                                        12  32578  W 32437 01001 1
5038        SUB-RTN 32.10    CHAINED RESTORE INDICATORS
5039      VX         MLCWS   LOZNGE,WORK17                                    12  32590  D 33008 33615 7
5040                 RSCPU   WORK17          TURN ON B LESS THAN A, ZERO BAL, 7  32602  $ 33615 R
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PGLIN	LABEL	OPCOD	OPERAND		CT	ADDRS	INSTRUCTION
5041				ARITH AND DIVIDE OVERFLOW			
5042		BCE	*&1,THREE,R	DUMMY OP TO SET BAR, OP MOD REG	12	32609	B 32621 33063 R
5043		DCW	@$@	CHAINED RESTORE INDICATORS	1	32621	
5044		STCPU	WORK17	STORE INDICATORS JUST TURNED ON	7	32622	$ 33615 S
5045		BCE	VY-19,WORK17,2	SHOULD BRANCH & EXIT ROUTINE HERE	12	32629	B 32655 33615 2
5046		B	TYPCK		7	32641	J 01074
5047		DCW	@#32.10@,G		6	32653	
5048		BNQ	AA	TEST FOR INQUIRY REQUEST	7	32655	J 01160 Q
5049		BBE	VX,TAD1,1		12	32662	W 32590 01001 1

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PGLIN  LABEL      OPCOD  OPERAND                        CT  ADDRS  INSTRUCTION
5051     ROUTINE 33.00   TEST 7010 OPERATION BRANCH ON C-BIT
5052
5053     SUB-RTN 33.01   TEST BRANCH AND NO-BRANCH CONDITIONS
5054   VY          BBC    VY2,GMWM          SHOULD NOT BRANCH      12  32674  # 32724 33011 4
5055               BBC    VY1,CBIT          SHOULD BRANCH          12  32686  # 32705 32942 4
5056               B      VY2                                       7  32698  J 32724
5057   VY1         BBC                      . SHOULD                1  32705  #
5058               DC     VY2               . NOT                  5  32710  32724
5059               CBIT                     . BRANCH               5  32715  32942
5060               @.@                      . PERIOD IS ALL BITS EXCEPT 4-BIT  1  32716
5061               B      VZ-19                                     7  32717  J 32738
5062   VY2         B      TYPCK                                     7  32724  J 01074
5063               DCW    @#33.01@,G                                6  32736
5064               BNQ    AA                TEST FOR INQUIRY REQUEST  7  32738  J 01160 Q
5065               BBE    VY,TAD1,1                                12  32745  W 32674 01001 1
5066     SUB-RTN 33.02   TEST CHAINED OPERATION BRANCH ON C-BIT
5067   VZ          BCE    VZ1,VZ1,4         DUMMY OP SETS AAR, BAR, OP-MOD  12  32757  B 32778 32778 4
5068               BBC                      CHAINED OP SHOULD BRANCH TO VZ1  1  32769  #
5069               NOP                      . THIS BR OP-MOD AND NOP INSTR   1  32770  N
5070               B      VZ2               . PROVIDE C-BITS FOR TEST #33.02  7  32771  J 32784
5071   VZ1         BBC    WB-19             SHOULD BRANCH & EXIT ROUTINE HERE  6  32778  # 32798
5072   VZ2         B      TYPCK                                     7  32784  J 01074
5073               DCW    @#33.02@,G                                6  32796
5074               BNQ    AA                TEST FOR INQUIRY REQUEST  7  32798  J 01160 Q
5075               BBE    VZ,TAD1,1                                12  32805  W 32757 01001 1
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PGLIN     LABEL     OPCOD   OPERAND                          CT   ADDRS   INSTRUCTION
5077                        COUNT PASSES
5078
5079      WB        S       &1,PCCWK                         11   32817   S 01300 01015
5080                BZ      *&8                               7   32828   J 32842 V
5081                B       START                             7   32835   J 02000
5082                A       &1,PCOUNT       COUNT ONE PASS   11   32842   A 01300 32868
5083                B       TYPE                              7   32853   J 01029
5084                DCW     @PASS  @                          6   32865
5085      PCOUNT            @000@,G                           3   32868
5086                B8E     RESET,TAC3,1                     12   32870   W 32906 01003 1
5087                B       TYPE                              7   32882   J 01029
5088                DCW     @EOJ C0218@,G                     9   32897
5089                B       LOADER          EXIT C0218 HERE   7   32899   J 00400
5090
5091      RESET     CW      JF&1                              6   32906   ¤ 10189
5092                CW      KX&1,QV&1                        11   32912   ¤ 12546 21396
5093                CW      VB1&1,VE2&1                      11   32923   ¤ 30721 30952
5094                B       START                             7   32934   J 02000
5095                H                       DEFINE PRECEDING INSTR LENGTH  1   32941   .
```

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5097			CONSTANTS AND WORK AREAS			
5098						
5099						
5100	NWM00	DC	@ @	1	32942	
5101	NWM01		@1@	1	32943	
5102	NWM02		@2@	1	32944	
5103	NWM03		@3@	1	32945	
5104	NWM04		@4@	1	32946	
5105	NWM05		@5@	1	32947	
5106	NWM06		@6@	1	32948	
5107	NWM07		@7@	1	32949	
5108	NWM08		@8@	1	32950	
5109	NWM09		@9@	1	32951	
5110	NWM10		@0@	1	32952	
5111	NWM11		@#@	1	32953	
5112	NWM12		@@@	1	32954	
5113	NWM13		@.@	1	32955	
5114	NWM14		@T@ (G)	1	32956	
5115	NWM15		@M@ (T)	1	32957	
5116	NWM16		@B@ (S)	1	32958	
5117	NWM17		@/@	1	32959	
5118	NWM18		@S@	1	32960	
5119	NWM19		@T@	1	32961	
5120	NWM20		@U@	1	32962	
5121	NWM21		@V@	1	32963	
5122	NWM22		@W@	1	32964	
5123	NWM23		@X@	1	32965	
5124	NWM24		@Y@	1	32966	
5125	NWM25		@Z@	1	32967	
5126	NWM27		@,@	1	32968	
5127	NWM28		@%@ (W)	1	32969	
5128	NWM29		@S@ (B)	1	32970	
5129	NWM30		@S@ (S)	1	32971	
5130	NWM31		@M@	1	32972	
5131	NWM32		@-@	1	32973	
5132	NWM33		@J@	1	32974	

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5133	NWM34		@K@	1	32975	
5134	NWM35		@L@	1	32976	
5135	NWM36		@M@	1	32977	
5136	NWM37		@N@	1	32978	
5137	NWM38		@O@	1	32979	
5138	NWM39		@P@	1	32980	
5139	NWM40		@Q@	1	32981	
5140	NWM41		@R@	1	32982	
5141	NWM42		@'@	1	32983	
5142	NWM43		@$@	1	32984	
5143	NWM44		@*@	1	32985	
5144	NWM45		@B@ (R)	1	32986	
5145	NWM46		@;@ (D)	1	32987	
5146	NWM47		@L@	1	32988	
5147	NWM48		@E@	1	32989	
5148	NWM49		@A@	1	32990	
5149	NWM50		@B@	1	32991	
5150	NWM51		@C@	1	32992	
5151	NWM52		@D@	1	32993	
5152	NWM53		@E@	1	32994	
5153	NWM54		@F@	1	32995	
5154	NWM55		@G@	1	32996	
5155	NWM56		@H@	1	32997	
5156	NWM57		@I@	1	32998	
5157	NWM58		@M@ (Q)	1	32999	
5158	NWM59		@.@	1	33000	
5159	NWM60		@¤@	1	33001	
5160	NWM61		@B@ (L)	1	33002	
5161	NWM62		@T@ (L)	1	33003	
5162	NWM63		@M@ (G)	1	33004	
5163	NWM26		@*@	1	33005	
5164						
5165	TABLE	DCW	@ @	1	33006	
5166	PERIOD		@.@	1	33007	
5167	LOZNGE		@¤@	1	33008	
5168	LBRAKT		@B@ (L)	1	33009	

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5169	LESS		a^L_Ta	1	33010	
5170	ALLBIT		a^G_Ma	1	33011	
5171	AMPSND		a&a	1	33012	
5172			a$a	1	33013	
5173	SPLAT		a*a	1	33014	
5174	RBRAKT		a^R_Ba	1	33015	
5175			a[.]_;a	1	33016	
5176	DELTA		a^D_La	1	33017	
5177	DASH		a-a	1	33018	
5178			a/a	1	33019	
5179	COMMA		a,a	1	33020	
5180	PERCNT		a%a	1	33021	
5181	WDSEP	DC	a^W_Sa	1	33022	
5182	BKSLSH	DCW	a^B_Sa	1	33023	
5183	SEGMRK		a^S_Ma	1	33024	
5184	SUBLNK		a^S_Ba	1	33025	
5185	POUND		a#a	1	33026	
5186	ATSIGN		a@a	1	33027	
5187	COLON		a[.]_:a	1	33028	
5188	GREATR		a^G_Ta	1	33029	
5189	TPMARK		a^T_Ma	1	33030	
5190	QUESTN		a^Q_Ma	1	33031	
5191	AYE		aAa	1	33032	
5192	BEE		aBa	1	33033	
5193	SEE		aCa	1	33034	
5194	DEE		aDa	1	33035	
5195	EEE		aEa	1	33036	
5196	EFF		aFa	1	33037	
5197	GEE		aGa	1	33038	
5198	AITCH		aHa	1	33039	
5199	EYE		aIa	1	33040	
5200	EXCLAM		a[']_.a	1	33041	
5201	JAY		aJa	1	33042	
5202			aKa	1	33043	
5203	ELL		aLa	1	33044	
5204	EMM		aMa	1	33045	

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5205			@N@	1	33046	
5206	CH		@O@	1	33047	
5207	PEA		@P@	1	33048	
5208	QUEUE		@Q@	1	33049	
5209	ARE		@R@	1	33050	
5210	RCDMRK		@*@	1	33051	
5211	ESS		@S@	1	33052	
5212	TEA		@T@	1	33053	
5213			@U@	1	33054	
5214	VEE		@V@	1	33055	
5215	DBLYOU		@W@	1	33056	
5216	EKS		@X@	1	33057	
5217	WYE		@Y@	1	33058	
5218	ZEE		@Z@	1	33059	
5219	NAUGHT		@0@	1	33060	
5220	ONE		@1@	1	33061	
5221	TWO		@2@	1	33062	
5222	THREE		@3@	1	33063	
5223	FOUR		@4@	1	33064	
5224	FIVE		@5@	1	33065	
5225	SIX		@6@	1	33066	
5226	SEVEN		@7@	1	33067	
5227	EIGHT		@8@	1	33068	
5228	NINE		@9@	1	33069	
5229						
5230	K01	DC	@M@ (T)	1	33070	
5231		DCW	@N@	1	33071	
5232	K02		@&*@	2	33072	
5233	K03	DC	@B@ (S)	1	33074	
5234		DCW	@N@	1	33075	
5235	K04		@L*@ (D)	2	33076	
5236	K05		@MN@ (G)	2	33079	
5237	K06	DC	@ @	1	33080	
5238		DCW	@*@	1	33081	
5239	K07		@IN@	2	33083	
5240	K08	DC	@6@	1	33084	

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5241		DCW	@*@	1	33085	
5242	K09		@MS@	2	33087	
5243	K10	DC	@-@	1	33088	
5244		DCW	@*@	1	33089	
5245	K11		@PN@	2	33091	
5246	K12	DC	@Y@	1	33092	
5247		DCW	@*@	1	33093	
5248	K13	DC	@MG@	1	33094	
5249		DCW	@N@	1	33095	
5250	K14		@ *@	2	33096	
5251	K15		WORK18-2	5	33102	33615
5252	K16		MANY9S-16	5	33107	34070
5253	K17		BIGANS-33	5	33112	34119
5254	K18		FIVE4S-16	5	33117	34054
5255	K19		@12345678898888888899@	20	33137	
5256	K20		@123456789C@	10	33147	
5257	K21		@00000000009999999991001234567810@	31	33178	
5258	K22		WORK11-4	5	33183	33585
5259	K23		K20-10	5	33188	33137
5260	K24		@,-,.0.MQ@	7	33195	
5261	K24A		@.-.,0,MQ@	7	33202	
5262	K25		@0,, 0@	6	33208	
5263	K25A		@0.. 0@	6	33214	
5264	K26		@9 .,-'.@	6	33220	
5265	K27		@ 9,$*@	5	33225	
5266	K27A		@ 9.$*@	5	33230	
5267	K28		@ - . . @	7	33237	
5268	K28A		@ - , , @	7	33244	
5269	K29		@ @	6	33250	
5270	K30		@9 .,-0@	6	33256	
5271	K31		@ 9,$ @	5	33261	
5272	K31A		@ 9.$ @	5	33266	
5273	K32		WORK12&1	5	33271	33598
5274	K33		WORK13-2	5	33276	33597
5275	K34		WORK13-1	5	33281	33598
5276	K35		WORK14-2	5	33286	33600

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PGLIN     LABEL     OPCOD   OPERAND                                  CT  ADDRS  INSTRUCTION
5277      K36               WORK15-2                                  5  33291  33604
5278      K37               WORK14-3                                  5  33296  33599
5279      K38               WORK13&1                                  5  33301  33600
5280      K39               WORK15&1                                  5  33306  33607
5281      K40               WORK15-4                                  5  33311  33602
5282      K41               @ - X.Y 0@                                8  33319
5283      K41A              @ - X,Y 0@                                8  33327
5284      K42               @7-0X.Y07@                                8  33335
5285      K42A              @7-0X,Y07@                                8  33343
5286      K43               @           ,$90$*C.-0@                  20  33363
5287      K43A              @           .$90$*C,-0@                  20  33383
5288      K44               @,N@F  , 0N@                             10  33393
5289      K44A              @.N@F  . 0N@                             10  33403
5290      K45               @*******N@F***9, 0C.-5@                  20  33423
5291      K45A              @*******N@F***9. 0C,-5@                  20  33443
5292      K46               9                                         1  33444
5293      K47               8                                         1  33445
5294      K48               0                                         1  33446
5295      K49               WORK17-1                                  5  33451  33614
5296      K50               @0,,  0@                                  6  33457
5297      K51               @9 .,-'.@                                 6  33463
5298      K50A              @0..  0@                                  6  33469
5299      K51A              @9 ,.-'.@                                 6  33475
5300      K53               @     @                                   6  33481
5301      K54               @9 .,-0@                                  6  33487
5302      K54A              @9 ,.-0@                                  6  33493
5303      K55       SCNLS   5000&X1,39999&X1                         12  33494  D 050*0 399Z9
5304      K56       SAR     HOLDA4                                    7  33506  G 33949 A
5305                SBR     HOLDB4                                    7  33513  G 33954 B
5306                B       VD                                        7  33520  J 30876
5307                DCW     @*@                                       1  33527
5308      K57       B       0                                         7  33528  J 00000
5309                SBR     0                                         7  33535  G 00000 B
5310                B       TOHERE                                    7  33542  J 31200
5311                DCW     @M@                                       1  33549
5312                CW      35099                                     6  33550  ¤ 35099
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PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5313	K58	SAR	0	7	33556	G 00000 A
5314						
5315	WORK1	DCW	@ @	1	33563	
5316	WORK2		@ @	1	33564	
5317	WORK3		@ @	2	33566	
5318	WORK4		@ @	10	33576	
5319	WORK5		@& B-@	4	33580	
5320	WORK6		@ @	1	33581	
5321	WORK7		@ @	1	33582	
5322	WORK8		@ @	1	33583	
5323	WORK9		@ @	1	33584	
5324	WORK10		@ @	1	33585	
5325	WORK11		@ @	4	33589	
5326	WORK12		@ @	8	33597	
5327	WORK13		@ @	2	33599	
5328	WORK14		@ @	3	33602	
5329	WORK15		@ @	4	33606	
5330	WORK16		@ @	8	33614	
5331	WORK17		@ @	1	33615	
5332	WORK18		@ @	2	33617	
5333			TABLES OF DATA USED IN TABLE LOOK UP TEST			
5334						
5335	ENDA	DCW	ENDITM-1	5	33622	33623
5336	ENDITM		@B&@	2	33624	
5337			@ @	1	33625	
5338			@.¤BTM&$*BM@	10	33635	
5339			@,L-/,%SSMB#@.TMMAB&@	19	33654	
5340	ENDTBL		@CDEFGHI.JKLMNOPQR*STUVWXYZ0123456789$@	37	33691	
5341						
5342	LLCON		TO1-2	5	33696	33696
5343	TO1		@B/@	2	33698	
5344			@ @	1	33699	
5345	LSTP		@ *,@	3	33700	
5346			@ B/@	3	33705	
5347	LTBL		@ ;-@	3	33708	
5348						

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5349	TO2		@BS#@	2	33710	
5350			@ @	1	33711	
5351	ESTP		@ BS#@	3	33712	
5352			@ WS#@	3	33717	
5353	ETBL		@ MS#@	3	33720	
5354						
5355	TO3		@TMB@	2	33722	
5356			@ @	1	33723	
5357	LESTP1		@ GTC@	3	33724	
5358	LETBL1		@ MC@	3	33729	
5359						
5360			@ @	1	33730	
5361	LESTP2		@ TMB@	3	33731	
5362	LETBL2		@ MCB@	3	33736	
5363						
5364	TO4		@EI@	2	33738	
5365			@ @	1	33739	
5366	HSTP		@ FH@	3	33740	
5367			@ EI@	3	33745	
5368	HTBL		@ D.@	3	33748	
5369						
5370	TO5		@LO@	2	33750	
5371			@ @	1	33751	
5372	LHSTP1		@ KO@	3	33752	
5373	LHTBL1		@ LO@	3	33757	
5374						
5375			@ @	1	33758	
5376	LHSTP2		@ MO@	3	33759	
5377	LHTBL2		@ LO@	3	33764	
5378						
5379	TO6		@*U@	2	33766	
5380			@ @	1	33767	
5381	EHSTP1		@ *U@	3	33768	
5382	EHTBL1		@ RV@	3	33773	
5383						
5384			@ @	1	33774	

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PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION
5385       EHSTP2          a STa                                    3  33775
5386      EHTBL2           a RUa                                    3  33780
5387
5388      TO7              aX1a                                     2  33782
5389                       a a                                      1  33783
5390       ANY1            a W2a                                    3  33784
5391
5392                       a a                                      1  33787
5393       ANY2            a X1a                                    3  33788
5394
5395                       a a                                      1  33791
5396       ANY3            a YOa                                    3  33792
5397
5398                       &0          NUMBER                       1  33795
5399                       &1                                       1  33796
5400                       &2          TABLE                        1  33797
5401                       &3                                       1  33798
5402                       &4          USED                         1  33799
5403                       &5                                       1  33800
5404                       &6          BY SUBROUTINE                1  33801
5405                       &7                                       1  33802
5406                       &8          #24.02 AND OTHERS            1  33803
5407      DTABLE           &9                                       1  33804
5408                       TABLE USED BY SUB-ROUTINE #31.01
5409                       a6000009a                                6  33810
5410                       a5000008a                                6  33816
5411                       a4C0007a                                 6  33822
5412                       a3C0006a                                 6  33828
5413                       a2000005a                                6  33834
5414                       a1C0004a                                 6  33840
5415      SIZTBL           a0000003a                                6  33846
5416                       TWO TABLES USED BY SUB-ROUTINE #31.02
5417                       aMMa                                     2  33848
5418                       99                                       2  33850
5419                       aM.a                                     2  33852
5420                       94                                       2  33854
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PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5421			a&-a	2	33856	
5422			89	2	33858	
5423			a&Ca	2	33860	
5424			84	2	33862	
5425			a.&a	2	33864	
5426			79	2	33866	
5427			a!!a	2	33868	
5428			74	2	33870	
5429			a!-a	2	33872	
5430			69	2	33874	
5431			a!0a	2	33876	
5432			64	2	33878	
5433			a-&a	2	33880	
5434			59	2	33882	
5435			a-!a	2	33884	
5436			54	2	33886	
5437			a--a	2	33888	
5438			49	2	33890	
5439			a-0a	2	33892	
5440			44	2	33894	
5441			a0&a	2	33896	
5442			39	2	33898	
5443			a0!a	2	33900	
5444	LTABLE		34	2	33902	
5445						
5446			a5999769a	6	33908	
5447			a4998088a	6	33914	
5448			a3998478a	6	33920	
5449			a2998868a	6	33926	
5450			a1999258a	6	33932	
5451			a0999648a	6	33938	
5452	KTABLE		a000003a	6	33944	
5453						
5454	HOLDA	DCW	a a	5	33949	
5455	HOLDB		a a	5	33954	
5456	P1		a a	3	33957	

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5457	P2		@ @	3	33960	
5458	TADHLD		@ @	9	33969	
5459	SPECL1		@£.¤BTM@	6	33975	
5460	SPECL2		@B,%SSM@	6	33981	
5461	SPECL3		@ #@.TM@	6	33987	
5462	SPECL4		@-$*B,L@	6	33993	
5463	ALFACD		ALPHA-2	5	33998	01994
5464	BETACD		WORK3A-2	5	34003	01997
5465	FIVE9S		£99999	5	34008	
5466	AACDR1		FIELD1-3	5	34013	34029
5467	BADDR1		FIELD2-3	5	34018	34032
5468	AADDR2		FIELD3-3	5	34023	34035
5469	BADDR2		FIELD4-3	5	34028	34039
5470	FIELC1		@9M8G@	4	34032	
5471	FIELC2		@¤$G@	3	34035	
5472	FIELC3		@,IG@	3	34038	
5473	FIELC4		@ /.G@	4	34042	
5474	LIMIT		@ @	4	34046	
5475	HISTRT		@ @	2	34048	
5476	LOSTRT		@ @	2	34050	
5477	HICNT		@ @	2	34052	
5478	LOCNT		@ @	2	34054	
5479	FIVE4S		@54EDNMVU.@S%B*B¤@	16	34070	
5480	MANY9S		@9999999999999991@	16	34086	
5481	PRODCT		@0545454545454545345454545454545454F@	33	34119	
5482	BIGANS		@ @	33	34152	
5483	MPYTBL		@ MTB¤.MIHGFEDCBA&L,B*$.RQPONMLKJ-@	33	34153	
5484			@MSS%,*ZYXWVUTS/BMT.@#0987654321 @	32	34217	

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PGLIN     LABEL     OPCOD  OPERAND                                                  CT  ADDRS  INSTRUCTION
                                    LLG   R.D     WBSS  .GTQ
5486                DCW    @ .¤BTM&$*B,L-/,%SSMB#@.TMMABCDEF@                      32  34249
5487      CCON1     DC     @GHI.JKLMNCPQR*STUVWXYZ01234567890@                      32  34281
5488
5489                       @ @                CAUSE ODD-EVEN DISPARITY, CCON1/2    1  34282
5490
                                  L GL  R D.     BWSS  G.QT
5491                DCW    @. B¤MT$&B*L,/-%,SSBM@#T.MMBADCFE@                      32  34314
5492      CCON2     DC     @HG.IKJMLONQP*RTSVUXWZY10325476980@                      32  34346
5493
5494                DCW    @-*0&&*0&-*0&-*0&-*0&-*0&-*0&*@                          25  34371
5495                DC     @*0&-00&-*&&-*0*-*33-300-30&@                            25  34396
5496      TRASH             @0&-**&-*00-*0&&*0&-*0&-*0@                              25  34421
```

```
PGLIN     LABEL     OPCOD  OPERAND                                  CT  ADDRS  INSTRUCTION

5498                       TABLE OF EQUATE STATEMENTS
5499      LOADER    EQU    400
5500      TAD0      EQU    1000
5501      TAD1      EQU    1001
5502      TAD2      EQU    1002
5503      TAD3      EQU    1003
5504      TAD4      EQU    1004
5505      CPU       EQU    1256
5506      MEMSIZ    EQU    1257
5507      EEBIT     EQU    SYSCTL&5
5508      BLANK     EQU    TABLE
5509      CBIT      EQU    NWM00
5510      PLUS1     EQU    AYE
5511      PLUS2     EQU    BEE
5512      PLUS3     EQU    SEE
5513      PLUS4     EQU    DEE
5514      PLUS5     EQU    EEE
5515      PLUS6     EQU    EFF
5516      PLUS7     EQU    GEE
5517      PLUS8     EQU    AITCH
5518      PLUS9     EQU    EYE
5519      PLUS0     EQU    QUESTN
```

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5521			TABLE OF EQUATE STATEMENTS, CONTINUED			
5522	MINUS7	EQU	PEA			
5523	MINUS8	EQU	QUEUE			
5524	MINUS0	EQU	EXCLAM			
5525	DIVSCR	EQU	WORK7			
5526	DIVDND	EQU	WORK8			
5527	QUOREM	EQU	P1			
5528	QUOTNT	EQU	WORK10			
5529	XR0	EQU	24			
5530	TPMK	EQU	NWM15			
5531	QUOT	EQU	NWM31			
5532	DELT	EQU	NWM47			
5533	GPMK	EQU	NWM63			
5534	GMWM	EQU	ALLBIT			
5535	HOLDA1	EQU	HOLDA			
5536	HOLDA2	EQU	HOLDA			
5537	HOLDA3	EQU	HOLDA			
5538	HOLDA4	EQU	HOLDA			
5539	HOLDB1	EQU	HOLDB			
5540	HOLDB2	EQU	HOLDB			
5541	HOLDB3	EQU	HOLDB			
5542	HOLDB4	EQU	HOLDB			

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5544		LTORG	LOWLOC		01289	
5544			&8	1	01289	
5544			-8	1	01290	
5544			a¥a	1	01291	
5544			a8a	1	01292	
5544			&6	1	01293	
5544			-1	1	01294	
5544			-9	1	01295	
5544			&2	1	01296	
5544			&9	1	01297	
5544			&4	1	01298	
5544			-6	1	01299	
5544			&1	1	01300	
5544			-2	1	01301	
5544			-4	1	01302	
5544			&5	1	01303	
5544			&54321	5	01308	
5544			&9876	4	01312	
5544			&123	3	01315	
5544			&45679	5	01320	
5544			-45679	5	01325	
5544			-54321	5	01330	
5544			a9RIYa	4	01334	
5544			&34567	5	01339	
5544			-34567	5	01344	
5544			&0	1	01345	
5544			&7	1	01346	
5544			JD	5	01351	10086
5544			JC	5	01356	10079
5544			RESET	5	01361	32906
5544			KF02	5	01366	11590
5544			POUND	5	01371	33026
5544			KF07	5	01376	11708
5544			KF06	5	01381	11701
5544			a00101a	5	01386	
5544			a0C102a	5	01391	

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5544			&4C96	4	01395	
5544			&64	2	01397	
5544			&63	2	01399	
5544			ENDITM	5	01404	33624
5544			LSTP	5	01409	33700
5544			ESTP	5	01414	33712
5544			LESTP1	5	01419	33724
5544			LESTP2	5	01424	33731
5544			HS1P	5	01429	33740
5544			LHSTP1	5	01434	33752
5544			LHSTP2	5	01439	33759
5544			EHSTP1	5	01444	33768
5544			EHSTP2	5	01449	33775
5544			ANY1	5	01454	33784
5544			ANY2	5	01459	33788
5544			ANY3	5	01464	33792
5544			&04096	5	01469	
5544			&00064	5	01474	
5544			-00009	5	01479	
5544			-00010	5	01484	
5544			a‡‡Y1a	4	01488	
5544			a/J‡Aa	4	01492	
5544			aOJOMa	4	01496	
5544			aBBa	2	01498	
5544			aXX a	3	01501	
5544			&5C	2	01503	
5544			aM&a	2	01505	
5544			aJ a	2	01507	
5544			aJ-a	2	01509	
5544			aAZRa	3	01512	
5544			aAZ a	3	01515	
5544			aM. a	3	01518	
5544			aM, a	3	01521	
5544			aM Ma	3	01524	
5544			a.BC a	4	01528	
5544			a□□.* a	5	01533	

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5544			@!¤@@	3	01536	
5544			@%-$¢ @	5	01541	
5544			@ZR@	2	01543	
5544			@%-Z 9@	5	01548	
5544			@£0@	2	01550	
5544			@E5@	2	01552	
5544			@£M00@	4	01556	
5544			@£M£M@	4	01560	
5544			@$*£0@	4	01564	
5544			@7,0/@	4	01568	
5544			@7.0/@	4	01572	
5544			@***1@	4	01576	
5544			@ ,*0@	4	01580	
5544			@ .*0@	4	01584	
5544			£070	3	01587	
5544			@*,70@	4	01591	
5544			@*.70@	4	01595	
5544			@ 0@	5	01600	
5544			@1CX02@	5	01605	
5544			@1CX 2@	5	01610	
5544			@0.*,0@	5	01615	
5544			@5@,@	3	01618	
5544			@0,*.0@	5	01623	
5544			@5@.@	3	01626	
5544			@5,@*#@	5	01631	
5544			@5.@*#@	5	01636	
5544			-7C07	4	01640	
5544			@$0V@	3	01643	
5544			£0C	2	01645	
5544			@ $V@	3	01648	
5544			@,C@	2	01650	
5544			@.0@	2	01652	
5544			@ @	2	01654	
5544			@,*0@	3	01657	
5544			@.*0@	3	01660	
5544			@*,M0@	4	01664	

PGLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
5544			@*.MO@	4	01668	
5544			@Z @	2	01670	
5544			@Z*M*@	4	01674	
5544			@0.0@	3	01677	
5544			@, @	2	01679	
5544			@0,0@	3	01682	
5544			@. @	2	01684	
5544			@ *$0@	4	01688	
5544			@6.0@	3	01691	
5544			@$6.0@	4	01695	
5544			@0C$0@	4	01699	
5544			@.30@	3	01702	
5544			@,30@	3	01705	
5544			@ ,30@	4	01709	
5544			@ .30@	4	01713	
5544			@XG@	2	01715	
5544			@ X @	3	01718	
5544			£0C008	5	01723	
5544			£44	2	01725	
5544			@08@	2	01727	
5544			-045	3	01730	
5544			£032	3	01733	
5544			@0C1 @	4	01737	
5544			@ACD@	3	01740	
5544			@NC0E@	4	01744	
5544			@JCM@	3	01747	
5544			@X0 00@	5	01752	
5544			@X 550@	5	01757	
5544			@ ,0@	3	01760	
5544			@ .0@	3	01763	
5544			@8 @	3	01766	
5544			£500	3	01769	
5544			UJ	5	01774	29933
5544			UU	5	01779	30359
5544			@ @	1	01780	
5544			@00000@	5	01785	

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PGLIN     LABEL     OPCOD  OPERAND                                                    CT  ADDRS  INSTRUCTION
5544                       @349998@                                                    5  01790
5544                       &00014                                                      5  01795
5544                       LTABLE                                                      5  01800  33902
5544                       WORK17                                                      5  01805  33615
5544                       @55@                                                        2  01807
5544                       WORK18                                                      5  01812  33617
5545
5546                ORG    1994                                                           01994
5547      ALPHA     DCW    &999          UNITS POSITION IN EVEN ADDRESS                3  01996
5548                       @ @           DUMMY POS TO FORCE NEXT FIELD ODD             1  01997
5549      WORK3A           @  @          UNITS POSITION IN ODD ADDRESS                 2  01999
5550
5551                END    START                                                                  J02000
                                    12/15/63  KRB
                                    END OF ASSEMBLY
```