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Remington Rand Univac
DIVISION OF SPERRY RAND CORPORATION
PHILADELPHIA, PA.

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                    FLO                                  1.  FORTRAN II COMPILER  PASS 1
                                                             D. E. KNUTH

                                                             TO BEGIN READING THIS LISTING, LOOK FIRST
                                                             AT THE CONSTANTS AT THE END AND FAMILIARIZE
                                                             YOURSELF WITH THEIR NAMES AND VALUES

                    TYP                 0000009000
          STORE     EQU    4195
          UNIQU     BLR    4196
          COMON     BLR    4198
          WDDO      BLR    4100
          SIGN%     BLR    4101
          UN-       BLR    4102
          BIN-      BLR    4103
          SIGN-     BLR    4104
          SIGN&     BLR    4105
          BIN&      BLR    4106
          WDIF      BLR    4107
          IF%       BLR    4108
          TARA*     BLR    4109
          TARA%     BLR    4110
          SIGN*     BLR    4111
          BIN*      BLR    4112
          SIGN,     BLR    4113
          SIGN$     BLR    4114
          SIGN/     BLR    4115
          BIN**     BLR    4116
          SIGN#     BLR    4117
          BIN:#     BLR    4118
          SQRTF     BLR    4119
          SINF      BLR    4120
          COSF      BLR    4121
          TANF      BLR    4122
          ATANF     BLR    4123
          LNF       BLR    4124
          EXPF      BLR    4125
          ABSF      BLR    4126
          OPC       BLR    4127
          GO%       BLR    4128
          LABL      BLR    4129
          ASS1      BLR    4130
          WDGO      BLR    4131
          WDNO      BLR    4132
          WDLIS     BLR    4133
          WDFOR     BLR    2200
          SIGN'     BLR    4135
          WDTRC     BLR    4136
          WDCOR     BLR    4137
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0083                    WDTRU    BLR   4136
0084                    DIM%     BLR   4139
0085                    NORMX    BLR   4140
0086                    WDPOZ    BLR   4141
0087                    WDSTP    BLR   4142
0088                    WDEND    BLR   4143
0089                    WDFUN    BLR   4144
0090                    WDSUB    BLR   4145
0091                    WDRED    BLR   4146
0092                    WDPRT    BLR   4147
0093                    WDFMT    BLR   4149
0094                    WDRTN    BLR   4150
0095                    WDDIM    BLR   4151
0096                    WDCOM    BLR   4152
0097                    WDEQU    BLR   4153
0098                    FLOTF    BLR   4154
0099                    FIXF     BLR   4155
0100                    EQU%     BLR   4156
0101                    DONT1    BLR   4157
0102                    FC%      BLR   4158
0103                    WDPCH    BLR   4159
0104                    WDCAL    BLR   4160
0105                    BCOMP    BLR   4161
0106                    BLAND    BLR   4162
0107                    BOR      BLR   4163
0108                    DO$1     BLR   4164
0109                    I02.1    BLR   4165
0110                    WDPRG    BLR   4166
0111  A0000             BLR      1100   1119    TYPE SWITCHING FOR BINARY OPERATORS
0112  B0000             BLR      4000   4008    ARITH ROUTINE
0113  C0000             BLR      4010   4015    ASIGN ROUTINE
0114                    BLR      C0009  C0012
0115  E0000             BLR      4050   4074    CONTROL IN SCANNER
0116  F0000             BLR      4024   4029    CONTROL IN FUNCTION CALL
0117                    BLA      F0004
0118  H0000             EQU      0000            HSR BAND
0119                    OFF      9000
0132                    ON       9000
0133                    ON       9001
0134                    ON       9002
0135                    BLR      H0001  H0096 005
0136                    BLR      H0102  H0197 005
0137  HWD1              EQU      H0011
0138  HDW2              EQU      0000
0139  HDW3              EQU      0021
0140                    ON       8001
0141                    ON       8002
0142  I0000             BLR      1300   1399    ASM1 OP TABLES
0143                    BLA      I0025  I0073
0144  J0000             BLR      1700   1739    MACRO TABLES
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                BLA  J0005
K0000           EQU   0200                  PRINTER BAND - CARD IMAGES
                BLR  K0000    K0005 005
                BLR  K0081    K0086 005
                BLR  K0165    K0170 005
                BLR  K0050    K0055 005
                BLR  K0134    K0139 005
                BLR  K0018    K0023 005
                BLR  K0103    K0108 005
                BLR  K0041    K0046 005
                BLR  K0125    K0130 005
                BLR  K0009    K0014 005
                BLR  K0094    K0099 005
                BLR  K0178    K0183 005
                BLR  K0062    K0067 005
L0000           BLR   1280     1282         PROCESSING OF LABELS
                BLR  L0004    L0006
N0001           BLR   4031     4039         INPUT ROUTINE
00001           BLR   1550     1599         HEADER CARD INFORMATION
P0000           EQU   0400                  PRINTER BAND - COMPILED INSTRUCTIONS
                BLR  P0000    P0005 005
                BLR  P0081    P0086 005
                BLR  P0165    P0170 005
                BLR  P0050    P0055 005
                BLR  P0134    P0139 005
                BLR  P0018    P0023 005
                BLR  P0103    P0108 005
                BLR  P0041    P0046 005
                BLR  P0125    P0130 005
                BLR  P0009    P0017 005
                BLR  P0094    P0099 005
                BLR  P0178    P0183 005
                BLR  P0062    P0067 005
Q0000           BLR   1000     1045         SUBROUTINE ENTRANCES TABLE
R0000           EQU   0800                  RPU BAND - OBJECT DECK
                OFF   9000
                ON    9000
                ON    9001
                ON    9002
                BLR  R0101    R0196 005
                BLR  R0002    R0097 005
                BLR  R0103    R0198 005
RWD1            EQU  R0108
                ON    8001
                ON    8002
S0000           BLR   4040     4049         SEND ROUTINE
                BLA  S0001    S0002
                BLA  S0004
T0000           BLR   1050     1096         CONSTANTS FOR DIVRT
                BLA  T0006
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                                        V0000   BLR   4080     4085          ASM2 ROUTINE
                                                BLA   V0004
                                        W0000   BLR   1750     1754          NAMES OF LIBRARY PACKAGES
                                        X0000   BLR   1150     1173          PROCESSING OF FORMAT STRINGS
                                        Z0000   BLR   1420     1519          SCRAMBLE TABLE FOR SRCH ROUTINE
                                        50001   BLR   4181     4186          CONTROL IN PUNCH ROUTINE ASM5
                                        90000   BLR   2201     2211
                                                BLR   0000     0001
0000  BBB 0 30  4140  0042          0000   LDL   NORMX    BME
0001  BBB 0 HH  HHHH  HHHH          0001   CON   HHHHH    HHHHH         USED IN TESTING END OF DO LOOP
                                                BLR   0100     0110 010
0110  BBB 0 00  0100  0100          0110   JMP   0100                   IN CASE MACHINE HAS HSR INTERRUPT
                                        RAND    BLR   1190     1229          OPERAND STACK
                                                BLR   1185     1189          PROTECTION ON BOTTOM OF OPERAND STACK
1185  BBB 0 02  4098  5000          1185   CON   02409    85000         CONSTANT ZERO
1186  BBB 0 02  4098  5000          1186   CON   02409    85000         CONSTANT ZERO
1187  BBB 0 02  4098  5000          1187   CON   02409    85000         CONSTANT ZERO
1188  BBB 0 02  4098  5000          1188   CON   02409    85000         CONSTANT ZERO
1189  BBB 0 02  4098  5000          1189   CON   02409    85000         CONSTANT ZERO
1190  BBB 0 02  4098  5000          RAND    CON   02409    85000
                                        MODE    BLR   1520     1549          MODE STACK
                                        DUMMY   BLR   4088     4099
4088  BBB 0 00  0000  0000          4088   CON   00000    00000         DUMMY DO VARIABLE IN I-O LIST
4089  BBB 0 02  1208  B9BB          4089   ALF   *I*
4090  BBB 0 69  4135  0000          4090   CON   69413    50000
4091  BBB 0 00  0000  000H          4091   CON   00000    0000H         APOSTROPHE
4092  BBB 0 00  0000  0000          4092   CON   00000    00000
                                        00P0    EQU   4093                   SPECIAL LPREN WHICH INDICATES EXTRA RPREN
4098  BBB 0 05  0000  0000          4098   CON   05000    00000
4099  BBB 0 00  0000  0000          4099   CON   00000    00000         CONSTANT ZERO
4096  BBB 0 05  0000  0000          4096   CON   05000    00000
                                        KON1    EQU   4097                   CONSTANT 1
4094  BBB 0 05  0000  0000          4094   CON   05000    00000
                                        KON2    EQU   4095                   CONSTANT 2
                                        SCAN1   EQU   E0000
                                        $       EQU   T0014
                                        .       EQU   T0024
                                        OBIN&   EQU   T0002
                                        CON0    EQU   T0001

                                                OFF   9000
                                                ON    9000
                                        80000   BLR   4800     4879          TRANSLATE TABLE - 90CARD TO MC-6
                                                BLA   80004    80079 005
4800  BBB 0 00  0000  0008          80000   CON   00000    00008         0-0
4801  BBB 0 00  0000  0000          80001   CON   00000    00000         0-1
4802  BBB 0 00  0000  0001          80002   CON   00000    00001         0-2
4803  BBB 0 00  0020  0008          80003   CON   00002    00008         0-3
4805  BBB 0 00  0000  0005          80005   CON   00000    00005         0-5
4806  BBB 0 00  0020  0004          80006   CON   00002    00004         0-6
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0579   4807   BBB 0 00   0010   0002   80007   CON   00001   00002   0-7
0580   4808   BBB 0 00   0030   0008   80008   CON   00003   00008   0-8
0581   4810   BBB 0 00   0000   0007   80010   CON   00000   00007   1-0
0582   4811   BBB 0 00   0010   0003   80011   CON   00001   00003   1-1
0583   4812   BBB 0 00   0020   0009   80012   CON   00002   00009   1-2
0584                                             BLA   80013
0585   4815   BBB 0 00   0010   0007   80015   CON   00001   00007   1-5
0586   4816   BBB 0 00   0030   0004   80016   CON   00003   00004   1-6
0587   4817   BBB 0 00   0030   0002   80017   CON   00003   00002   1-7
0588   4818   BBB 0 00   0010   000H   80018   CON   00001   0000H   1-8
0589   4820   BBB 0 00   0000   0009   80020   CON   00000   00009   2-0
0590   4821   BBB 0 00   0020   0003   80021   CON   00002   00003   2-1
0591   4822   BBB 0 00   0000   0002   80022   CON   00000   00002   2-2
0592                                             BLA   80023
0593   4825   BBB 0 00   0000   0006   80025   CON   00000   00006   2-5
0594   4826   BBB 0 00   0020   0005   80026   CON   00002   00005   2-6
0595   4827   BBB 0 00   0010   0001   80027   CON   00001   00001   2-7
0596                                             BLA   80028
0597   4830   BBB 0 00   0000   0008   80030   CON   00000   00008   3-0
0598   4831   BBB 0 00   0030   0007   80031   CON   00003   00007   3-1
0599   4832   BBB 0 00   0010   0006   80032   CON   00001   00006   3-2
0600                                             BLA   80033
0601   4835   BBB 0 00   0030   0009   80035   CON   00003   00009   3-5
0602   4836   BBB 0 00   0000   000F   80036   CON   00000   0000F   3-6
0603   4837   BBB 0 00   0030   0000   80037   CON   00003   00000   3-7
0604                                             BLA   80038
0605   4840   BBB 0 00   0000   0003   80040   CON   00000   00003   0-4
0606   4841   BBB 0 00   0010   0005   80041   CON   00001   00005   0-A
0607   4842   BBB 0 00   0020   0006   80042   CON   00002   00006   0-B
0608                                             BLA   80043
0609   4845   BBB 0 00   0010   0009   80045   CON   00001   00009   0-9
0610   4846   BBB 0 00   0010   0004   80046   CON   00001   00004   0-F
0611   4847   BBB 0 00   0020   0001   80047   CON   00002   00001   0-G
0612                                             BLA   80048
0613   4850   BBB 0 00   0010   0008   80050   CON   00001   00008   1-4
0614   4851   BBB 0 00   0030   0006   80051   CON   00003   00006   1-A
0615   4852   BBB 0 00   0020   0007   80052   CON   00002   00007   1-B
0616                                             BLA   80053
0617   4855   BBB 0 00   0020   0008   80055   CON   00002   00008   1-9
0618   4856   BBB 0 00   0000   000A   80056   CON   00000   0000A   1-F
0619   4857   BBB 0 00   0000   000C   80057   CON   00000   0000C   1-G
0620   4858   BBB 0 00   0010   000C   80058   CON   00001   0000C   1-H
0621   4860   BBB 0 00   0000   0004   80060   CON   00000   00004   2-4
0622   4861   BBB 0 00   0030   0005   80061   CON   00003   00005   2-A
0623   4862   BBB 0 00   0030   0008   80062   CON   00003   00008   2-B
0624                                             BLA   80063
0625   4865   BBB 0 00   0020   0002   80065   CON   00002   00002   2-9
0626   4866   BBB 0 00   0030   000A   80066   CON   00003   0000A   2-F
0627   4867   BBB 0 00   0010   000A   80067   CON   00001   0000A   2-G
0628   4868   BBB 0 00   0020   000A   80068   CON   00002   0000A   2-H
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4870  BBB 0 00  0030  0003   80070   CON  00003   00003          3-4
                                     BLA  80071
4872  BBB 0 00  0010  000B   80072   CON  00001   0000B          3-B
4873  BBB 0 00  0000  000H   80073   CON  00000   0000H          3-C
4875  BBB 0 00  0030  0001   80075   CON  00003   00001          3-9
                                     BLA  80076
4877  BBB 0 00  0000  000G   80077   CON  00000   0000G          3-G
                                     BLA  80078
                                     ON    9001
                                     ON    8001
                             INCR1   EQU   0057                   INTERLACE FOR NON-CORE PROGRAMS
                             MEMLL   BLR   3100    3999          POOLED MEMORY AREA
                             MEML1   EQU   3099                   MEML1 IS MEMLL - 1
                             MEML2   EQU   3299                   AREA BETWEEN MEMLL AND MEML2 IS USED FOR
                                                                  OVERLAYABLE PROGRAM
                             MEMU2   EQU   4000                   TOP OF POOLED MEMORY
                             10000   BLR   1250    1258          PANIC - ALARM ROUTINE
                                     BLR  10009   10015 002
                             20000   EQU   0600                   PRINTER BAND - ALARM ROUTINE
                                     BLR  20000   20005 005
                                     BLR  20081   20086 005
                                     BLR  20165   20170 005
                                     BLR  20050   20055 005
                                     BLR  20134   20139 005
                                     BLR  20018   20023 005
                                     BLR  20103   20108 005
                                     BLR  20041   20046 005
                                     BLR  20125   20130 005
                                     BLR  20009   20014 005
                                     BLR  20094   20099 005
                                     BLR  20178   20183 005
                                     BLR  20062   20067 005
                             30000   BLR   1650    1699          ALARM DICTIONARY OF WORDS
                                     HHH        H
                                     ON    8002
                                     ON    9002
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                                                                                G.  GENERATOR CONTROL
4140  BBB 0 30  4042  4044   NORMX   LDL  NORM      SCAN                        G1. SCAN NEXT ITEM.
4044  BBB 0 50  4246  4248   SCAN    STL  GENX      SCANX                           THIS SHOWS TYPICAL TRANSFER OF CONTROL
4248  BBB 0 30  4050  4202   SCANX   LDL  E0000     NXTCH                           BETWEEN TWO COROUTINES
4028  BBB 0 05  4030  4232   GEN     LDX  LAST
4232  BBB 0 50  4248  4200            STL  SCANX
4200  BBB 0 30  4402  4204            LDL  LEOFF
4204  BBB 0 50  4206  4208            STL  LESW
4208  BBB 0 60  4030  4246            STA  LAST      GENX
4042  BBB 0 77  4042  4245   NORM    ATL            1F                          G2. ISIT AN OPERATOR
4245  BBB 0 70  4247  4400   1       ADD  BIG30     -OP1

4400  BBB 1 0G  0001  4404   -OP1    IIR3  0001                                 G3. OPERAND STACKED
4404  BBB 1 54  0000  4602            STL3  0000
4602  BBB 0 25  4604  4406            LDA  BIG25                                 G4. IS IT AN ARRAY
4406  BBB 0 87  4017  4009            TGR  1F     +08
4009  BBB 0 70  000A  4214            ADD  RA
4214  BBB 0 87  4217  4017            TGR  ARRAY     1F
4017  BBB 0 30  4219  4044   1       LDL            SCAN                        G5. SCAN NEXT ITEM
4219  BBB 0 30  4221  4023            LDL  LPREN
4023  BBB 0 82  4226  4042            TEQ  FUNCT     NORM

4401  BBB 0 70  4203  4606   &OP1    ADD  BIG71     -OP2                        G6. WHAT KIND OPERATOR
4607  BBB 0 00  000A  000A   &OP2    JMP  RA


4606  BBB 0 70  4408  4211   -OP2    ADD  BIG01     -OP4
4211  BBB 0 50  4213  4215   -OP4    STL  OHOLD     OPX                         G7. PUT OP IN OHOLD.
4215  BBB 0 25  4417  4419   OPX     LDA  RATOR                                 G10.P(RATOR):P(OHOLD)
4419  BBB 0 70  4421  000A            ADD            RA
4421  BBB 0 30  0001  4403            LDL   0001
4403  BBB 0 25  4213  4415            LDA  OHOLD
4415  BBB 0 35  4617  4619            ERS  XO
4619  BBB 0 87  4222  4422            TGR  1F
4422  BBB 0 30  4224  4426            LDL  2F        REMRT
4426  BBB 0 08  4417  4229   REMRT   LIR1 RATOR     REM
4224  BBB 0 07  HHHH  4227   2       IIR   HHHH
4227  BBB 0 39  0001  000A            ERS1  0001     RA
4222  BBB 0 05  4213  4615   1       LDX  OHOLD                                 G19.COMMA OR SEMICOLON
4615  BBB 0 25  4267  4819            LDA  XM1
4819  BBB 0 35  000C  4223            ERS  RX
4223  BBB 0 70  4225  4428            ADD  BIG99     -OP3
4429  BBB 0 00  000A  000A   &OP3    JMP  RA
4428  BBB 0 25  000C  4432   -OP3    LDA  RX        3F
4212  BBB 0 25  000B  4432   &OP4    LDA  RL        3F
4234  BBB 1 07  0001  4238   MDOP2   IIR2  0001     MDOP1
4235  BBB 1 07  0004  4238   MDOP    IIR2  0004     MDOP1
4238  BBB 1 50  0000  4428   MDOP1   STL2  0000     -OP3
4432  BBB 0 30  4140  4242   3       LDL  NORMX     INSRT                       G20.OPERATOR STACKED
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0738     4242  888 0 08  4417  4445      INSRT      LIRI RATOR      INS
0740
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                                                                                S.  SCANNER CONTROL
 4050  BBB 0 30  4252  4202   SCAN1   LDL                NXTCH     S1. NEXT CHARACTER
 4252  BBB 0 08  4050  4205           LIR1 E0000        KIND      S2. WHAT KIND

 4053  BBB 0 30  4405  4207   E0003   LDL  B05                    S3. LOOK FOR IJKLMN
 4207  BBB 0 50  4209  4411           STL  TEMP2
 4411  BBB 0 30  4413  4265           LDL  LIT8
 4265  BBB 0 87  4018  4218           TGR                1F
 4018  BBB 0 30  4220  4622           LDL# 00001        00005
 4622  BBB 0 87  4218  4425           TGR  1F
 4425  BBB 0 25  4408  4210           LDA  BIG01        2F
 4218  BBB 0 26  4210  4210   1       CLA  2F
 4210  BBB 0 60  4412  4414   2       STA  TYPE
 4414  BBB 0 25  4016  4418           LDA  LIT1         1F
 4625  BBB 0 70  4016  4418   5       ADD  LIT1         1F
 4418  BBB 0 60  4420  4272   1       STA  TEMP3
 4272  BBB 0 30  4424  4626           LDL  LIT5
 4626  BBB 0 87  4629  4829           TGR  3F           2F
 4829  BBB 0 25  4209  4611   2       LDA  TEMP2
 4611  BBB 0 37  0100  4465           SHL   0100
 4465  BBB 0 35  4467  4269           ERS# HHHH0        HHHHH
 4269  BBB 0 20  000C  4423           BUF  RX                     S4. NEXT CHARACTERS
 4423  BBB 0 60  4209  4629           STA  TEMP2        3F
 4629  BBB 0 30  4231  4202   3       LDL                NXTCH
 4231  BBB 0 08  4055  4205           LIR1 E0005        KIND
 4056  BBB 0 30  4055  4407   E0006   LDL  E0005        SETNS
 4059  BBB 0 30  4055  4407   E0009   LDL  E0005        SETNS
 4058  BBB 0 25  4420  4625   E0008   LDA  TEMP3        5B
 4057  BBB 0 25  4420  4625   E0007   LDA  TEMP3        5B
 4055  BBB 0 06  4608  4608   E0005   CLX                         S5. SEARCH SYMBOL TABLE
 4608  BBB 0 30  4410  4612           LDL  SEND         SRCH1
 4051  BBB 0 65  4209  4261   E0001   STX  TEMP2
 4261  BBB 0 26  4614  4614           CLA
 4614  BBB 0 60  4412  4814           STA  TYPE
 4814  BBB 0 25  4016  4618           LDA  LIT1
 4618  BBB 0 60  4420  4055           STA  TEMP3        E0005
 4410  BBB 0 50  4420  4472   SEND    STL  TEMP3        SEND1     S10.TRANSLATE TO GEN CODE.
 4472  BBB 0 25  4624  4076   SEND1   LDA  TEMP4
 4076  BBB 0 77  4076  4079           ATL
 4079  BBB 0 06  4632  4632           CLX
 4632  BBB 0 32  0900  4244           SHR   0900
 4244  BBB 0 70  4446  000A           ADD                RA
 4446  BBB 0 25  000B  4040           LDA  RL           S0000
 4040  BBB 0 25  4420  4672   S0000   LDA  TEMP3
 4672  BBB 0 30  4824  4276           LDL  DOVAR
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0806   4276  BBB 0 82  4279  4479                TEQ  2F        3F
0807   4479  BBB 0 20  4412  4264   3            BUF  TYPE      SCAN9
0808   4279  BBB 0 25  4431  4264   2            LDA  BIG21     SCAN9
0809   4043  BBB 0 35  4645  4479   S0003        ERS            3B
0810   4645  BBB 0 H0  HHHH  0000                CON  H0HHH     H0000
0811   4045  BBB 0 35  4617  4469   S0005        ERS  X0
0812   4469  BBB 0 20  4420  4264                BUF  TEMP3     SCAN9
0813   4046  BBB 0 70  4448  4451   S0006        ADD            -SEND
0814   4448  BBB 0 31  0000  0000                CON  31000     00000
0815   4452  BBB 0 05  4804  4256   &SEND        LDX  NOTAG
0816   4256  BBB 0 32  0F00  000C                SHR   0F00     RX
0817   4451  BBB 0 25  4603  4605   -SEND        LDA  BIG60
0818   4605  BBB 0 20  4420  4479                BUF  TEMP3     3B
0819   4049  BBB 0 35  4201  4264   S0009        ERS  X0M       SCAN9
0820   4048  BBB 0 35  4201  4264   S0008        ERS  X0M       SCAN9
0821   4047  BBB 0 35  4201  4264   S0007        ERS  X0M       SCAN9
0822   4264  BBB 0 30  4050  4028   SCAN9        LDL  SCAN1     GEN        S20.SEND TO GEN
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0826                                                                    N.  'GET NEXT CHARACTER' ROUTINE
0827   4407  BBB 0 65  4409  4461   SETNS   STX  NEXTC                      SUBROUTINE SETNS PUTS BACK PREV CHAR ON CARD
0828   4461  BBB 0 25  4613  4665           LDA  NXTW                   N1. WAS CHAR PUT BACK
0829   4665  BBB 0 60  4202  000B           STA  NXTCH    RL
0830   4613  BBB 0 05  4409  4661   NXTW    LDX  NEXTC
0831   4661  BBB 0 25  4813  4315           LDA  NXTN
0832   4315  BBB 0 60  4202  000B           STA  NXTCH    RL
0833   4202  BBB 0 25  4456  4258   NXTCH   LDA  NZONS    1F                NXTCH IS SET TO EITHER NXTW OR NXTN
0834   4813  BBB 0 25  4456  4258   NXTN    LDA  NZONS    1F
0835   4258  BBB 0 05  000A  4262   1       LDX  RA
0836   4262  BBB 0 50  4464  4216           STL  EXIT1                  N2. END OF WORD
0837   4216  BBB 0 70  000A  4321           ADD  RA       -INP1
0840   4322  BBB 0 07  0001  4075   &INP1   IIR   0001
0841   4075  BBB 0 70  4427  4230           ADD  NWORD                  N3. END OF CARD
0842   4230  BBB 0 60  4427  000A           STA  NWORD    RA
0843   4427  BBB 0 00  4038  4038   NWORD   JMP  N0008
0844   4037  BBB 0 0B  0303  4240   N0007   LIR1 K0103    1F
0845   4031  BBB 0 0B  0200  4240   N0001   LIR1 K0000    1F            N4. GET NEW WORD
0846   4032  BBB 0 0B  0281  4240   N0002   LIR1 K0081    1F
0847   4033  BBB 0 0B  0365  4240   N0003   LIR1 K0165    1F
0848   4034  BBB 0 0B  0250  4240   N0004   LIR1 K0050    1F
0849   4035  BBB 0 0B  0334  4240   N0005   LIR1 K0134    1F
0850   4036  BBB 0 0B  0218  4240   N0006   LIR1 K0018    1F
0851   4240  BBB 0 29  0000  4652   1       LDA1  0000
0852   4652  BBB 0 09  0005  4257           LDX1  0005    SHFT
0853   4257  BBB 0 60  4609  4311   SHFT    STA  NNUMS    BKSW
0854                                        OFF   9000
0872                                        ON    9001
0873                                        ON    9002
0899                                        ON    9000
-- 0900  4038  BBB 0 0B  0241  4240   N0008   LIR1 K0041    1B
0901   4321  BBB 0 26  4311  4311   -INP1   CLA  BKSW
0902   4311  BBB 0 31  4664  4664   BKSW    CLL  1F
0903   4253  BBB 0 31  4664  4664   BKON    CLL  1F
0904   4664  BBB 0 20  000C  4268   1       BUF  RX
0905   4268  BBB 0 82  4621  4275           TEQ           2F    +04
0906   4621  BBB 0 05  4623  4275           LDX  BIG05    2F
0907   4275  BBB 0 25  4627  4679   2       LDA# 40000    00000
0908   4679  BBB 0 35  4609  4511           ERS  NNUMS
0909   4511  BBB 0 32  0400  4468           SHR   0400
0910   4468  BBB 0 70  000C  4823           ADD  RX
0911   4823  BBB 0 35  4475  4077           ERS# HHHHH    00000
0912   4077  BBB 0 77  4077  4430           ATL
0913   4430  BBB 0 20  4282  4434           BUF# 00005    00000
0914   4434  BBB 0 32  0500  4442           SHR   0500
0915   4442  BBB 0 60  4456  4458           STA  NZONS
0916   4458  BBB 0 06  4711  4711           CLX
0917   4711  BBB 0 25  4609  4911           LDA  NNUMS
0918   4911  BBB 0 32  0900  4273           SHR   0900
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4273  BBB 0 65  4609  4361                STX  NNUMS
4361  BBB 0 37  0400  4668                SHL   0400
4668  BBB 0 20  000B  4522                BUF  RL
4522  BBB 0 35  4274  4476                ERS# 0000H     80000
4476  BBB 0 70  4228  000A                ADD            RA
4228  BBB 0 05  4800  4302                LDX  80000     4F
4675  BBB 0 25  4277  4879     BKOF       LDA  BIG50     3F
                                          ON    9001
                                          ON    9002
                                          ON    8001
                                          ON    8002
4879  BBB 0 32  0900  4041     3          SHR   0900                N10.EXTRACT NEXT CHAR
4041  BBB 0 60  4456  4658                STA  NZONS
4658  BBB 0 25  000C  4462                LDA  RX
4462  BBB 0 37  0400  4669                SHL   0400
4669  BBB 0 05  4609  4561                LDX  NNUMS
4561  BBB 0 32  0900  4473                SHR   0900
4473  BBB 0 60  4609  4302                STA  NNUMS     4F
4302  BBB 0 30  4254  4656     4          LDL  STAN
4656  BBB 0 50  4257  4464                STL  SHFT      EXIT1
4254  BBB 0 60  4609  4311     STAN       STA  NNUMS     BKSW       N20.GET NEW CARD
4039  BBB 0 07  4030  4642     N0009      IIR  N0000
4642  BBB 0 30  4444  4646                LDL  SHFT4
4646  BBB 0 50  4257  4809                STL  SHFT
4809  BBB 0 60  4427  4329                STA  NWORD     CREAD
4444  BBB 0 20  4277  4529     SHFT4      BUF  BIG50
4529  BBB 0 32  0400  4236                SHR   0400     SHFTF
4236  BBB 0 32  0F00  4254     SHFTF      SHR   0F00     STAN
                                          HHH
4329  BBB 0 25  0131  0133     CREAD      LDA  CMOVE                N21.MOVE BUFFERS
0133  BBB 0 05  0135  0337                LDX  CHALT     BU
0150  BBB 0 25  000C  0337     BU1        LDA  RX        BU
0337  BBB 0 60  0139  0141     BU         STA  CHI       CRDSW
0141  BBB 0 31  0144  0144     CRDSW      CLL  3F
0154  BBB 0 31  0144  0144     CRDC       CLL  3F
0144  BBB 0 0B  0150  0347     3          LIR1  0150     2F
0347  BBB 0 42  0151  0350     2          HBT  4F
0350  BBB 0 0G  9999  0354                IIR1  9999
0354  BBB 0 82  000C  0347                TEQ  RX        2B
0135  BBB 0 67  2223  0023     CHALT      HLT   2223
0023  BBB 0 30  0154  0156                LDL  CRDC      HCC
0156  BBB 0 72  000A  0159     HCC        HCC  RA        -CRD
0160  BBB 0 67  2222  000A     &CRD       HLT   2222     RA
0159  BBB 0 25  0154  0356     -CRD       LDA  CRDC
0356  BBB 0 60  0141  000B                STA  CRDSW     RL
                                          OFF   9000
                                          ON    9000
                                  CTP     NEW1 77000     0B3AG
                                          OFF   9000
                                          ON    9001
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1017                                                    ON    9002
1019                                                    ON    9000
1020  0151  888 0 96  0000  0013      4                 HBU   H0000
1021  0013  888 0 30  0015  0017                        LDL   H10
1022  0017  888 0 25  0021  0823                        LDA   H0021
1023  0823  888 0 82  0226  0154                        TEQ         CRDC
1024  0226  888 0 25  4607  0059                        LDA   &0P2                 &0P2 IS A 'JMP RA'
1025  0059  888 0 60  0141  0139                        STA   CRDS#      CHI
1026  0131  888 0 30  0333  0156      CMOVE             LDL           HCC
1027  0333  888 0 25  0031  0033                        LDA   H0031
1028  0033  888 0 05  0036  0038                        LDX   H0036
1029                                                    CTP
1030  0038  888 0 60  0281  0083                        STA   K0081
1031  0083  888 0 65  0286  0088                        STX   K0086
1032  0088  888 0 25  0112  0114                        LDA   H0112
1033  0114  888 0 05  0117  0119                        LDX   H0117
1034                                                    CTP
1035  0119  888 0 60  0334  0136                        STA   K0134
1036  0136  888 0 65  0339  0341                        STX   K0139
1037  0341  888 0 25  0051  0053                        LDA   H0051
1038  0053  888 0 05  0056  0058                        LDX   H0056
1039                                                    CTP
1040  0058  888 0 60  0365  0367                        STA   K0165
1041  0367  888 0 65  0370  0372                        STX   K0170
1042  0372  888 0 25  0011  0213                        LDA   H0011
1043  0213  888 0 05  0016  0018                        LDX   H0016
1044                                                    CTP
1045  0018  888 0 60  0200  0002                        STA   K0000
1046  0002  888 0 65  0205  0007                        STX   K0005
1047  0007  888 0 25  0071  0073                        LDA   H0071
1048  0073  888 0 05  0076  0078                        LDX   H0076
1049                                                    CTP
1050  0078  888 0 60  0250  0052                        STA   K0050
1051  0052  888 0 65  0255  0057                        STX   K0055
1052  0057  888 0 25  0132  0134                        LDA   H0132
1053  0134  888 0 05  0137  0939                        LDX   H0137
1054                                                    CTP
1055  0939  888 0 60  0218  0020                        STA   K0018
1056  0020  888 0 65  0223  0025                        STX   K0023
1057  0025  888 0 25  0027  0029                        LDA   LEVEL
1058  0029  888 0 70  0231  0034                        ADD   BAND
1059                                                    OFF   9000
1064                                                    ON    9000
1065  0034  888 0 20  0236  0238                        BUF#  33000       03333
1066  0238  888 0 17  0238  0841                        MTC
1067  0841  888 0 35  0043  0045                        ERS   XM
1068  0045  888 0 60  0325  0327                        STA   K0125
1069  0327  888 0 65  0330  0332                        STX   K0130
1070                                                    ON    9001
1071                                                    ON    9002
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1072  0352  888 0 25  0152  0554          LDA  H0152
1073  0554  888 0 05  0157  0359          LDX  H0157
1074                                      CTP
1075  0359  888 0 60  0303  0105          STA  K0103
1076  0105  888 0 65  0308  0310          STX  K0108
1077  0310  888 0 25  0172  0174          LDA  H0172
1078  0174  888 0 05  0177  0179          LDX  H0177
1079                                      CTP
1080  0179  888 0 60  0241  0243          STA  K0041
1081  0243  888 0 65  0246  0048          STX  K0046
1082                                      ON    8001
1083                                      ON    8002
1084  0048  888 0 25  0050  0252          LDA  LC
1085  0252  888 0 70  0054  0257          ADD  BIG04      -CRD2
1086  0258  888 0 60  0050  0452  &CRD2    STA  LC
1087  0452  888 0 11  0218  0189          PRN  K0018      -CRD3
1088  0257  888 0 60  0050  0652  -CRD2    STA  LC
1089  0652  888 0 11  0202  0189          PRN  K0002      -CRD3
1090  0190  888 0 05  0392  0194  &CRD3    LDX             1F
1091  0392  888 0 67  3333  0533          HLT   3333      THETA
1092  0194  888 0 60  0533  0150  1       STA  THETA      BU1
1093  0189  888 0 05  0200  0202  -CRD3    LDX  K0000
1094  0202  888 0 25  0205  0207          LDA  K0005
1095  0207  888 0 35  0009  0211          ERS  H5
1096  0211  888 0 32  0500  0019          SHR   0500
1097  0019  888 0 37  0500  0227          SHL   0500
1098  0227  888 0 20  000C  0431          BUF  RX
1099  0431  888 0 60  0233  0035          STA  COL15
1100  0035  888 0 35  0037  0039          ERS  X05
1101  0039  888 0 30  1241  0443          LDL  2F
1102  0443  888 0 82  4329  0846          TEQ  CREAD
1103  0846  888 0 25  0200  0402          LDA  K0000
1104                                      OFF   9000
1116                                      ON    9000
1117  0402  888 0 05  0205  0407          LDX  K0005
1118  0407  888 0 12  0407  0010          CTM
1119  0010  888 0 35  0012  0014          ERS  X5
1120  0014  888 0 31  0217  0217          CLL
1121  0217  888 0 82  0220  4322          TEQ              &INP1
1122  0220  888 0 05  0022  4464          LDX  X9          EXIT1
1123  1241  888 0 10  0001  0000  2       CON  10000       10000
1124                                      ON    9001
1125                                      ON    8001
1126                                      HHH        H
1127                                      ON    9002
1128                                      ON    8002
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1129   4729  BBB 0 60  4420  4612   SRCH    STA  TEMP3    SRCH1    T.  SYMBOL TABLE SEARCH.
1130   4612  BBB 0 65  4624  4676   SRCH1   STX  TEMP4
1131   4676  BBB 0 25  4628  4630           LDA  MZERO
1132   4630  BBB 0 70  4209  4662           ADD  TEMP2
1133   4662  BBB 0 50  4464  4416           STL  EXIT1
1134   4416  BBB 0 37  0100  4620           SHL   0100             T1. SCRAMBLE
1135   4620  BBB 0 77  4620  4673           ATL
1136   4673  BBB 0 85  4325  4502           MUL# 10101    01010
1137   4502  BBB 0 70  4420  4323           ADD  TEMP3
1138   4323  BBB 0 32  0600  4482           SHR   0600
1139   4482  BBB 0 07  00HH  4435           IIR   00HH
1140   4435  BBB 0 35  000C  4239           ERS  RX
1141   4239  BBB 0 70  4241  000A           ADD           RA
1142   4241  BBB 0 08  1420  4447           LIR1 Z0000
1143   4447  BBB 0 30  4209  4761           LDL  TEMP2
1144   4761  BBB 0 29  0000  4702           LDA1  0000    1F       T2. IS STACK EXHAUSTED
1145   4702  BBB 0 70  4454  4307   1       ADD           -SCRM
1146   4454  BBB 0 99  9999  0000           CON  99999    90000
1147   4307  BBB 0 25  000B  4961   -SCRM   LDA  RL
1148   4961  BBB 0 05  4624  4876           LDX  TEMP4    INS99
1149   4308  BBB 0 05  000A  4312   &SCRM   LDX  RA               T3. DOES SYMBOL MATCH
1150   4312  BBB 0 70  4864  000A           ADD           RA
1151   4864  BBB 0 25  0002  4654           LDA   0002
1152   4654  BBB 0 82  4457  4657           TEQ  2F
1153   4657  BBB 0 25  000C  4512           LDA  RX
1154   4512  BBB 0 70  4314  000A           ADD           RA
1155   4314  BBB 0 25  0001  4453           LDA   0001
1156   4453  BBB 0 37  0600  4712           SHL   0600
1157   4712  BBB 0 32  0200  4702           SHR   0200    1B
1158   4457  BBB 0 07  0001  4610   2       IIR   0001             T4. GET TABLE ENTRY
1159   4610  BBB 0 70  000C  4515           ADD  RX
1160   4515  BBB 0 77  4515  4318           ATL
1161   4318  BBB 0 70  4270  000A           ADD           RA
1162   4270  BBB 0 05  0000  4902           LDX   0000
1163   4902  BBB 0 65  4624  4464           STX  TEMP4    EXIT1
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1169   4445  BBB 0 50  4464  4876   INS     STL  EXIT1    INS99    L.  LINKED MEMORY SUBROUTINES.
1188   4876  BBB 0 31  4929  4929   INS99   CLL                     L1. IS AVAIL EMPTY
1189   4929  BBB 0 60  4631  4233           STA  TEMP1
1190   4233  BBB 0 25  4635  4237           LDA  AVAIL
1191   4237  BBB 0 82  4440  4640           TEQ           1F
1192   4440  BBB 0 25  4292  4644           LDA  MEMU               L2. MEML:MEMU
1193   4644  BBB 0 75  4095  4648           SUB  KON2
1194   4648  BBB 0 30  4600  4352           LDL  MEML
1195   4352  BBB 0 87  4255  4455           TGR           2F
1196   4255  BBB 0 60  4292  4844           STA  MEMU               L3. RESERVE TWO
1197   4844  BBB 0 77  4844  4647           ATL           3F
1198   4455  BBB 0 25  4507  4259   2       LDA# 01020    00000        I'M FULL
1199   4259  BBB 0 30  4912  4514           LDL           ALARM
1200   4912  BBB 0 67  1212  4455           HLT   1212    2B
1201   4640  BBB 0 77  4640  4243   1       ATL                     L4. INSERT ITEM
1202   4243  BBB 0 70  4295  000A           ADD           RA
1203   4295  BBB 0 25  0000  4552           LDA   0000
1204   4552  BBB 0 60  4635  4647           STA  AVAIL    3F
1205   4647  BBB 0 25  4249  4601   3       LDA  1F
1206   4601  BBB 0 70  000B  4306           ADD  RL
1207   4306  BBB 0 32  0600  4715           SHR   0600
1208   4715  BBB 0 35  4667  4869           ERS  XOC
1209   4869  BBB 0 24  0000  4752           BUF1  0000
1210   4752  BBB 0 32  0400  000C           SHR   0400    RX           ASSUMPTION MADE THAT RX WAS POSITIVE
1211   4249  BBB 0 60  0000  4952   1       STA   0000
1212   4952  BBB 0 05  4631  4433           LDX  TEMP1
1213   4433  BBB 0 25  000B  4437           LDA  RL
1214   4437  BBB 0 70  4439  4492           ADD  1F
1215   4492  BBB 0 54  0000  000A           STL1  0000    RA
1216   4439  BBB 0 65  0001  4464   1       STX   0001    EXIT1
1217   4229  BBB 0 50  4464  4616   REM     STL  EXIT1              L10.IS STACK EMPTY
1218   4616  BBB 0 34  0000  4653           LDL1  0000
1219   4653  BBB 0 26  4506  4506           CLA
1220   4506  BBB 0 82  000C  4459           TEQ  RX
1221   4459  BBB 0 05  4635  4637           LDX  AVAIL              L11.REMOVE ITEM
1222   4637  BBB 0 0G  0000  4441           IIR1  0000
1223   4441  BBB 0 20  4443  4495           BUF  1F
1224   4495  BBB 0 60  4631  4633           STA  TEMP1
1225   4633  BBB 0 25  000B  4087           LDA  RL
1226   4087  BBB 0 50  4635  4287           STL  AVAIL              L12.MAKE LOCATION AVAIL
1227   4287  BBB 0 30  4639  4641           LDL           BR
1228   4639  BBB 0 77  4639  4692           ATL
1229   4692  BBB 0 37  0400  4449           SHL   0400
1230   4449  BBB 0 35  0043  4631           ERS  XM       TEMP1
1231   4443  BBB 0 60  0000  4853   1       STA   0000
1232   4853  BBB 0 69  0000  4464           STX1  0000    EXIT1
1233   4833  BBB 1 29  0000  4303   BR2     LDA3  0000    BR1
1234   4303  BBB 0 35  0043  4641   BR1     ERS  XM       BR
1235   4641  BBB 0 20  4643  000A   BR      BUF           RA
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1236   4643   888 0 08   0000   4848          LIR1  0000
1237   4848   888 0 29   0000   0008          LDA1  0000      RL
1238   4205   888 0 30   000C   4659   KIND   LDL   RX                    KIND SUBROUTINE IS 5-WAY BRANCH TO
1239   4659   888 0 25   4362   4714          LDA   LITB                  RB1   IF CHARACTER IS BLANK
1240   4714   888 0 88   0000   4518          TEQ1  0000                  RB1+1 IF SPECIAL CHARACTER
1241   4518   888 0 25   4628   4280          LDA   MZERO                 RB1+2 NUMERIC 999990000N
1242   4280   888 0 70   000C   4285          ADD   RX          1F        RB1+3 ALPHABETIC
1243   4285   888 0 82   4438   4638   1      TEQ               1F        RB1+4 DECIMAL POINT
1244   4438   888 0 30   4290   4892          LDL#  00003       00001
1245   4892   888 0 88   0001   4296          TEQ1  0001
1246   4296   888 0 30   4298   4250          LDL   KON30
1247   4250   888 0 88   0001   4854          TEQ1  0001
1248   4854   888 0 70   4706   4309          ADD               -KIND
1249   4706   888 0 99   9990   0000          CON   99999       00000
1250   4309   888 0 04   0002   0002   -KIND  JMP1  0002
1251   4310   888 0 04   0003   0003   &KIND  JMP1  0003
1252   4638   888 0 25   4490   4342   1      LDA#  00001       0000A
1253   4342   888 0 88   0004   4496          TEQ1  0004
1254   4496   888 0 04   0001   0001          JMP1  0001
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4655  BBB 0 50  4464  4266   NOMLZ   STL  EXIT1                  C.  CONSTANT SCANNER
4266  BBB 0 25  4209  4562           LDA  TEMP2                      NORMALIZE IS USED TO CONVERT TO
4562  BBB 0 31  4915  4915           CLL                             FLOATING POINT FORM
4915  BBB 0 82  4464  4718           TEQ  EXIT1
4718  BBB 0 06  4271  4271           CLX
4271  BBB 0 08  0000  4474           LIR1  0000    1F
4474  BBB 0 32  0100  4828   1       SHR   0100
4828  BBB 0 82  4281  4481           TEQ  1F
4481  BBB 0 32  0100  4485           SHR   0100
4485  BBB 0 82  4838  4288           TEQ  2F
4288  BBB 0 60  4209  4762           STA  TEMP2
4762  BBB 0 0G  0002  4466           IIR1  0002
4466  BBB 0 25  4209  4474           LDA  TEMP2    1B
4281  BBB 0 0G  0050  4685   1       IIR1  0050    3F
4838  BBB 0 0G  0051  4685   2       IIR1  0051    3F
4685  BBB 0 75  4420  4523   3       SUB  TEMP3
4523  BBB 0 32  0200  4078           SHR   0200
4078  BBB 0 37  0600  4487           SHL   0600
4487  BBB 0 20  000C  4464           BUF  RX       EXIT1
4064  BBB 0 05  4209  4962   E0014   LDX  TEMP2    2F          C1. SET TYPE INTEGER
4962  BBB 0 26  4365  4365   2       CLA  1F

4052  BBB 0 07  0001  4365   E0002   IIR   0001    1F          C2. SET FLOATING TYPE.
4054  BBB 0 06  4962  4962   E0004   CLX  2B
4365  BBB 0 60  4412  4914   1       STA  TYPE
4914  BBB 0 65  4209  4263           STX  TEMP2                  C3. NEXT CHARACTER
4263  BBB 0 26  4666  4666           CLA  1F
4666  BBB 0 60  4420  4060   1       STA  TEMP3    E0010
4060  BBB 0 30  4463  4202   E0010   LDL           NXTCH
4463  BBB 0 08  4060  4205           LIR1 E0010    KIND        C4. WHAT KIND
4062  BBB 0 25  4209  4663   E0012   LDA  TEMP2
4663  BBB 0 37  0100  4317           SHL   0100
4317  BBB 0 20  000C  4471           BUF  RX
4471  BBB 0 60  4209  4863           STA  TEMP2
4863  BBB 0 07  0001  4316           IIR   0001
4316  BBB 0 70  4420  4666           ADD  TEMP3    1B
4063  BBB 0 60  4631  4283   E0013   STA  TEMP1                  C5. E H OR M
4263  BBB 0 25  4402  4304           LDA  LEOFF
4304  BBB 0 30  4206  4508           LDL  LESW
4508  BBB 0 82  4313  4061           TEQ           E0011
4313  BBB 0 25  4631  4483           LDA  TEMP1
4483  BBB 0 30  4424  4326           LDL  LIT5
4326  BBB 0 82  4179  4379           TEQ  EROUT
4379  BBB 0 30  4413  4565           LDL  LIT8
4565  BBB 0 82  4918  4168           TEQ  HROUT
4168  BBB 0 30  4470  4722           LDL# 00001    00004
4722  BBB 0 82  4525  4061           TEQ  MROUT    E0011
4061  BBB 0 30  4513  4407   E0011   LDL  5F       SETNS       C6. ADJUST FOR TYPE
4513  BBB 0 25  4412  4364   5       LDA  TYPE
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1304   4364  88B 0 31  4517  4517                CLL
1306   4517  88B 0 82  4670  4320                TEQ            1F
1307   4670  88B 0 30  4206  4655                LDL   LESW     NOMLZ
1308   4320  88B 0 25  4209  4713      1         LDA   TEMP2
1309   4713  88B 0 37  0400  4206                SHL    0400    LESW
1310   4206  88B 0 30  4708  4260      LESW      LDL   1F       CONST      C7. IS IT A LABEL
1311   4402  88B 0 30  4708  4260      LEOFF     LDL   1F       CONST
1312   4708  88B 0 50  4420  4922      1         STL   TEMP3
1313   4922  88B 0 25  4209  4913                LDA   TEMP2
1314   4913  88B 0 31  4516  4516                CLL
1315   4516  88B 0 82  4319  4519                TEQ   1F
1316   4519  88B 0 25  4412  4564                LDA   TYPE     2F
1317   4319  88B 0 07  0002  4564      1         IIR    0002    2F         C8. LOOK UP IN TABLE
1318   4564  88B 0 37  0400  4671      2         SHL    0400
1319   4671  88B 0 20  4723  4725                BUF   KON.5
1320   4725  88B 0 60  4412  4472                STA   TYPE     SEND1
1321   4179  88B 0 25  4412  4764      EROUT     LDA   TYPE                C10.NORMALIZE
1322   4764  88B 0 87  4717  4917                TGR            1F
1323   4717  88B 0 30  4064  4407                LDL   E0014    SETNS
1324   4917  88B 0 30  4719  4655      1         LDL            NOMLZ
1325   4719  88B 0 60  4209  4065                STA   TEMP2    E0015
1326   4065  88B 0 30  4167  4202      E0015     LDL            NXTCH      C11.NEXT CHARACTER
1327   4167  88B 0 08  4065  4205                LIR1  E0015    KIND
1328   4066  88B 0 25  4298  4450      E0016     LDA   KON30               C12.WHAT KIND
1329   4450  88B 0 82  4503  4703                TEQ   6F
1330   4703  88B 0 25  4305  4707                LDA   LITA
1331   4707  88B 0 82  4460  4660                TEQ   7F
1332   4660  88B 0 25  4363  4765                LDA#  00001    0000C
1333   4765  88B 0 82  4503  4069                TEQ   6F       E0019
1334   4067  88B 0 30  4503  4407      E0017     LDL   6F       SETNS
1335   4069  88B 0 30  4871  4407      E0019     LDL   CALRM    SETNS
1336   4068  88B 0 30  4871  4407      E0018     LDL   CALRM    SETNS
1337   4871  88B 0 30  4513  4965      CALRM     LDL   5B
1338   4965  88B 0 25  4367  4514                LDA            ALARM
1339   4367  88B 0 03  3000  0000                CON   03300    00000          BAD CONSTANT
1340   4460  88B 0 25  4563  4503      7         LDA   2F       6F
1341   4503  88B 0 60  4420  4172      6         STA   TEMP3
1342   4172  88B 0 26  4925  4925                CLA   1F
1343   4925  88B 0 60  4624  4070      1         STA   TEMP4    E0020
1344   4070  88B 0 30  4372  4202      E0020     LDL            NXTCH      C13.NEXT NUMBERS
1345   4372  88B 0 08  4070  4205                LIR1  E0020    KIND
1346   4074  88B 0 30  4526  4407      E0024     LDL   9F       SETNS
1347   4073  88B 0 30  4526  4407      E0023     LDL   9F       SETNS
1348   4071  88B 0 30  4526  4407      E0021     LDL   9F       SETNS
1349   4072  88B 0 25  4624  4563      E0022     LDA   TEMP4    2F
1350   4563  88B 1 37  0100  4368      2         SHL2   0100
1351   4368  88B 0 20  000C  4925                BUF   RX       1B
1352   4526  88B 0 25  4420  4572      9         LDA   TEMP3
1353   4572  88B 0 36  4175  4175                CAA                       C14.ADJUST EXPONENT
1354   4175  88B 0 20  4624  4726                BUF   TEMP4
```

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1355    4726  888 0 37  0800  4687                SHL   0800
1356    4687  888 0 70  4209  4963                ADD   TEMP2       -ERUT
1357    4964  888 0 60  4209  4871  &ERUT         STA   TEMP2       CALRM
1358    4963  888 0 31  4716  4716  -ERUT         CLL
1359    4716  888 0 87  4206  4919                TGR   LESW
1360    4919  888 0 25  4209  4763                LDA   TEMP2
1361    4763  888 0 82  4206  4871                TEQ   LESW        CALRM
1362    4260  888 0 60  4209  4916  CONST         STA   TEMP2
1363    4916  888 0 50  4568  4520                STL   EXIT2
1364    4520  888 0 05  4623  4375                LDX   BIG05
1365    4375  888 0 26  4278  4278                CLA
1366    4278  888 0 30  4480  4729                LDL                 SRCH
1367    4480  888 0 25  000B  4634                LDA   RL
1368    4634  888 0 20  4436  000A                BUF                 RA
1369    4436  888 0 08  0000  4568                LIR1  0000          EXIT2
1370    4525  888 0 26  4478  4478  MROUT         CLA   1F                        C20.GET N CHARACTERS
1371    4478  888 0 60  4420  4772  1             STA   TEMP3
1372    4772  888 0 25  4209  4366                LDA   TEMP2
1373    4366  888 0 31  4169  4169                CLL
1374    4169  888 0 82  4972  4923                TEQ   9F
1375    4923  888 0 75  4016  4369                SUB   LIT1
1376    4369  888 0 60  4209  4566                STA   TEMP2
1377    4966  888 0 30  4768  4202                LDL                 NXTCH
1378    4768  888 0 25  000C  4173                LDA   RX
1379    4173  888 0 32  0500  4681                SHR   0500
1380    4681  888 0 70  000A  4636                ADD   RA
1381    4636  888 0 70  000A  4291                ADD   RA
1382    4291  888 0 37  0500  4649                SHL   0500
1383    4649  888 0 20  000C  4903                BUF   RX
1384    4903  888 0 37  0400  4510                SHL   0400
1385    4510  888 0 05  4420  4373                LDX   TEMP3
1386    4373  888 0 32  0900  4478                SHR   0900          1B
1387    4918  888 0 30  4972  4674  HROUT         LDL   9F          HOLSB       C30.GET N CHARACTERS
1388    4674  888 0 50  4926  4678  HOLSB         STL   EXIT3
1389    4678  888 0 25  4675  4477                LDA   BKOF
1390    4477  888 0 60  4311  4766                STA   BKSW
1391    4766  888 0 06  4569  4569                CLX
-1392   4569  888 0 65  4420  4573                STX   TEMP3
1393    4573  888 0 25  4209  4966                LDA   TEMP2       1F
1394    4966  888 0 31  4769  4769  1             CLL
1395    4769  888 0 82  4773  4973                TEQ   8F
1396    4973  888 0 75  4016  4969                SUB   LIT1
1397    4969  888 0 60  4624  4176                STA   TEMP4
1398    4176  888 0 30  4878  4202                LDL   2F          NXTCH
1399    4878  888 0 25  4420  4874  2             LDA   TEMP3
1400    4874  888 0 37  0100  4328                SHL   0100
1401    4328  888 0 20  000C  4682                BUF   RX
1402    4682  888 0 60  4420  4324                STA   TEMP3
-1403   4324  888 0 25  4624  4966                LDA   TEMP4       1B
1404    4773  888 0 25  4209  4567  8             LDA   TEMP2                   C31.ZERO FILL
```

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1405   4567  BBB 0 30  4720  4524          LDL  LIT4
1406   4524  BBB 0 87  4677  4327          TGR  8F
1407   4327  BBB 0 70  4016  4920          ADD  LIT1
1408   4920  BBB 0 60  4209  4767          STA  TEMP2
1409   4767  BBB 0 06  4878  4878          CLX  2B
1410   4677  BBB 0 25  4253  4505    8     LDA  BKON
1411   4505  BBB 0 60  4311  4926          STA  BKSW      EXIT3
1412   4972  BBB 0 07  0002  4575    9     IIR   0002                C32.TYPE UNSPECIFIED.
1413   4575  BBB 0 60  4412  4967          STA  TYPE
1414   4967  BBB 0 25  4420  4206          LDA  TEMP3     LESW
```

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1415   4135  BBB 0 25  1064  4968   SIGN'   LDA  $                    Q.  SPECIAL SCANNING ROUTINES
1422   4968  BBB 0 30  4170  4028           LDL  DOES#    GEN         Q1. SEND SEMICOLON
1425   4170  BBB 0 25  0233  4885   DOES#   LDA  COL15    3F          Q2. END OF DO RANGE
1426   4376  BBB 0 25  0233  4885   DOEOF   LDA  COL15    3F
1428
1429                                        OFF   9000
1444                                        ON    9000
1445   4885  BBB 0 31  4488  4488   3       CLL                       Q3. ANY LABEL
1446   4488  BBB 0 82  4050  4491           TEQ  SCAN1
1447   4491  BBB 0 30  4843  4695           LDL# 10000    80000
1448   4695  BBB 0 82  3100  4498           TEQ  MEMLL
1449   4498  BBB 0 30  4650  4353           LDL  3F
1450   4353  BBB 0 50  4257  4859           STL  SHFT                 Q4. SCAN FROM COL 1
1451   4859  BBB 0 25  4370  4264           LDA  LABEL    SCAN9
1452   4650  BBB 0 35  4553  4254   3       ERS           STAN
1453   4553  BBB 0 HH  HHHO  HHHH           CON  HHHHH    OHHHH
1456                                        ON    9001
1457                                        ON    9002
1458                                        ON    8002
1459                                        ON    8001
1460   4710  BBB 0 05  4030  4882   DIVT2   LDX  LAST                 Q10.ADJUST CO-ROUTINE LINKS.
1461   4882  BBB 0 65  4834  4086           STX  DSAVE    DIVT1
1462   4086  BBB 0 05  4042  4294   DIVT1   LDX  NORM
1463   4294  BBB 0 65  4246  4698           STX  GENX     DIVRT
1464   4698  BBB 0 60  4300  4753   DIVRT   STA  DIVBS
1465   4753  BBB 0 25  4248  4500           LDA  SCANX
1466   4500  BBB 0 30  4953  4705           LDL  2F                   Q11.NEXT ITEM.
1467   4705  BBB 0 82  4908  4358           TEQ  1F
1468   4358  BBB 0 60  4910  4908           STA  SCNXX    1F
1469   4908  BBB 0 25  4300  4504   1       LDA  DIVBS    3F
1470   4504  BBB 0 70  4906  000A   3       ADD           RA
1471   4906  BBB 0 25  0000  4704           LDA   0000                Q12.SEND TO GEN.
1472   4704  BBB 0 31  4907  4907           CLL
1473   4907  BBB 0 82  4360  4560           TEQ  1F
1474   4560  BBB 0 30  4953  4028           LDL  2F       GEN
1475   4953  BBB 0 07  0001  4356   2       IIR   0001
1476   4356  BBB 0 70  4300  4904           ADD  DIVBS
1477   4904  BBB 0 60  4300  4504           STA  DIVBS    3B
1478   4360  BBB 0 25  4834  4286   1       LDA  DSAVE
1479   4286  BBB 0 82  4910  4839           TEQ  SCNXX
1480   4839  BBB 0 50  4834  4486           STL  DSAVE
1481   4486  BBB 0 30  4910  4028           LDL  SCNXX    GEN
```

1482
1483
1484

I. ASSEMBLER STRUCTURE

```
1506   4556  BBB 0 05  4016  4570   ASM32   LDX  LIT1     ASM3     I.  I80. ASSEMBLER 3
1507   4357  BBB 0 05  4509  4570   ASM33   LDX           ASM3
1508   4509  BBB 0 01  0000  0001           CON  01000    00001
1509   4709  BBB 0 65  4770  4357   ASM34   STX  COMT     ASM33
1510   4760  BBB 0 65  4770  4556   ASM35   STX  COMT     ASM32
1511   4970  BBB 0 35  4724  4576   ASM36   ERS  XC
1512   4576  BBB 0 20  4528  4680           BUF  LIR1
1513   4680  BBB 0 05  4332  4570           LDX           ASM3
1514   4332  BBB 0 00  5010  0010           CON  00501    00010
1515   4521  BBB 0 05  4924  4570   ASM37   LDX           ASM3
1516   4924  BBB 0 00  0010  0001           CON  00001    00001
1517   4570  BBB 0 65  4624  4776   ASM3    STX  TEMP4    ASM31
1518   4776  BBB 0 60  4420  4174   ASM31   STA  TEMP3              I80.IS NXLOC SET
1519   4174  BBB 0 50  4926  4728           STL  EXIT3
1520   4728  BBB 0 25  4880  4532           LDA  NXLOC
1521   4532  BBB 0 31  4335  4335           CLL
1522   4335  BBB 0 82  4688  4888           TEQ  2F
1523   4888  BBB 0 50  4880  4732           STL  NXLOC    3F
1524   4688  BBB 0 05  4732  4084   2       LDX  3F       FARNL
1525   4732  BBB 0 30  4284  4686   3       LDL           FILUP    I81.FILL PREV INST
1526   4284  BBB 0 25  0008  4338           LDA  RL
1527   4338  BBB 0 32  0800  4849           SHR   0800
1528   4849  BBB 0 37  0500  4557           SHL   0500
1529   4557  BBB 0 32  0600  4721           SHR   0600              I82.ASSEMBLER 4.
1530   4721  BBB 0 25  4374  4976           LDA  OLDLC
1531   4976  BBB 0 20  4928  4330           BUF  RWORD
1532   4330  BBB 0 65  4374  4527           STX  OLDLC
1533   4527  BBB 0 05  4579  4881           LDX  IWORD
1534   4881  BBB 0 30  4683  4535           LDL           ASM4
1535   4683  BBB 0 05  4624  4727           LDX  TEMP4
1536   4727  BBB 0 65  4928  4530           STX  RWORD
1537   4530  BBB 0 05  4420  4574           LDX  TEMP3
1538   4574  BBB 0 65  4579  4926           STX  IWORD    EXIT3
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4289  BBB 0 65  4568  4921   ASM43   STX  EXIT2   ASM44   I.  I90. ASSEMBLER 4.
4921  BBB 0 60  4209  4171   ASM44   STA  TEMP2
4171  BBB 0 05  4774  4927           LDX          INCUQ
4774  BBB 0 25  000B  4178           LDA  RL
4178  BBB 0 31  4331  4331           CLL  1F
4494  BBB 0 65  4568  4331   ASM42   STX  EXIT2   1F      I90.SET **********
4331  BBB 0 32  0400  4538   1       SHR   0400
4538  BBB 0 35  4724  4177           ERS  XC
4177  BBB 0 20  000B  4531           BUF  RL
4531  BBB 0 35  4667  4371           ERS  XOC
4371  BBB 0 20  4974  4377           BUF  BIG10   1F
4700  BBB 0 50  4568  4377   ASM41   STL  EXIT2   1F
4377  BBB 0 05  4779  4731   1       LDX  CHOLD
4731  BBB 0 65  4770  4775           STX  COMT
4775  BBB 0 05  4577  4979           LDX  B10
4979  BBB 0 65  0503  4905           STX  P0103
4905  BBB 0 65  0508  4960           STX  P0108   1F
4535  BBB 0 65  4209  4571   ASM4    STX  TEMP2
4571  BBB 0 50  4568  4960           STL  EXIT2   1F      I91.PRINT, MAYBE
4960  BBB 0 60  4631  4883   1       STA  TEMP1   PRTSW
                                     OFF   9000
                                     ON    9000
4975  BBB 0 05  0503  4355   PRON    LDX  P0103
4355  BBB 0 25  0508  4771           LDA  P0108
4771  BBB 0 35  0009  4971           ERS  H5
4971  BBB 0 32  0500  4730           SHR   0500
4730  BBB 0 37  0500  4738           SHL   0500
4738  BBB 0 20  000C  4542           BUF  RX
4542  BBB 0 17  4542  4895           MTC
4895  BBB 0 60  0503  4555           STA  P0103
4555  BBB 0 65  0508  4777           STX  P0108
4777  BBB 0 25  4631  4333           LDA  TEMP1
4333  BBB 0 30  4735  4887           LDL  PROF    1F
4533  BBB 0 60  4209  4977   PRNT    STA  TEMP2
4977  BBB 0 25  000C  4887           LDA  RX      1F
4887  BBB 0 50  4689  4691   1       STL  -PR2
4691  BBB 0 17  4691  4694           MTC
4694  BBB 0 32  0F00  4757           SHR   0F00
4757  BBB 0 35  4909  4378           ERS# HHHOH   OHHHH
4378  BBB 0 65  0565  4578           STX  P0165
4578  BBB 0 60  0570  4778           STA  P0170
4778  BBB 0 25  4209  4978           LDA  TEMP2
4978  BBB 0 17  4978  4931           MTC
4931  BBB 0 60  0534  4886           STA  P0134
4886  BBB 0 65  0539  4891           STX  P0139
                                     ON    9001
                                     ON    9002
                                     ON    8001
                                     ON    8002
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1599  4891  888 0 25  0050  4354          LDA  LC
1600  4354  888 0 70  4756  4380          ADD  BIG02     -PR1
1601  4381  888 0 60  0050  4554  &PR1    STA  LC
1602  4554  888 0 11  0417  4689          PRN  P0017     -PR2
1603  4380  888 0 60  0050  4754  -PR1    STA  LC
1604  4754  888 0 11  0401  4689          PRN  P0001     -PR2
1605  4690  888 0 00  0190  0190  &PR2    JMP  &CRD3
1606  4883  888 0 25  4770  4930  PRTSW   LDA  COMT      1F
1607  4735  888 0 25  4770  4930  PROF    LDA  COMT      1F
1608  4930  888 0 60  4779  4581  1       STA  CHOLD                 I92•ASSEMBLER 5
1609  4581  888 0 05  4733  4935          LDX  85
1610  4935  888 0 32  0500  4293          SHR   0500
1611  4293  888 0 37  0500  4251          SHL   0500
1612  4251  888 0 65  0503  4755          STX  P0103
1613  4755  888 0 60  0508  4180          STA  P0108
1614  4180  888 0 05  4405  4957          LDX  805
1615  4957  888 0 65  4770  4580          STX  COMT
1616  4580  888 0 25  4631  4933          LDA  TEMP1
1617  4933  888 0 30  4385  4337          LDL            ASM5
1618  4385  888 0 26  4938  4938          CLA                        I93•ASSEMBLER 5
1619  4938  888 0 20  4209  4780          BUF  TEMP2
1620  4780  888 0 30  4568  4337          LDL  EXIT2     ASM5
1621
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                                                                                I.  I95. ASSEMBLER 5
4337  BBB 0 50  4464  4980   ASM5     STL  EXIT1    ASM5T
4980  BBB 0 00  4181  0000   ASM5T    JMP  50001     0000
                                      OFF   9000
                                      ON    9000
                                      ON    9001
                                      ON    9002
4181  BBB 0 60  0928  4781   50001    STA  R0128    1F          I95.STORE WORD
4182  BBB 0 60  0948  4781   50002    STA  R0148    1F
4183  BBB 0 60  0968  4781   50003    STA  R0168    1F          I96.END OF CARD
4184  BBB 0 60  0918  4781   50004    STA  R0118    1F
4185  BBB 0 60  0938  4781   50005    STA  R0138    1F
4781  BBB 0 25  4980  4932   1        LDA  ASM5T
4932  BBB 0 70  4097  4900            ADD  KON1     8F
4900  BBB 0 60  4980  4464   8        STA  ASM5T    EXIT1
4186  BBB 0 60  0958  4981   50006    STA  R0158    PCHSW
4981  BBB 0 31  4484  4484   PCHSW    CLL  1F                   I97.CHECK CARD
4651  BBB 0 31  4484  4484   PCHON    CLL  1F
4484  BBB 0 0B  1000  4537   1        LIR1  1000    2F
4537  BBB 0 0G  9999  4341   2        IIR1  9999
4341  BBB 0 82  4894  4344            TEQ  9F
4344  BBB 0 22  4898  4537            RBT           2B
4898  BBB 0 46  0800  4956            RBU  R0000
4956  BBB 0 25  0911  4382            LDA  R0111
4382  BBB 0 82  4894  4585            TEQ  9F
4585  BBB 0 0B  0000  4188            LIR1  0000
4188  BBB 0 05  4890  4742            LDX           3F
4890  BBB 0 0B  9881  4493            LIR1  9881
4493  BBB 0 05  4345  4297            LDX           2F
4345  BBB 0 30  0872  4582            LDL  R0072
4582  BBB 0 82  4894  4785            TEQ  9F
4785  BBB 0 05  4737  0150            LDX           BU1
4737  BBB 0 67  1112  4894            HLT   1112    9F
4894  BBB 0 0B  9997  4497   9        LIR1  9997                I98.COMPUTE CHECK SUM.
4497  BBB 0 05  4299  4742            LDX           3F
4299  BBB 0 0B  9987  4954            LIR1  9987
4954  BBB 0 05  4558  4297            LDX           2F
4558  BBB 0 60  0978  4782            STA  R0178    1F
4782  BBB 0 81  0800  4758   1        RCC  R0000    -ASM5       I99.PUNCH
4759  BBB 0 05  4982  0150   &ASM5    LDX           BU1
4982  BBB 0 67  1111  4782            HLT   1111    1B
4758  BBB 0 25  0908  4383   -ASM5    LDA  RWD1
                             PCHOF    EQU  -ASM5
4383  BBB 0 70  4016  4583            ADD  LIT1
4583  BBB 0 60  0908  4783            STA  RWD1
4783  BBB 0 07  4181  4900            IIR  50001    8B
4742  BBB 0 29  0911  4297   3        LDA1 R0111    2F
4297  BBB 0 74  0931  4984   2        ADD1 R0131    -A5SM
4985  BBB 0 74  0951  4958   &A5SM    ADD1 R0151    -AS5M
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1733	4984	BBB	J 74	0951	4958	-A5SM	ADD1	R0151	-AS5M
1734	4959	BBB	J 74	0971	000C	&AS5M	ADD1	R0171	RX
1735	4958	BBB	J 74	0971	000C	-AS5M	ADD1	R0171	RX
1736							ON	8001	
1737							ON	8002	

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                                                                                  1.
4084  BBB 0 25  0027  4983   FARNL   LDA  LEVEL                          FIND AND RESERVE NEXT LOCATION
4983  BBB 0 70  4336  4489           ADD  INCRE                          IN PROGRAM INTERLACE
4489  BBB 0 30  4541  4693           LDL  KN200                          RX IS EXIT, RA GETS 02LLLL0000
4693  BBB 0 82  4696  4896           TEQ  1F
4896  BBB 0 87  4499  4955           TGR            2F     +05
4499  BBB 0 75  000B  4955           SUB  RL        2F
4955  BBB 0 60  0027  4684   2       STA  LEVEL
4684  BBB 0 70  0231  000C           ADD  BAND      RX
4696  BBB 0 70  0231  4884   1       ADD  BAND
4884  BBB 0 60  0231  4134           STA  BAND
4134  BBB 0 26  4955  4955           CLA  2B
4686  BBB 0 50  4388  4340   FILUP   STL  -FIL2                          FILL BLANK ADDRESSES IN PREV INSTRUCTION
4340  BBB 0 77  4340  4893           ATL                                 RA # PLACE TO FILL WITH, FORM ORLLLL0000
4893  BBB 0 25  4928  4334           LDA  RWORD                          RL # EXIT LINE.
4334  BBB 0 05  000A  4588           LDX  RA
4588  BBB 0 37  0800  4699           SHL   0800
4699  BBB 0 70  4301  4936           ADD  BIG90     -FIL1
4937  BBB 0 07  HHHH  4540   &FIL1   IIR   HHHH
4540  BBB 0 35  000B  4544           ERS  RL
4544  BBB 0 20  4579  4534           BUF  IWORD
4534  BBB 0 60  4579  4734           STA  IWORD
4734  BBB 0 25  000B  4788           LDA  RL
4788  BBB 0 35  4740  4942           ERS  X1
4942  BBB 0 20  000C  4346           BUF  RX
4346  BBB 0 35  4201  4359           ERS  XOM
4359  BBB 0 60  4928  4936           STA  RWORD     -FIL1
4936  BBB 0 25  000B  4940   -FIL1   LDA  RL
4940  BBB 0 35  4617  4934           ERS  XO
4934  BBB 0 32  0100  4988           SHR   0100
4988  BBB 0 70  4301  4388           ADD  BIG90     -FIL2
4389  BBB 0 20  4928  4384   &FIL2   BUF  RWORD
4384  BBB 0 35  4201  4559           ERS  XOM
4559  BBB 0 60  4928  4584           STA  RWORD
4584  BBB 0 25  000B  4889           LDA  RL
4889  BBB 0 32  0400  4546           SHR   0400
4546  BBB 0 35  4724  4784           ERS  XC
4784  BBB 0 20  4579  4536           BUF  IWORD
4536  BBB 0 60  4579  4388           STA  IWORD     -FIL2
4736  BBB 0 05  000A  4190   GOTO    LDX  RA                             'GO TO' SUBROUTINE
4190  BBB 0 25  4928  4386           LDA  RWORD                          RX IS OR00000000, RL IS EXIT LINE.
4386  BBB 0 37  0800  4697           SHL   0800                          IF PREV INST HAS BLANK ADDRESS,MERELY FILUP.
4697  BBB 0 70  4225  4586           ADD  BIG99     -GOTO
4587  BBB 0 25  000C  4686   &GOTO   LDA  RX        FILUP
4586  BBB 0 25  4880  4786   -GOTO   LDA  NXLOC                          ELSE IF NXLOC IS NONZERO, ASSEMBLE A JMP
4786  BBB 0 70  4201  4986           ADD  XOM       -GOT1                INSTRUCTION
4986  BBB 0 00  000B  0000   -GOT1   JMP  RL         0000
                             JMPRL   EQU  -GOT1
4987  BBB 0 25  4740  4192   &GOT1   LDA  X1
```

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1787    4192    888 J 35    000C    4746                ERS   RX
1788    4746    888 J 60    4624    4187                STA   TEMP4
1789    4187    888 J 75    000C    4776                SUB   RX          ASM31
1790    4927    888 J 30    4196    4148    INCUQ       LDL   UNIQU                 UNIQU TO RL
1791    4148    888 J 07    0001    4501                IIR    0001                 INCREMENT UNIQU BY 1
1792    4501    888 J 70    0008    4387                ADD   RL                    EXIT TO RX
1793    4387    888 J 60    4196    000C                STA   UNIQU       RX
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1794   4744  BBB 0 65  4013  4787   ASIGN   STX  C0003                I.  I50.  ASIGN SUBROUTINE
1801   4787  BBB 0 70  4603  4589           ADD  BIG60    -ASN4       I50.IS IT A TEMP
1802   4589  BBB 0 50  4014  4339   -ASN4   STL  C0004    1F
1803   4339  BBB 0 35  0043  4545   1       ERS  XM       ASGN1
1804   4545  BBB 0 30  4897  4641   ASGN1   LDL  6F       BR
1805   4897  BBB 0 60  4631  4539   6       STA  TEMP1                I51.WHAT IS TABLE ENTRY
1806   4539  BBB 0 35  4741  4343           ERS  XMH
1807   4343  BBB 0 77  4343  4946           ATL
1808   4946  BBB 0 06  4899  4899           CLX
1809   4899  BBB 0 32  0400  4739           SHR   0400
1810   4739  BBB 0 70  4941  000A           ADD           RA
1811   4941  BBB 0 00  4010  0000           JMP  C0000     0000
1812   4019  BBB 0 37  0700  4939   C0009   SHL   0700
1813   4939  BBB 0 70  4191  4944           ADD  TEMP5
1814   4944  BBB 0 60  4191  4543           STA  TEMP5
1815   4543  BBB 0 25  4631  4189           LDA  TEMP1
1816   4189  BBB 0 37  0400  4339           SHL   0400    1B
1817   4590  BBB 0 60  4209  4789   &ASN4   STA  TEMP2    TRSW
1818   4789  BBB 0 05  000A  4743   TRSW    LDX  RA       1F
1819   4989  BBB 0 05  000A  4743   TRON    LDX  RA       1F
1820   4743  BBB 0 30  4745  4347   1       LDL  TROFF                I52.REINSTATE TEMP
1821   4347  BBB 0 0B  4701  4445           LIR1 TEMPS    INS
1822   4745  BBB 0 07  HHHH  4348   TROFF   IIR   HHHH
1823   4348  BBB 0 35  4209  4390           ERS  TEMP2
1824   4390  BBB 0 20  4408  4790           BUF  BIG01
1825   4790  BBB 0 0B  1749  4943           LIR1 W9999
1826   4943  BBB 0 77  4943  4013           ATL           C0003
1827   4010  BBB 0 25  4631  4990   C0000   LDA  TEMP1
1828   4990  BBB 0 70  4392  4395           ADD  BIG70    -ASN1
1829   4396  BBB 0 07  HHHH  4349   &ASN1   IIR   HHHH
1830   4349  BBB 0 39  0001  4391           ERS1  0001    1F
1831   4395  BBB 0 07  0001  4391   -ASN1   IIR   0001    1F
1832   4391  BBB 0 30  4196  4548   1       LDL  UNIQU
1833   4548  BBB 0 70  000B  4591           ADD  RL
1834   4591  BBB 0 60  4196  4748           STA  UNIQU
1835   4748  BBB 0 25  4631  4791           LDA  TEMP1
1836   4791  BBB 0 20  000B  4945           BUF  RL
1837   4945  BBB 0 64  0000  4897           STA1  0000    6B
1838   4011  BBB 0 00  4013  4013   C0001   JMP  C0003
```

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1839                                                                    I.  I25. ASSEMBLER 2.
1850   4350  BBB 0 60  4991  4193   ASM2    STA  TMP10                  I25.ASSEMBLE 2.5 ON M
1851   4193  BBB 0 50  4195  4547           STL  EXIT6
1852   4547  BBB 0 35  4617  4592           ERS  XO
1853   4592  BBB 0 60  4194  4596           STA  TEMP7
1854   4596  BBB 0 30  4948  4550           LDL  1F
1855   4550  BBB 0 25  4991  4393           LDA  TMP10     ASM25
1856   4948  BBB 0 60  4750  4792   1       STA  TEMP8
1857   4792  BBB 0 65  4394  4796           STX  TEMP9
1858   4796  BBB 0 25  4991  4593           LDA  TMP10                  I26.ASSEMBLE 2.5 ON C
1859   4593  BBB 0 37  0400  4950           SHL   0400
- 1860 4950  BBB 0 30  4992  4393           LDL            ASM25
1861   4992  BBB 0 77  4992  4595           ATL
1862   4595  BBB 0 25  4394  4996           LDA  TEMP9                  I27.ASSEMBLE 3
1863   4996  BBB 0 37  0100  4901           SHL   0100
1864   4901  BBB 0 20  000C  4793           BUF  RX
1865   4793  BBB 0 60  4624  4993           STA  TEMP4
1866   4993  BBB 0 25  000B  4747           LDA  RL
1867   4747  BBB 0 32  0400  4594           SHR   0400
1868   4594  BBB 0 35  4724  4794           ERS  XC
1869   4794  BBB 0 20  4750  4994           BUF  TEMP8
- 1870 4994  BBB 0 30  4195  4776           LDL  EXIT6     ASM31
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                                                                                I.  I30. ASSEMBLERS 2.5 AND 2.8
                                                                                
                                                                                
 4393  BBB 0 35  0043  4795   ASM25   ERS  XM                                   I30.WHAT ADDRESS
 4795  BBB 0 60  4191  4995           STA  TEMP5
 4995  BBB 0 70  4947  4397           ADD            -HF1
 4947  BBB 0 99  0001  0000           CON  99000     10000
 4398  BBB 0 05  4016  4197   &HF1    LDX  LIT1      1F
 4397  BBB 0 70  4549  4597   -HF1    ADD            -HF2
 4549  BBB 0 00  0098  0000           CON  00009     80000
 4597  BBB 0 06  4351  4351   -HF2    CLX
 4351  BBB 0 25  4191  4197           LDA  TEMP5     1F
 4197  BBB 0 20  4194  000B   1       BUF  TEMP7     RL
 4598  BBB 0 50  4551  4797   &HF2    STL  EXIT5
 4797  BBB 0 77  4797  4751           ATL
 4751  BBB 0 25  4997  4749           LDA  1F
 4749  BBB 0 75  000B  000A           SUB  RL        RA                       I31.WHAT KIND OF OPERAND
 4997  BBB 1 29  0000  4798   1       LDA3  0000     8F
 4798  BBB 0 77  4798  4951   8       ATL
 4951  BBB 0 32  0900  4998           SHR   0900
 4998  BBB 0 35  4413  4949           ERS  LIT8                                  TREAT TEMP STORE(4) AS SIMPLE VAR(0)
 4949  BBB 0 70  4199  000A           ADD            RA
 4199  BBB 0 25  000B  4080           LDA  RL        V0000
 4080  BBB 0 30  4195  4399   V0000   LDL  EXIT6
 4399  BBB 0 05  4194  4599           LDX  TEMP7     ASM28
 4081  BBB 0 30  4195  4799   V0001   LDL  EXIT6     EEE
 4799  BBB 0 25  4999  4514   EEE     LDA            ALARM
 4999  BBB 0 21  0005  0000           CON  21000     50000                    EXP #     ERROR
 0042  BBB 0 25  0044  4514   BME     LDA            ALARM
 0044  BBB 0 03  0400  0000           CON  03040     00000                    BAD MESS
 4082  BBB 0 25  0084  0886   V0002   LDA# 00057     67814
 0886  BBB 0 05  0288  0090           LDX  TMP13
 0090  BBB 0 32  0600  0099           SHR   0600     LOOP1
 4085  BBB 0 30  0087  0089   V0005   LDL            LSW
 0087  BBB 0 05  0289  0291           LDX# 00200     00000
 0291  BBB 0 35  0043  0245           ERS  XM
 0245  BBB 0 20  4194  4551           BUF  TEMP7     EXIT5
 4599  BBB 0 50  0201  0003   ASM28   STL  EXIT4                               I35.ASSIGN VARIABLE
 0003  BBB 0 65  4191  0643           STX  TEMP5     9F
 0643  BBB 0 05  0445  0047   9       LDX  NPAR
 0047  BBB 0 30  0049  4744           LDL            ASIGN
 0049  BBB 0 09  0001  0203           LDX1  0001
 0203  BBB 0 65  4770  0222           STX  COMT
 0222  BBB 0 50  0024  0426           STL  TEMP6                               I36.CHECK OP CODE
 0426  BBB 0 30  4191  0843           LDL  TEMP5
 0843  BBB 0 25  4247  0249           LDA  BIG30
 0249  BBB 0 82  1852  2052           TEQ  1F
 2052  BBB 0 70  000A  0457           ADD  RA
 0457  BBB 0 82  0060  0260           TEQ  2F
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 I 1921   0260  BBB 0 25  4604  0106                LDA  BIG25
II 1922   0106  BBB 0 82  0109  0309                TEQ  3F
 I 1923   0309  BBB 0 70  000A  0314                ADD  RA
II 1924   0314  BBB 0 82  0317  0517                TEQ  4F
 I 1925   0517  BBB 0 07  0001  0120                IIR   0001
II 1926   0120  BBB 0 30  0322  0124                LDL            6F
 I 1927   0322  BBB 0 30  4986  0138                LDL  JMPRL     NPAR2
 I 1928   0060  BBB 0 30  0317  0319     2          LDL  4F        ATL
 I 1929   0319  BBB 0 25  0121  4556     ATL        LDA  BIG77     ASM32
 I 1930   0317  BBB 0 07  0002  0320     4          IIR   0002     5F
   1931   1852  BBB 0 07  0001  0320     1          IIR   0001     5F
   1932   0109  BBB 0 07  0000  0320     3          IIR   0000     5F
   1933   0320  BBB 0 30  0201  0124     5          LDL  EXIT4     6F
 I 1934   0124  BBB 0 74  0000  0403     6          ADD1  0000
 I 1935   0403  BBB 0 32  0400  0210                SHR   0400
 I 1936   0210  BBB 0 35  4724  0626                ERS  XC
II 1937   0626  BBB 0 05  0028  0030                LDX# 00100     00010
   1938   0030  BBB 0 20  4623  4570                BUF  BIG05     ASM3
II 1939   4015  BBB 0 30  0417  0219     C0005      LDL  FCEX
 I 1940   0219  BBB 0 25  4013  0065                LDA  C0003                    CHECK IF DOING A FUNCTION CALL.
II 1941   0065  BBB 0 82  0068  0268                TEQ            1F
 I 1942   0068  BBB 0 05  000A  0072                LDX  RA        CASIN
 I 1943   0268  BBB 0 29  0001  0603     1          LDA1  0001                  I38.CHECK FOR ZERO
 I 1944   0603  BBB 0 31  0206  0206                CLL
II 1945   0206  BBB 0 82  0809  1409                TEQ            1F
 I 1946   0809  BBB 0 30  0201  0803                LDL  EXIT4
II 1947   0803  BBB 0 25  0005  0607                LDA  AREX
II 1948   0607  BBB 0 82  0410  0610                TEQ  AREX1
 I 1949   0610  BBB 0 25  4191  1243                LDA  TEMP5
 I 1950   1243  BBB 0 70  4408  0261                ADD  BIG01
 I 1951   0261  BBB 0 05  0063  4570                LDX  LIT11     ASM3
 I 1952   1409  BBB 0 35  4667  0419     1          ERS  XOC                    I39.CHECK FOR IIR
II 1953   0419  BBB 0 82  0422  0622                TEQ            1F
 I 1954   0422  BBB 0 25  4191  1643                LDA  TEMP5
 I 1955   1643  BBB 0 30  4604  0256                LDL  BIG25
 I 1956   0256  BBB 0 82  0259  0622                TEQ            1F
 I 1957   0259  BBB 0 29  0001  1403                LDA1  0001
II 1958   1403  BBB 0 70  0805  0008                ADD  BIG07
   1959   0008  BBB 0 30  0201  4556                LDL  EXIT4     ASM32       I40.ASSIGN CONSTANT
 I 1960   0622  BBB 0 05  0224  0072     1          LDX            CASIN
II 1961   0224  BBB 0 25  0826  0228                LDA            NPAR1
   1962   0826  BBB 0 12  2333  6523                ALF  CONST
   1963                                             OFF   8002
   1964                                             OFF   9002
   1965                                             HHH
   1966                                             ON    9002
   1967                                             ON    8002
   1968   0445  BBB 0 29  0001  0228     NPAR       LDA1  0001     NPAR1       I42.ASSEMBLE 3
   1969   0228  BBB 0 60  4770  0138     NPAR1      STA  COMT      NPAR2
   1970   0138  BBB 0 25  000B  0342     NPAR2      LDA  RL
```

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1971  0342  888 0 35  4740  0592                ERS  X1
1972  0592  888 0 20  4016  0818                BUF  LIT1
1973  0818  888 0 60  4624  1626                STA  TEMP4
1974  1626  888 0 07  HHHH  0229                IIR   HHHH
1975  0229  888 0 35  0008  0433                ERS  RL
1976  0433  888 0 20  4191  1843                BUF  TEMP5
1977  1843  888 0 30  0201  4776                LDL  EXIT4      ASM31
1978  4083  888 0 30  0085  4303  V0003        LDL               BR1
1979  0065  888 0 09  0001  1603                LDX1  0001
1980  1603  888 0 65  1405  1407                STX  TMP11                  I44.GET SUBSCRIPT
1981  1407  888 0 37  0400  0814                SHL   0400
1982  0814  888 0 30  0216  4641                LDL               BR
1983  0216  888 0 09  0001  1803                LDX1  0001
1984  1803  888 0 65  1605  1607                STX  TMP12
1985  1607  888 0 60  4191  2043                STA  TEMP5
1986  2043  888 0 35  0645  0247                ERS  H1
1987  0247  888 0 30  4974  0276                LDL  BIG10
1988  0276  888 0 82  0005  0079                TEQ  AREX
1989  0079  888 0 05  0881  0283                LDX               CLACC
1990  0881  888 0 25  4191  0093                LDA  TEMP5
1991  0093  888 0 05  4604  0306                LDX  BIG25
1992  0306  888 0 30  0005  4599                LDL  AREX         ASM28
1993  0005  888 0 25  1405  1807  AREX         LDA  TMP11                  I45.WHAT KIND ARRAY
1994  1807  888 0 30  4336  0438                LDL  INCRE
1995  0438  888 0 06  1641  1641                CLX
1996  1641  888 0 65  2243  0845                STX  ACC
1997  0845  888 0 32  0900  0657                SHR   0900
1998  0657  888 0 70  0459  000A                ADD               RA
1999  0459  888 0 07  0007  4019                IIR   0007        C0009
2000  4020  888 0 82  1623  1823  C0010        TEQ  C0R10
2001  1823  888 0 05  0225  0427                LDX               1F          I46.PARAMETER CODE
2002  0225  888 0 00  0000  0070                CON  00000        00070
2003  0410  888 0 05  0212  0427  AREX1         LDX  2F           1F
2004  0212  888 0 00  0000  0025  2             CON  00000        00025
2005  0427  888 0 25  1405  2007  1             LDA  TMP11
2006  2007  888 0 37  0600  0416                SHL   0600
2007  0416  888 0 32  0200  0221                SHR   0200
2008  0221  888 0 30  2023  0425                LDL  3F           4F
2009  0425  888 0 05  0627  4709  4             LDX  1F           ASM34
2010  2023  888 0 30  0625  1627  3             LDL  8F           ADDNX
2011  1627  888 0 25  0429  0631  ADDNX         LDA# 70000        0000A
2012  0631  888 0 05  0633  4570                LDX  LIT10        ASM3
2013  0625  888 0 25  1405  2407  8             LDA  TMP11
2014  2407  888 0 35  4741  2443                ERS  XMH
2015  2443  888 0 06  1046  1046                CLX  7F
2016  1046  888 0 75  4623  0476  7             SUB  BIG05        AREX2
2017  0627  888 0 21  2127  1914  1             ALF  PARAM
2018  1623  888 0 30  0825  1827  C0R10         LDL               CORES
2019  0825  888 0 05  0212  1414                LDX  2B
2020  1414  888 0 32  0200  0419                SHR   0200
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2021  0619  888 0 30  0421  0425          LDL  5F        46
2022  4021  888 0 82  0424  0624  C0011   TEQ  C0R11                 147•SAD CODE
2023  0624  888 0 25  1405  2607          LDA  TMP11
2024  2607  888 0 35  4741  2643          ERS  XMH
2025  2643  888 0 30  1245  4260          LDL            CONST
2026  1245  888 0 05  0447  0072          LDX            CASIN
2027  0447  888 0 25  0008  0251          LDA  RL
2028  0251  888 0 05  0253  0055          LDX  1F
2029  0055  888 0 30  1857  0659          LDL            7F
2030  1857  888 0 30  0859  1627          LDL            ADDNX
2031  0859  888 0 25  1405  2807          LDA  TMP11
2032  2807  888 0 37  0600  0616          SHL   0600
2033  0616  888 0 05  000A  0420          LDX  RA
2034  0420  888 0 32  0200  1625          SHR   0200
2035  1625  888 0 26  1046  1046          CLA  78
2036  0253  888 0 13  1116  4475  1       ALF  FUDGE
- 2037  0424  888 0 30  1826  1827  C0R11   LDL            CORES
2038  1826  888 0 20  0633  0235          BUF  LIT10
2039  0235  888 0 05  000A  0239          LDX  RA
2040  0239  888 0 32  0100  2843          SHR   0100
2041  2843  888 0 25  0805  3007          LDA  BIG07
2042  3007  888 0 30  0421  4570          LDL  5F        ASM3
2043  0421  888 0 25  2223  1825  5       LDA# 70000     C000A
2044  1825  888 0 06  0428  0428          CLX
2045  0428  888 0 30  0230  4570          LDL            ASM3
2046  0230  888 0 05  0032  4927          LDX            INCUQ
2047  0032  888 0 50  4880  0625          STL  NXLOC     8B
2048  0283  888 0 31  1886  1886  CLACC   CLL                          SUBROUTINE TO STORE A IN TEMP IF IT IS IN USE
2049  1886  888 0 25  2243  1645          LDA  ACC
2050  1645  888 0 82  000C  0248          TEQ  RX                      IN THE OBJECT PROGRAM
2051  0248  888 0 65  4926  0278          STX  EXIT3
2052  0278  888 0 05  0080  0082          LDX  2F
2053  0082  888 0 30  0284  2086          LDL  1F
2054  2086  888 0 08  4701  4229          LIR1 TEMPS     REM           IF TEMPS STACK IS EMPTY, RESERVE A NEW PLACE
2055  0080  888 0 05  0284  4927  2       LDX  1F        INCUQ         IN UNIQUE.
2056  0284  888 0 25  2243  1845  1       LDA  ACC
2057  1845  888 0 70  0647  000A          ADD            RA
2058  0647  888 0 08  0000  0453          LIR1  0000
2059  0453  888 0 29  0000  0602          LDA1  0000
2060  0602  888 0 35  4667  0819          ERS  X0C
2061  0819  888 0 06  1622  1622          CLX
2062  1622  888 0 65  2243  2045          STX  ACC
2063  2045  888 0 05  000A  0449          LDX  RA
2064  0449  888 0 07  HHHH  2252          IIR   HHHH
2065  2252  888 0 35  0008  0456          ERS  RL
2066  0456  888 0 77  0456  1859          ATL
2067  1859  888 0 20  000C  0263          BUF  RX
2068  0263  888 0 70  4247  0300          ADD  BIG30
2069  0300  888 0 64  0000  1402          STA1  0000
- 2070  1402  888 0 25  4603  0855          LDA  BIG60
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2071  0855  888 0 20  000B  2059          BUF  RL
2072  2059  888 0 05  1750  0352          LDX  W0000
2073  0352  888 0 30  4926  4709          LDL  EXIT3     ASM34
2074  1827  888 0 50  0201  2003  CORES    STL  EXIT4                THIS SUBROUTINE PUTS OUT THE CORE ONLY
2075  2003  888 0 25  4196  0448          LDA  UNIQU                PAIR OF INSTRUCTIONS
2076  0448  888 0 30  0850  2452          LDL  3F
2077  2452  888 0 05  0254  0659          LDX  1F        7F
2078  0659  888 0 70  0461  4709  7       ADD  BIG69     ASM34
2079  0850  888 0 25  2652  0454  3       LDA# 05000     A0000
2080  0454  888 0 05  0656  0458          LDX  2F
2081  0458  888 0 30  0460  4760          LDL            ASM35
2082  0460  888 0 25  1405  0208          LDA  TMP11
2083  0208  888 0 37  0600  0201          SHL   0600     EXIT4
2084  0254  888 0 01  221F  3695  1       ALF  (CORE
2085  0656  888 0 22  2306  538C  2       ALF  ONLY)
2086  4022  888 0 30  0824  1627  C0012   LDL            ADDNX      I48.ORDINARY CODE
2087  0824  888 0 25  4740  0242          LDA  X1
2088  0242  888 0 35  1405  0408          ERS  TMP11
2089  0408  888 0 05  000A  0412          LDX  RA
2090  0412  888 0 07  HHHH  0215          IIR   HHHH
2091  0215  888 0 35  1405  0608          ERS  TMP11
2092  0608  888 0 77  0608  0411          ATL
2093  0411  888 0 25  1405  0808          LDA  TMP11
2094  0808  888 0 37  0600  0617          SHL   0600
2095  0617  888 0 32  0100  0621          SHR   0100
2096  0621  888 0 20  000B  0476          BUF  RL        AREX2
2097  0476  888 0 70  4194  0097  AREX2    ADD  TEMP7                I49.COMPILE OP
2098  0097  888 0 30  1605  1408          LDL  TMP12
2099  1408  888 0 50  4770  4551          STL  COMT      EXIT5
2101
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2103  0089  BBB 0 06  0092  0092   LSW     CLX  1F                  I.  I60. LSW  FOR ASSIGNING STATEMENT LABELS.
2108  0108  BBB 0 06  0092  0092   LSWOF   CLX  1F                  I60.CHECK LABEL
2109  0509  BBB 0 05  0054  0092   LSWON   LDX  BIG04   1F
2110  0092  BBB 0 50  4568  0520   1       STL  EXIT2
2111  0520  BBB 0 30  4277  0129           LDL  BIG50
2112  0129  BBB 0 87  0532  0732           TGR          1F
2113  0532  BBB 0 30  4603  0155           LDL  BIG60
2114  0155  BBB 0 87  0732  0158           TGR  1F      2F
2115  0732  BBB 0 25  0934  0336   1       LDA          NOMAL
2116  0934  BBB 0 03  1900  0000           CON  03190   00000        BAD LABEL
2117  0158  BBB 0 30  0360  4303   2       LDL          BR1        I61.IN DO LOOP
2118  0360  BBB 0 70  000C  0165           ADD  RX
2119  0165  BBB 0 32  0800  0176           SHR   0800
2120  0176  BBB 0 70  0178  000A           ADD          RA
2121  0178  BBB 0 29  0000  1230           LDA1  0000   L9950      I62.ASSIGN
2122  1280  BBB 0 05  0282  4084   L0000   LDX          FARNL
2123  0282  BBB 0 24  0000  1602           BUF1  0000
2124  1602  BBB 0 64  0000  1282           STA1  0000   L0002
2125  1281  BBB 0 06  0158  0158   L0001   CLX  2B
2126  1282  BBB 0 35  4741  4568   L0002   ERS  XMH     EXIT2
2127  1286  BBB 0 35  4201  0103   L0006   ERS  XOM     1F
2128  1284  BBB 0 35  4201  0103   L0004   ERS  XOM     1F         I64.TEMP ASSIGN
2129  0103  BBB 0 60  4209  0111   1       STA  TEMP2
2130  0111  BBB 0 05  0113  4084           LDX          FARNL
2131  0113  BBB 0 77  0113  0116           ATL
2132  0116  BBB 0 0G  0000  0720           IIR1  0000
2133  0720  BBB 0 32  0400  0527           SHR   0400
2134  0527  BBB 0 35  4724  0376           ERS  XC
2135  0376  BBB 0 20  4209  0611           BUF  TEMP2
2136  0611  BBB 0 0B  0415  1614           LIR1 LLIST
2137  1614  BBB 0 05  000B  1418           LDX  RL
2138  1418  BBB 0 30  0620  4445           LDL          INS
2139  0620  BBB 0 25  000C  1624           LDA  RX
2140  1624  BBB 0 37  0400  0831           SHL   0400
2141  0831  BBB 0 30  0833  4303           LDL          BR1
2142  0833  BBB 0 35  0435  0237           ERS  XCO
2143  0237  BBB 0 20  0415  1417           BUF  LLIST
2144  1417  BBB 0 70  1419  1822           ADD  ONE15
2145  1822  BBB 0 64  0000  1285           STA1  0000   L0005
2146  1285  BBB 0 30  0287  4303   L0005   LDL          BR1
2147  0287  BBB 0 35  4741  0293           ERS  XMH
2148  0293  BBB 0 31  0296  0296           CLL
2149  0296  BBB 0 82  0899  1099           TEQ          1F
2150  0899  BBB 0 30  4568  0920           LDL  EXIT2
2151  0920  BBB 0 25  0522  0324           LDA  LABLX
2152  0324  BBB 0 82  0727  1099           TEQ          1F
2153  0727  BBB 0 29  9999  0401           LDA1  9999
2154  0401  BBB 0 35  4741  3043           ERS  XMH
2155  3043  BBB 0 24  0000  1802           BUF1  0000
```

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2156    1802  888 0 64  0000  2002          STA1  0000    L8LX1
2157    1099  888 0 29  9999  1282    1     LDA1  9999    L0002
```

```
2158   0072  BBB 0 07  HHHH  0075   CASIN   IIR   HHHH                I.  I70. CASIN  ASSIGNING CONSTANTS.
2159   0075  BBB 0 39  0000  2402           ERS1  0000                I70.ALREADY ASSIGNED
2160   2402  BBB 0 31  1805  1805           CLL
2161   1805  BBB 0 82  1608  1808           TEQ           1F
2162   1608  BBB 0 65  4926  0628           STX   EXIT3
2163   0628  BBB 0 07  HHHH  1231           IIR   HHHH                I71.PICK UNIQUE
2164   1231  BBB 0 35  4196  0648           ERS   UNIQU
2165   0648  BBB 0 24  0000  2602           BUF1  0000
2166   2602  BBB 0 64  0000  2802           STA1  0000
2167   2802  BBB 0 09  0001  2403           LDX1  0001
2168   2403  BBB 0 65  4209  0811           STX   TEMP2               I72.COMPILE CONSTANT
2169   0811  BBB 0 05  0413  4494           LDX           ASM42
- 2170  0413  BBB 0 05  4926  4927           LDX   EXIT3   INCUQ
- 2171  1808  BBB 0 20  4408  0660   1       BUF   BIG01
2172   0660  BBB 0 77  0660  000C           ATL           RX
```

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0173  888 0 65  0175  0377   ASM1    STX  PAR2     ASM11      I.  I1.  ASSEMBLR 1
0377  888 0 50  0379  0181   ASM11   STL  EXIT7    LOOP
0181  888 0 06  0184  0184   LOOP    CLX
0184  888 0 32  0800  0099           SHR   0800    LOOP1
0099  888 0 65  0288  0290   LOOP1   STX  TMP13
0290  888 0 37  0400  0297           SHL   0400
0297  888 0 70  1299  000A           ADD           RA
1299  888 0 05  1300  0717           LDX  I0000    1F     +15
0717  888 0 30  0519  0321   1       LDL           2F
0519  888 0 05  1340  0542           LDX  I0040    1F
0321  888 0 87  0524  000C   2       TGR           RX
0524  888 0 25  000C  0128           LDA  RX       TASM2
0128  888 0 30  0130  4350   TASM2   LDL  IX       ASM2
0130  888 0 25  0288  0181   IX      LDA  TMP13    LOOP
1300  888 0 25  0175  0577   I0000   LDA  PAR2
0577  888 0 32  0500  0185           SHR   0500
0185  888 0 35  0022  0379           ERS  X9       EXIT7
1324  888 0 26  0379  0379   I0024   CLA  EXIT7
                                                                  LIST OF INSTRUCTIONS
1399  888 0 25  9901  9999   I0099   LDA   9901     9999          LDA1
1398  888 0 25  9902  9999   I0098   LDA   9902     9999          LDA2
1397  888 0 30  9901  9999   I0097   LDL   9901     9999          LDL1
1396  888 0 30  9902  9999   I0096   LDL   9902     9999          LDL2
1395  888 0 60  9901  9999   I0095   STA   9901     9999          STA1
1394  888 0 50  9901  9999   I0094   STL   9901     9999          STL1
1393  888 0 87  9905  9999   I0093   TGR   9905     9999          TGR5
1392  888 0 87  9903  9999   I0092   TGR   9903     9999          TGR3
1391  888 0 82  9904  9903   I0091   TEQ   9904     9903          TEQ43
1390  888 0 82  9904  9905   I0090   TEQ   9904     9905          TEQ45
1389  888 0 00  9902  9999   I0089   JMP   9902     9999          JMP2
1388  888 0 0G  0000  9999   I0088   IIR1  0000     9999          IIR10
1387  888 0 85  9901  9999   I0087   MUL   9901     9999          MUL1
1386  888 0 26  9999  9999   I0086   CLA   9999     9999          CLA
1385  888 0 75  9901  9999   I0085   SUB   9901     9999          SUB1
1384  888 0 75  000B  9999   I0084   SUB   000B     9999          SUBRL
1383  888 0 87  9905  9904   I0083   TGR   9905     9904          TGR54
1382  888 0 87  9903  9904   I0082   TGR   9903     9904          TGR34
1381  888 0 20  9901  9999   I0081   BUF   9901     9999          BUF1
1380  888 0 20  000B  9999   I0080   BUF   000B     9999          BUFRL
1379  888 0 60  9903  9999   I0079   STA   9903     9999          STA3
1378  888 0 70  9999  000A   I0078   ADD   9999     000A          ADD0A
1377  888 0 00  9999  0000   I0077   JMP   9999     0000          JMP
1376  888 0 25  000B  9999   I0076   LDA   000B     9999          LDARL
1375  888 0 0G  8888  9999   I0075   IIR1  8888     9999          IIR1N
1374  888 0 30  9905  9999   I0074   LDL   9905     9999          LDL5
1302  888 0 25  0104  0506   I0002   LDA  PAR1                 I1. CHECK SPECIAL CASES
0506  888 0 30  1908  0510           LDL  COP
0510  888 0 82  0521  0313           TEQ  2F     +08 3F
1301  888 0 25  0104  0313   I0001   LDA  PAR1      3F
```

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2222  0313  888 0 30  0115  0917      3          LDL  C4#5
2223  0917  888 0 82  0521  0130                 TEQ  2F          IX
2224  0521  888 0 25  0123  0181      2          LDA               LOOP
2225  0143  888 0 98  0900  0000                 CON  98090       00000          LDA2 PO1
- 2226  1303  888 0 25  0104  0706      I0003      LDA  PAR1
2227  0706  888 0 30  0115  1917                 LDL  C4#5
2228  1917  888 0 82  0542  0130                 TEQ  1F          IX
2229  0542  888 0 25  0344  0181      1          LDA               LOOP
2230  0344  888 0 97  9811  0000                 CON  97981       10000          LDL1 LDA2 PORL
2231  1304  888 0 07  HHHH  0307      I0004      IIR   HHHH                      I4. CHECK SUBSCRIPT
2232  0307  888 1 39  0001  2603                 ERS3  0001
2233  2603  888 0 70  2005  000A                 ADD               RA
2234  2005  888 0 25  0000  3002                 LDA   0000
- 2235  3002  888 0 37  0400  1609                 SHL   0400
2236  1609  888 0 30  2243  2245                 LDL   ACC
2237  2245  888 0 82  0130  0848                 TEQ   IX
2238  0848  888 0 07  HHHH  0451                 IIR   HHHH
2239  0451  888 1 39  0000  2803                 ERS3  0000
2240  2803  888 0 70  2405  000A                 ADD               RA
2241  2405  888 0 25  0000  3003                 LDA   0000
2242  3003  888 0 37  0400  0810                 SHL   0400
2243  0810  888 0 82  0542  1303                 TEQ   1F          I0003
2244  1305  888 0 05  0130  0283      I0005      LDX   IX          CLACC          I5. CLEAR ACC
2248  1306  888 0 26  0709  0709      I0006      CLA                              I6. SET ACC AVAIL
2249  0709  888 0 60  2243  0130                 STA   ACC         IX
2252  1307  888 0 00  1300  1300      I0007      JMP   I0000                      I7. TRACE
2253                                   TRCSW      EQU   I0007
2254                                   TRCOF      EQU   I0000
2255  1855  888 0 25  4779  1881      TRCON      LDA   CHOLD
2256  1881  888 0 30  0483  4260                 LDL               CONST
2257  0483  888 0 05  0285  0072                 LDX               CASIN
2258  0285  888 0 25  0008  0489                 LDA   RL
2259  0489  888 0 70  0054  2057                 ADD   BIG04
2260  2057  888 0 05  2259  0661                 LDX   1F
2261  0661  888 0 30  0130  4709                 LDL   IX          ASM34
2262  2259  888 0 32  1113  9135      1          ALF   TRACE
2263  1308  888 0 25  0104  1906      I0008      LDA   PAR1                      I8. OP V2
2264  1906  888 0 05  1389  0191                 LDX   I0089       1F
2268  1309  888 0 05  0104  2106      I0009      LDX   PAR1                      I9. PO V1
2269  2106  888 0 25  0175  0777                 LDA   PAR2
2270  0777  888 0 32  0500  0385                 SHR    0500
2271  0385  888 0 60  0104  2306                 STA   PAR1
2272  2306  888 0 65  0175  0977                 STX   PAR2
2273  0977  888 0 32  0500  0585                 SHR    0500
2274  0585  888 0 05  0387  0191                 LDX               1F
2275  0387  888 0 00  9901  9999                 JMP    9901        9999
2276  0191  888 0 30  1908  0710      1          LDL   COP
2277  0710  888 0 82  0513  0713                 TEQ   3F
2278  0713  888 0 25  000C  2117                 LDA   RX
2279  2117  888 0 20  4247  0149                 BUF   BIG30
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2280  0149  888 0 30  1310  4350          LDL  I0010     ASM2
2281  0513  888 0 25  0175  1177  3       LDA  PAR2
2282  1177  888 0 35  4617  1619          ERS  X0
2283  1619  888 0 20  000C  0128          BUF  RX        TASM2
2284  1310  888 0 25  0104  2506  I0010   LDA  PAR1      1F          I10.OP RL
2285  1311  888 0 05  0104  2706  I0011   LDX  PAR1                  I11.P0 RL
2286  2706  888 0 25  0175  1777          LDA  PAR2
2287  1777  888 0 32  0500  0785          SHR   0500
2288  0785  888 0 60  0104  2906          STA  PAR1
2289  2906  888 0 65  0175  2506          STX  PAR2      1F
2290  2506  888 0 35  0009  0181  1       ERS  H5        LOOP
2291  1312  888 0 05  0514  0513  I0012   LDX            3B          I12.OP RL NXT
2292  0514  888 0 00  000B  9999          JMP  RL         9999
2293  1313  888 0 25  0175  1977  I0013   LDA  PAR2                  I13.LIR3 NXT SUB
2294  1977  888 0 32  0400  0384          SHR   0400
2295  0384  888 0 30  0186  0188          LDL  1F        CALPK
2296  0188  888 0 50  0201  0004  CALPK    STL  EXIT4
2297  0004  888 0 35  0406  2008          ERS  X45
2298  2008  888 0 70  1410  000A          ADD            RA
2299  1410  888 0 08  0000  0816          LIR1  0000
2300  0816  888 0 34  1750  0552          LDL1 #0000
2301  0552  888 0 25  4628  0180          LDA  MZERO
2302  0180  888 0 24  1750  0752          BUF1 #0000
2303  0752  888 0 60  4770  0572          STA  COMT
2304  0572  888 0 82  0201  0375          TEQ  EXIT4
2305  0375  888 0 64  1750  0952          STA1 #0000
2306  0952  888 0 0G  0000  0556          IIR1  0000
2307  0956  888 0 05  0201  0204          LDX  EXIT4     SUBDF
2308  0186  888 0 25  0175  2177  1       LDA  PAR2
2309  2177  888 0 32  0600  0386          SHR   0600
2310  0386  888 0 30  0130  4970          LDL  IX        ASM36
2311  1314  888 0 25  4824  0126  I0014   LDA  DOVAR                  I14.STORE INTO RB1
2312  0126  888 0 70  0328  000A          ADD            RA
2313  0328  888 0 25  0001  0404          LDA   0001
2314  0404  888 0 60  4770  1323          STA  COMT      I0023
2315  1323  888 0 25  4528  0930  I0023   LDA  LIR1      TAS32
- 2316  0930  888 0 30  0130  4556  TAS32   LDL  IX        ASM32
2317  4528  888 0 08  0000  0000  LIR1    LIR1  0000      0000
2318  1315  888 0 25  4617  0719  I0015   LDA  X0                   I15.ATL CONDITIONALLY
2319  0719  888 0 35  4579  0331          ERS  IWORD
2320  0331  888 0 30  4528  0380          LDL  LIR1
2321  0380  888 0 82  0130  0183          TEQ  IX
2322  0183  888 0 30  0130  0319          LDL  IX        ATL
2323                                                     I16.SHIFT
2327  1318  888 0 25  0175  2377  I0018   LDA  PAR2                  I18.UNARY OPERATOR
2328  2377  888 0 37  0400  0584          SHL   0400
2329  0584  888 0 70  000A  0389          ADD  RA        -I18
2330  0390  888 0 05  0104  0507  &118    LDX  PAR1
2331  0507  888 0 32  0500  0315          SHR   0500     1F
2332  0389  888 0 25  0104  0315  -I18    LDA  PAR1      1F
```

```
2333  0315  888 0 31  0118  0118      1          CLL
2334  0118  888 0 82  0130  0721                 TEQ   IX
2335  0721  888 0 60  0175  1313                 STA   PAR2        I0013
2336  1319  888 0 05  1121  4084      I0019      LDX                FARNL      I19.GO TO 3F.2
2337  1121  888 0 60  0323  0125                 STA   THREF
2338  0125  888 0 30  0927  4736                 LDL   TOBSW       GOTO
2339  0927  888 0 05  0329  4084      TOBSW      LDX   1F          FARNL
2340  0140  888 0 05  0329  4084      TOB        LDX   1F          FARNL
2341  0329  888 0 60  0531  0733      1          STA   TWOB        2F
2342  0742  888 0 25  0544  0733      TOBIO      LDA   NINEF       2F
2343  0733  888 0 60  4880  0130      2          STA   NXLOC       IX
2344  1320  888 0 05  0722  4084      I0020      LDX                FARNL      I20.TGR 9F 3F
2345  0722  888 0 32  0400  0529                 SHR    0400
2346  0529  888 0 35  4724  0576                 ERS   XC
2347  0576  888 0 60  0544  0146                 STA   NINEF
2348  0146  888 0 37  0400  0153                 SHL    0400
2349  0153  888 0 20  0355  0357                 BUF   BIG87
2350  0357  888 0 05  0559  0161                 LDX#  02000       00001
2351  0161  888 0 30  0163  4570                 LDL                ASM3
2352  0163  888 0 25  0323  0925                 LDA   THREF
2353  0925  888 0 30  0130  0932                 LDL   IX          FILNX
2354  0932  888 0 60  4880  4686      FILNX      STA   NXLOC       FILUP
2355  1321  888 0 25  0544  0346      I0021      LDA   NINEF                  I21.NINEF DO
2356  0346  888 0 20  4408  0560                 BUF   BIG01
2357  0560  888 0 60  0544  0130                 STA   NINEF       IX
2358  1322  888 0 05  0724  4084      I0022      LDX                FARNL      I22.BUF       1F
2359  0724  888 0 60  0323  1125                 STA   THREF
2360  1125  888 0 32  0400  1132                 SHR    0400
2361  1132  888 0 35  4724  0776                 ERS   XC
2362  0776  888 0 20  1178  0580                 BUF   BIG20
2363  0580  888 0 05  0382  0784                 LDX#  00200       00010
2364  0784  888 0 30  0130  4570                 LDL   IX          ASM3
```

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2365
2373   0373  BBB 1 29  0000  0604   ARITH   LDA3  0000
2374   0604  BBB 0 32  0400  1411           SHR   0400
2375   1411  BBB 0 35  0613  0615           ERS   KON3
2376   0615  BBB 0 77  0615  1618           ATL
2377   1618  BBB 0 70  000A  2423           ADD   RA
2378   2423  BBB 0 70  000B  0828           ADD   RL
2379   0828  BBB 0 77  0828  1631           ATL
2380   1631  BBB 1 29  9999  0601           LDA3  9999
2381   0601  BBB 0 32  0400  2408           SHR   0400
2382   2408  BBB 0 35  0613  0815           ERS   KON3
2383   0815  BBB 0 70  000B  0820           ADD   RL
2384   0820  BBB 0 70  2022  000A           ADD           RA
2385   2022  BBB 0 00  4000  4000           JMP   B0000
2386   4000  BBB 0 0G  0000  0654   B0000   IIR1  0000    2F
2387   4001  BBB 0 0G  0001  0654   B0001   IIR1  0001    2F
2388   4002  BBB 0 0G  0000  0654   B0002   IIR1  0000    2F
2389   4003  BBB 0 0G  0002  0654   B0003   IIR1  0002    2F
2390   4004  BBB 0 0G  0003  2608   B0004   IIR1  0003    1F
2391   4005  BBB 0 0G  0003  2608   B0005   IIR1  0003    1F
2392   4006  BBB 0 0G  0000  0654   B0006   IIR1  0000    2F
2393   4007  BBB 0 0G  0003  2608   B0007   IIR1  0003    1F
2394   4008  BBB 0 0G  0003  0612   B0008   IIR1  0003
2395   0612  BBB 0 05  4756  0658           LDX   BIG02   4F
2396   2608  BBB 0 05  4408  0658   1       LDX   BIG01   4F
2397   0654  BBB 0 06  0658  0658   2       CLX   4F
2398   0658  BBB 0 65  0860  000A   4       STX   OTYPE   RA
2399   0199  BBB 0 05  0801  0804   BINSB   LDX   CSUB    1F
2400   0800  BBB 0 05  1908  0804   BINOP   LDX   COP     1F
2401   0804  BBB 0 30  4215  1617   1       LDL   OPX     BINAL
2402   1617  BBB 0 50  1819  0821   BINAL   STL   &SAC
2403   0821  BBB 0 65  0104  0707           STX   PAR1
2404   0707  BBB 1 29  0000  1404           LDA3  0000
2405   1404  BBB 0 05  000A  2808           LDX   RA
2406   2808  BBB 0 35  4247  0649           ERS   BIG30
2407   0649  BBB 0 32  0F00  0062           SHR   0F00
2408   0062  BBB 0 35  0022  1824           ERS   X9
2409   1824  BBB 0 70  000A  0629           ADD   RA
2410   0629  BBB 0 77  0629  0232           ATL
2411   0232  BBB 0 25  0234  0436           LDA#  80000   0000H
2412   0436  BBB 1 39  9999  1401           ERS3  9999
2413   1401  BBB 0 70  000B  0606           ADD   RL
2414   0606  BBB 0 70  000A  1611           ADD   RA      -BM
2415   1612  BBB 0 30  1814  0042   &BM     LDL   ANSL    BME
2416   1611  BBB 0 77  1611  2014   -BM     ATL
2417   2014  BBB 0 37  0300  1620           SHL   0300
2418   1620  BBB 0 70  2222  000A           ADD           RA
2419   2222  BBB 0 0G  0000  0829           IIR1  0000
2420   0829  BBB 1 0G  9999  1233           IIR3  9999
```

B. ARITHMETIC OPERATORS
ARITH SUBROUTINE
DECIDES WHETHER WE HAVE FLT-FLT, FLT-FIX, FIX-FLT, OR FIX-FIX ON BINARY OPERATORS AND ALSO DETERMINES TYPE OF RESULT.

BINSB GENERATES REFERENCE TO BINARY SUBROUTINE. BINOP IS FOR BINARY MACHINE OP. RB1 IS THE Q-TABLE ENTRY FOR THE ++ CASE.

PICK UP THE PROPER J TABLE ENTRY -- SEE THE J-TABLE, J0000 THRU J0015.

```
2421  1233  888 0 25  0008  0437          LDA  RL
2422  0437  888 0 35  4617  0069          ERS  X0
2423  0069  888 0 32  0500  0077          SHR   0500
2424  0077  888 0 70  000A  0482          ADD  RA
2425  0482  888 0 70  000C  0487          ADD  RX
2426  0487  888 0 70  0689  000A          ADD            RA
2427  0689  888 0 25  1700  0302          LDA  J0000
2428  0302  888 0 09  0000  1604          LDX1  0000     7F
2429  1604  888 0 30  0806  0173  7       LDL            ASM1
2430  0806  888 0 70  0860  0463          ADD  OTYPE     SACC
2431  0463  888 0 70  4974  1818  SACC    ADD  BIG10     -SAC      MARK COMPUTER RESULT AS IN ACCUMULATOR
2432  1818  888 1 64  0000  1804  -SAC    STA3  0000               UNLESS TYPE IS 9 (FOR STORE OPERATORS).
2433  1804  888 1 0G  0000  3008          IIR3  0000
2434  3008  888 0 60  2243  1819          STA  ACC       &SAC
2435  1814  888 1 0G  0000  2018  ANSL    IIR3  0000               ANSL MEANS  L #  L OP R
2436  2018  888 0 30  2243  2445          LDL  ACC
2437  2445  888 0 82  1048  1248          TEQ            DOCK3
2438  1048  888 0 31  0651  0651          CLL
2439  0651  888 0 50  2243  1248          STL  ACC       DOCK3
2440  1248  888 1 0G  9999  4215  DOCK3   IIR3  9999     OPX
2441  1841  888 0 30  4215  0067  UNOP    LDL  OPX       1F        UNOP ENTRIES ARE STANDARD OPTIONS FOR
2442  0442  888 0 25  4301  0653  UNOP3   LDA  BIG90               UNARY OPERATORS
2443  0653  888 0 60  0860  0067          STA  OTYPE     1F
2444  0067  888 1 29  0000  2004  1       LDA3  0000     UNOP1
2445  2645  888 0 35  0009  1811  UNOP2   ERS  H5        1F
2446  2004  888 0 50  1819  1811  UNOP1   STL  &SAC      1F
2447  1811  888 0 65  0104  0907  1       STX  PAR1
2448  0907  888 0 32  0500  0515          SHR   0500
2449  0515  888 0 35  0613  1415          ERS  KON3
2450  1415  888 0 70  1817  000A          ADD            RA
2451  1817  888 0 29  0000  1604          LDA1  0000     7B             SELECT J-TABLE ENTRY.
2452  4104  888 0 25  1907  0909  SIGN-   LDA  TWO9S                 81. MINUS SIGN
2453  0909  888 0 70  000C  0714          ADD  RX        -L1
2455  0715  888 0 05  2317  4428  &L1     LDX  OUN-      -OP3
2456  0714  888 0 30  0316  4211  -L1     LDL  OBIN-     -OP4
2458  4105  888 0 25  1907  1909  SIGN&   LDA  TWO9S                 83. PLUS SIGN.
2459  1909  888 0 70  000C  0914          ADD  RX        -L2
2460  0915  888 0 00  4140  4140  &L2     JMP  NORMX
2462  0914  888 0 30  1052  4211  -L2     LDL  OBIN&     -OP4
2463  4103  888 0 25  4417  0919  BIN-    LDA  RATOR               84. SUBTRACTION OP
2464  0919  888 0 70  1921  000A          ADD            RA
2465  1921  888 0 30  0001  2404          LDL   0001
2466  2404  888 0 25  1406  1809          LDA  OIF%
2467  1809  888 0 82  1412  1812          TEQ            1F
2468  1412  888 0 30  4213  0265          LDL  OHOLD
2469  0265  888 0 25  4392  0094          LDA  BIG70
2470  0094  888 0 82  0497  1812          TEQ            1F
2471  0497  888 1 29  0000  2604          LDA3  0000
2472  2604  888 0 37  0900  1416          SHL   0900
2473  1416  888 0 77  1416  2019          ATL
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2474  2019  888 1 29  9999  1601          LDA3  9999
2475  1601  888 0 37  0900  0813          SHL   0900
2476  0813  888 0 82  1616  1812          TEQ               1F
2477  1616  888 0 30  2218  4426          LDL   COLON       REMRT
2478  1812  888 1 29  0000  2804  1       LDA3  0000
2479  2804  888 0 70  4424  2027          ADD   LIT5
2480  2027  888 1 64  0000  4106          STA3  0000        BIN&
2481  4102  888 1 29  0000  3004  UN-     LDA3  0000                  8o. NEGATION OP
2482  3004  888 0 70  4424  2227          ADD   LIT5
2483  2227  888 1 64  0000  4215          STA3  0000        OPX
2484  4106  888 0 08  1100  0373  BIN&    LIR1  A0000       ARITH       88. ADDITION OP
2485  1100  888 0 08  1000  0199  A0000   LIR1  Q0000       BINS8
2486  1101  888 0 25  1903  0305  A0001   LDA               BINER
2487  1903  888 0 07  0500  0000          CON   07050       00000           I&A ERR
- 2488  1102  888 0 25  0304  0305  A0002   LDA               BINER
2489  0304  888 0 06  0500  0000          CON   06050       00000           A&I ERR
- 2490  0305  888 0 30  1814  4514  BINER   LDL   ANSL        ALARM
2491  1103  888 0 25  4417  1919  A0003   LDA   RATOR
2492  1919  888 0 70  2121  000A          ADD               RA
2493  2121  888 0 25  0001  2605          LDA   0001
2494  2605  888 0 30  2009  2011          LDL   0ARA%
2495  2011  888 0 82  2214  2414          TEQ   2F
2496  2414  888 0 30  1816  2418          LDL   0ARA*
2497  2418  888 0 82  2214  2421          TEQ   2F          -ADD
2498  2421  888 1 29  9999  1801  -ADD    LDA3  9999
2499  1801  888 0 30  1051  0853          LDL   CONO
2500  0853  888 0 82  0856  1056          TEQ   ANSR
2501  1056  888 0 08  1030  0800          LIR1  Q0030       BINOP
2502  0856  888 1 29  0000  2805  ANSR    LDA3  0000                  ANSR MEANS   R EQUALS  L OP R
2503  2805  888 1 64  9999  2001          STA3  9999
2504  2001  888 1 0G  0000  3005          IIR3  0000
2505  3005  888 0 30  2243  2845          LDL   ACC
2506  2845  888 0 82  1648  1248          TEQ               DOCK3
2507  1648  888 1 0G  9999  2852          IIR3  9999
2508  2852  888 0 60  2243  4215          STA   ACC         OPX
2509  2214  888 1 29  0000  1606  2       LDA3  0000
2510  1606  888 0 06  2409  2409          CLX
2511  2409  888 0 32  0100  1413          SHR   0100
2512  1413  888 0 37  0700  2623          SHL   0700
2513  2623  888 0 70  000A  2421          ADD   RA          -ADD
2514  2422  888 0 07  HHHH  2025  &ADD     IIR   HHHH
2515  2025  888 1 39  0000  1806          ERS3  0000
2516  1806  888 0 70  2609  000A          ADD               RA
2517  2609  888 0 30  0001  2006          LDL   0001
2518  2006  888 0 26  2809  2809          CLA
2519  2809  888 0 75  000C  2614          SUB   RX
2520  2614  888 0 36  2017  2017          CAA
2521  2017  888 0 20  000B  1621          BUF   RL
2522  1621  888 0 77  1621  2024          ATL
2523  2024  888 0 25  4095  1047          LDA   KON2
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2524   1047  BBB 0 87  1850  2050          TGR  1F
2525   2050  BBB 1 25  9999  2401          LDA2 9999
2526   2401  BBB 0 20  4424  2026          BUF  LIT5
2527   2026  BBB 1 60  9999  1850          STA2 9999      1F
2528   1850  BBB 1 85  9998  0275  1       MUL2 9998
2529   0275  BBB 1 25  9999  2601          LDA2 9999
2530   2601  BBB 0 70  000C  2406          ADD  RX
2531   2406  BBB 1 60  9999  1814          STA2 9999      ANSL
2532                                       HHH
2533   4111  BBB 0 30  1913  4044  SIGN*    LDL            SCAN      B11.ASTERISK
2534   1913  BBB 0 30  1915  2517          LDL  0*
2535   2517  BBB 0 82  1120  2120          TEQ  SGN**     &FNC1
2536   2120  BBB 0 07  1054  4710  &FNC1    IIR  T0004     DIVT2
2537   4112  BBB 0 08  1104  0373  BIN*     LIR1 A0004     ARITH     B12.MULTIPLY
2538   1104  BBB 0 08  1004  0199  A0004    LIR1 Q0004     BINSB
2539   1105  BBB 0 25  2107  0305  A0005    LDA            BINER
2540   2107  BBB 0 11  1310  0905          CON  11131     00905          FLOATING SUBSCRIPT OR I*A ERROR
2541   1106  BBB 0 25  2108  0305  A0006    LDA            BINER
2542   2108  BBB 0 08  0500  0000          CON  08050     00000          A*I ERR
2543   1107  BBB 1 29  0000  2606  A0007    LDA3 0000
2544   2606  BBB 0 30  1051  1853          LDL  CON0
2545   1853  BBB 0 82  0856  1856          TEQ  ANSR      KON*E
2547   4101  BBB 0 05  2103  4428  SIGN%    LDX  OLPRN     -OP3      B15.LEFT PARENTHESIS
2548   4113  BBB 0 07  HHHH  0516  SIGN.    IIR  HHHH
2549   0516  BBB 1 35  0000  000A          ERS2 0000      RA
2550   4114  BBB 1 25  0000  2806  SIGN$    LDA2 0000
2551   2806  BBB 0 35  4724  2226          ERS  XC
2554   2226  BBB 0 37  0400  000A          SHL  0400      RA
2555   4115  BBB 0 08  1108  0373  SIGN/    LIR1 A0008     ARITH     B18.DIVISION
2556   1108  BBB 0 08  1008  0199  A0008    LIR1 Q0008     BINSB
2557   1109  BBB 0 25  0311  0305  A0009    LDA            BINER
2558   0311  BBB 0 16  0500  0000          CON  16050     00000          I/A ERR
2559   1110  BBB 0 25  0312  0305  A0010    LDA            BINER
2560   0312  BBB 0 15  0500  0000          CON  15050     00000          A/I ERR
2561   1111  BBB 0 08  1012  0199  A0011    LIR1 Q0012     BINSB
2562   1120  BBB 0 05  0922  4428  SGN**    LDX  OBN**     -OP3
2563   4116  BBB 0 08  1112  0373  BIN**    LIR1 A0012     ARITH     B20.EXPONENTIATION
2564   1112  BBB 0 08  1016  0199  A0012    LIR1 Q0016     BINSB
2565   1113  BBB 0 25  2115  0305  A0013    LDA            BINER
2566   2115  BBB 0 17  0500  0000          CON  17050     00000          I**A ERR
2567   1114  BBB 0 08  1020  2717  A0014    LIR1 Q0020     1F
- 2568   1115  BBB 0 08  1025  2717  A0015    LIR1 Q0025     1F
2569   2717  BBB 1 29  0000  3006  1        LDA3 0000
2570   3006  BBB 0 30  3009  2411          LDL  CON2
2571   2411  BBB 0 82  2814  0199          TEQ  SQUAR     BINSB
2572   4162  BBB 0 08  1038  0965  BLAND    LIR1 Q0038     1F        B22.AND,OR
- 2573   4163  BBB 0 08  1042  0965  BOR      LIR1 Q0042     1F
2574   0965  BBB 0 05  4756  1610  1        LDX  BIG02
2575   1610  BBB 0 65  0860  0800          STX  OTYPE     BINOP
2576   4107  BBB 0 30  2109  4044  WDIF     LDL            SCAN      B25.WORD IF
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2577  2109  888 0 30  4221  0523          LDL  LPREN
2578  0523  888 0 82  0326  0526          TEQ                MLP
2579  0326  888 0 05  1406  4428          LDX  OIF%          -OP3
2580  4108  888 1 0G  0001  0512  IF%     IIR3  0001                          826.IF-LEFT-PAREN
2581  0512  888 0 30  1051  2053          LDL  CON0
2582  2053  888 1 54  0000  2218          STL3  0000         COLON
2583  2218  888 1 07  0001  2622  COLON    IIR2  0001
2584  2622  888 0 25  2224  2426          LDA  IFMD
2585  2426  888 1 60  0000  1810          STA2  0000         EXPL            827.FINISH IF-STATEMENT
2586  1810  888 0 30  4140  0642  EXPL     LDL  NORMX         EXPL8
2587  0642  888 0 25  0244  1246  EXPL8    LDA  LEXP
2588  1246  888 0 60  4206  000B          STA  LES#          RL
2589  0589  888 0 30  1810  2012  IF.      LDL  EXPL          DOIF
2590  2012  888 1 25  0000  2010  DOIF     LDA2  0000
2591  2010  888 0 70  2212  2015          ADD  BIG40         -IF1
2592  2016  888 0 25  2618  0336  &IF1     LDA                NOMAL
2593  2618  888 0 18  0020  0000          CON  18002         00000                EXTRA COMMA
2594  2015  888 1 60  0000  000B  -IF1     STA2  0000         RL
2595  0195  888 1 25  0000  2410  IF$      LDA2  0000
2596  2410  888 0 70  2212  2215          ADD  BIG40         -IF2
2597  2215  888 0 30  2216  2818  -IF2     LDL  &IF2          MCAL
2598  2818  888 0 25  1820  4514  MCAL     LDA                ALARM
2599  1820  888 0 32  2000  0000          CON  32200         00000                MISSING COMMA
2600  2216  888 1 29  9996  0198  &IF2     LDA3  9996
2601  0198  888 0 37  0900  2610          SHL  0900
2602  2610  888 0 70  000A  2415          ADD  RA            -IF3
2603  2416  888 1 34  0000  3052  &IF3     LDL3  0000                 +50
2604  3052  888 1 29  9998  2250          LDA3  9998                 +50
2605  2250  888 1 64  0000  2253          STA3  0000                 +50
2606  2253  888 1 54  9998  2810          STL3  9998         1F      +02
2607  2415  888 1 29  0000  2810  -IF3     LDA3  0000         1F
2608  2810  888 1 34  9999  2801  1       LDL3  9999
2609  2801  888 0 82  3010  2611          TEQ  5F
2610  2611  888 1 34  9998  1400          LDL3  9998
2611  1400  888 0 82  2811  3011          TEQ  3F
2612  3011  888 1 29  9999  3001          LDA3  9999
2613  3001  888 0 82  2412  2612          TEQ  4F
2614  2612  888 0 05  3014  2616          LDX  C345          1F
2615  2412  888 0 05  1615  2616  4       LDX  C3#4          1F
2616  2811  888 0 05  1613  2616  3       LDX  C3#5          1F
2617  3010  888 0 05  0115  2616  5       LDX  C4#5          1F
2618  2616  888 1 0G  9997  2020  1       IIR3  9997
2619  2020  888 0 30  2822  1617          LDL  D1M$          BINAL
2620  2220  888 0 30  3022  2424  UAS#     LDL  DUA           1F
2621  1821  888 0 30  3022  2424  MISUB    LDL  DUA           1F
2622  2424  888 0 25  2626  1628  1       LDA                PANIC
2623  2626  888 0 32  1300  0000          CON  32130         00000                MISSING SUBSCRIPT
2624  0526  888 0 60  4834  0536  MLP     STA  DSAVE         1F
2625  0536  888 0 30  033B  0340  1       LDL  1F
2626  0340  888 0 25  0942  4514          LDA                ALARM
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2627   0942  BBB 0 32  2425  0000                CON  32242   50000        MISSING LEFT PARENTHESIS
2628   0338  BBB 0 07  1066  4698   1            IIR  T0016   DIVRT
2629   1629  BBB 0 30  1831  1633   MRP          LDL  1F
2630   1633  BBB 0 25  0635  4514                LDA          ALARM
2631   0635  BBB 0 32  2200  2500                CON  32220   02500        MISSING RIGHT     PARENTHESIS
2632   1831  BBB 0 07  1063  4698   1            IIR  T0013   DIVRT
2633                                BINOP                                 889.GENERATE MACHINE OP
2643                                BINSB                                 890.GENERATE LIBRARY REF
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2652   4217  BBB 0 30  2219  4044   ARRAY   LDL            SCAN      A.  PROCESSING OF ARRAY SUBSCRIPTS
2653   2219  BBB 0 30  4221  2823           LDL  LPREN
2654   2823  BBB 0 82  2826  2220           TEQ            UASW
2655   2826  BBB 0 07  1050  4086           IIR  T0000     DIVT1
2656   4110  BBB 0 07  HHHH  2113   TARA%   IIR   HHHH                A1. IS LEFT PAREN NEXT
2657   2113  BBB 1 39  0000  2812           ERS3  0000
2658   2812  BBB 1 60  0001  3012           STA2  0001
2659   3012  BBB 0 25  4016  3018           LDA  LIT1
2660   3018  BBB 1 60  0002  1813           STA2  0002
2661   1813  BBB 0 25  1815  2217           LDA  FOR9S
2663   2217  BBB 1 60  0003  2013           STA2  0003
2664   2013  BBB 0 30  2615  2417           LDL  ARAMD                A2. SET ARRAY MODE
2665   2417  BBB 0 05  2009  4235           LDX  OARA%     MDOP
2672                                                                  A3. EMIT % 0 +
2678   0478  BBB 1 29  0000  2213   INDEX   LDA3  0000                A10.CHECK INDEX.
2679   2213  BBB 0 30  4431  1833           LDL  BIG21
2680   1833  BBB 0 82  0636  000C           TEQ            RX
2681   0636  BBB 1 30  9999  2413           LDL2  9999
2682   2413  BBB 0 25  2815  2617           LDA# 04997     00000
2683   2617  BBB 0 87  000C  2420           TGR  RX
2684   2420  BBB 0 25  3023  2225           LDA  XMC
2685   2225  BBB 1 35  9996  0398           ERS2  9996
2686   0398  BBB 0 30  1600  2613           LDL  FCMD
2687   2613  BBB 0 82  000C  2816           TEQ  RX
2688   2816  BBB 1 25  9999  2813           LDA2  9999
2689   2813  BBB 0 20  3015  2817           BUF# 00000     04000
2690   2817  BBB 1 60  9999  3013           STA2  9999
2691   3013  BBB 0 25  1051  2453           LDA  CONO
2692   2453  BBB 1 64  0000  000C           STA3  0000     RX
2693   0493  BBB 1 25  9999  3016   PNSUB   LDA2  9999                A11.POTENTIAL NEGATIVITY
2694   3016  BBB 0 37  0900  1828           SHL   0900
2695   1828  BBB 0 70  000A  2033           ADD  RA        -PN
2696   2034  BBB 0 30  1051  2653   &PN     LDL  CONO
2697   2653  BBB 1 29  0000  3017           LDA3  0000
2698   3017  BBB 0 82  2620  2820           TEQ  2F
2699   2820  BBB 0 30  4431  2233           LDL  BIG21
2700   2233  BBB 0 82  2620  0836           TEQ  2F
2701   0836  BBB 0 25  4016  0468           LDA  LIT1
2702   0468  BBB 1 20  9999  2419           BUF2  9999     1F
2703   2620  BBB 1 25  9999  2419   2       LDA2  9999     1F
2704   2419  BBB 0 35  2021  2624   1       ERS# HHHHH     HHHHC
2705   2624  BBB 1 60  9999  000C           STA2  9999     RX
2706   2033  BBB 0 00  000C  000C   -PN     JMP  RX
2707   2307  BBB 0 25  4417  2319   ARA.    LDA  RATOR
2708   2319  BBB 0 70  2321  000A           ADD            RA
2709   2321  BBB 0 30  0001  2619           LDL   0001
2710   2619  BBB 0 25  2009  2819           LDA  OARA%
2711   2819  BBB 0 82  2824  3024           TEQ            1F     +02
- 2712  2824  BBB 0 05  3024  0478           LDX  1F        INDEX
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2713   3024  BBB 0 05  3026  0493   1        LDX            PNSUB
2714   3026  BBB 0 07  0001  1829            IIR   0001                A12.ADJUST MULTIPLIER
2715   1829  BBB 1 70  9997  1800            ADD2  9997
2716   1800  BBB 1 60  9997  0399            STA2  9997
2717   0399  BBB 0 70  3019  000A            ADD            RA
2718   3019  BBB 0 25  0001  3020            LDA   0001
2719   3020  BBB 0 77  3020  2425            ATL
2720   2425  BBB 0 35  0043  3045            ERS   XM
2721   3045  BBB 0 82  1848  2048            TEQ   1F
2722   2048  BBB 0 30  2450  2853            LDL   2F
2723   2853  BBB 0 25  2055  4514            LDA            ALARM
2724   2055  BBB 0 18  0013  0000            CON   18001    30000          EXTRA SUBSCRIPT
2725   1848  BBB 0 20  2650  3053   1        BUF#  01000    05000      A13.EMIT  + N ( O +
2726   3053  BBB 0 60  1058  1260            STA   T0008
2727   1260  BBB 0 25  000B  0064            LDA   RL
2728   0064  BBB 0 70  0266  000A            ADD            RA
2729   0266  BBB 0 30  0001  2221            LDL   0001
2730   2221  BBB 1 85  9998  0475            MUL2  9998
2731   0475  BBB 0 30  000C  0279            LDL   RX
2732   0279  BBB 0 32  0400  2286            SHR   0400
2733   2286  BBB 1 65  9998  2000            STX2  9998
2734   2000  BBB 1 25  9999  2621            LDA2  9999
2735   2621  BBB 0 75  000B  2427            SUB   RL
2736   2427  BBB 1 60  9999  2450            STA2  9999     2F
2737   2450  BBB 0 07  1057  4698   2        IIR   T0007    DIVRT
2738   0538  BBB 0 05  4112  0493   ARA*     LDX   BIN*     PNSUB
2739   1139  BBB 0 05  0541  0478   ARA*     LDX            INDEX      A20.INDEXING.NEGATIVITY
2740   0541  BBB 0 05  0143  0493            LDX            PNSUB
2741   0143  BBB 1 29  0000  2821            LDA3  0000
2742   1821  BBB 0 35  4740  1242            ERS   X1
2743   1242  BBB 0 70  4225  0678            ADD   BIG99    -CHFL
2744   0678  BBB 0 30  0679  2081   -CHFL    LDL   &CHFL                A21.CHECK FIXED POINT
2745   2081  BBB 0 25  0683  4514            LDA            ALARM
2746   0683  BBB 0 11  1300  0000            CON   11130    00000          FLOATING SUBSCRIPT
2747   0679  BBB 0 05  2281  0883   &CHFL    LDX   1F       MAGET      A22.COMPUTE SUBSCRIPT
2748   0883  BBB 1 29  0000  3021   MAGET    LDA3  0000
2749   3021  BBB 0 35  2625  2627            ERS#  C0000    00005
2750   2627  BBB 0 77  2627  0430            ATL
2751   0430  BBB 0 37  0900  1642            SHL   0900
2752   1642  BBB 0 20  000B  1646            BUF   RL
2753   1646  BBB 0 70  0355  0758            ADD   BIG87    -MAG
2754   0759  BBB 0 30  000C  0363   &MAG     LDL   RX       GET
2755   0758  BBB 0 00  000C  000C   -MAG     JMP   RX
2756   2281  BBB 1 25  9996  0598   1        LDA2  9996                 A23.EQUIVALENCE DECL.
2757   0598  BBB 0 30  2400  2825            LDL   EQUMD
2758   2825  BBB 0 82  2028  2228            TEQ   AEQU
2759   2228  BBB 1 29  9999  3025            LDA3  9999
2760   3025  BBB 0 30  2827  2029            LDL   7F                   A24.WHAT TYPE ARRAY
2761   2029  BBB 0 05  2031  4744            LDX            ASIGN
2762   2031  BBB 0 07  HHHH  0434            IIR   HHHH
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2763  0434  888 0 35  0008  0638          ERS  RL
2764  0638  888 1 70  9999  3027          ADD2  9999
2765  3027  888 1 60  9999  2428          STA2  9999
2766  2428  888 0 25  0008  0432          LDA  RL
2767  0432  888 0 35  4740  1842          ERS  X1
2768  1842  888 0 60  4209  0861          STA  TEMP2
2769  0861  888 0 06  0264  0264          CLX
2770  0264  888 0 32  0400  0271          SHR   0400
2771  0271  888 0 70  0273  000A          ADD              RA
2772  0273  888 0 30  4195  0697          LDL  STORE
2773  0697  888 1 25  9999  2628          LDA2  9999
2774  2628  888 0 75  4623  0676          SUB  BIG05
2775  0676  888 0 70  4209  0712          ADD  TEMP2
2776  0712  888 0 87  2315  2515          TGR  6F
2777  2515  888 0 30  4209  0361          LDL  TEMP2
2778  0361  888 0 70  4298  2828          ADD  KON30                  CHECK IF BASE LESS THAN -30
2779  2828  888 0 87  2231  2315          TGR              6F
2780  2231  888 0 37  0900  0444          SHL   0900
2781  0444  888 0 87  2315  1247          TGR  6F
2782  1247  888 1 29  0000  3028          LDA3  0000
2783  3028  888 0 30  1051  0854          LDL  CON0
2784  0854  888 0 82  2257  2457          TEQ  5F
2785  2457  888 1 25  9999  2229          LDA2  9999                  A25.CODE 3SLLLL1000
2786  2229  888 0 35  3023  2429          ERS  XMC
2787  2429  888 0 20  4209  1861          BUF  TEMP2
2788  1861  888 0 20  4247  1899          BUF  BIG30       9F
2789  2315  888 0 25  4209  0561     6    LDA  TEMP2
2790  0561  888 0 06  0164  0164          CLX                         A26.CODE 2B8888S000
2791  0164  888 0 32  0500  0772          SHR   0500
2792  0772  888 0 20  1178  0780          BUF  BIG20       8F
2793  2827  888 0 25  0008  2431     7    LDA  RL
2794  2431  888 0 32  0400  0838          SHR   0400
2795  0838  888 0 35  4724  0876          ERS  XC                     A27.CODE 1B8888PPPP
2796  0876  888 0 20  4974  0780          BUF  BIG10       8F
2797  0780  888 0 77  0780  1183     8    ATL
2798  1183  888 1 25  9999  2629          LDA2  9999
2799  2629  888 0 37  0500  0637          SHL   0500
2800  0637  888 0 35  4740  2042          ERS  X1
2801  2042  888 1 70  9999  2829          ADD2  9999
2802  2829  888 0 35  4741  0644          ERS  XMH
2803  0644  888 0 20  0008  1899          BUF  RL          9F
2804  1899  888 0 06  0502  0502     9    CLX  6F
2805  2257  888 0 07  HHHH  1860     5    IIR   HHHH                  A28.CODE AS SIMPLE VAR.
2806  1860  888 1 35  9999  3029          ERS2  9999
2807  3029  888 0 20  4209  2061          BUF  TEMP2
2808  2061  888 1 64  0000  0830          STA3  0000
2809  0830  888 1 25  9999  0830          LDA2  9999
2810  0830  888 0 37  0200  0835          SHL   0200
2811  0835  888 0 35  1237  0439          ERS  X49
2812  0439  888 0 20  2041  0844          BUF  BIG09
```

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2813   0844  BBB 0 05  000A  0502          LDX   RA        6F
2814   0502  BBB 0 60  4209  0511   6      STA   TEMP2                A29.MOVE SUBSCRIPT
2815   0511  BBB 0 65  4420  1122          STX   TEMP3
2817   1122  BBB 0 29  0001  1230          LDA1  0001
2825   1230  BBB 0 37  0400  1637          SHL   0400
2826   1637  BBB 0 35  0043  1846          ERS   XM
2827   1846  BBB 0 70  2248  000A          ADD             RA
2828   2248  BBB 0 25  0001  1630          LDA   0001
2829   1630  BBB 1 09  0000  1830          LDX3  0000
2830   1830  BBB 0 30  0632  0634          LDL             INS2
2831   0632  BBB 1 0G  0000  1236          IIR3  0000
2832   1236  BBB 0 30  2243  2046          LDL   ACC
2833   2046  BBB 0 82  0849  1049          TEQ             1F
2834   0849  BBB 0 25  0851  1854          LDA   ARAS
2835   1854  BBB 0 60  2243  1049          STA   ACC       1F
2836   1049  BBB 0 25  4209  2261   1      LDA   TEMP2
2837   2261  BBB 0 05  4420  0272          LDX   TEMP3
2838   0272  BBB 0 30  0074  0634          LDL             INS2
2839   0074  BBB 0 25  000C  0878          LDA   RX
2840   0878  BBB 0 70  4301  0504          ADD   BIG90     -AR2
2841   0634  BBB 0 0B  0851  4445   INS2   LIR1  ARAS      INS
2842   0505  BBB 0 30  4247  0349   &AR2   LDL   BIG30     1F
2843   0504  BBB 0 31  0349  0349   -AR2   CLL   1F
2844   0349  BBB 1 0G  9999  0353   1      IIR3  9999
2845   0353  BBB 1 29  0000  2030          LDA3  0000
2846   2030  BBB 0 35  4740  2242          ERS   X1
2847   2242  BBB 0 20  000B  2246          BUF   RL
2848   2246  BBB 0 20  0851  2054          BUF   ARAS
2849   2054  BBB 1 64  0000  2230          STA3  0000
2850   2230  BBB 1 07  9996  4140          IIR2  9996      NORMX
2851                                ARAS   EQU   MRP
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                                                                                U.  UNARY OPERATORS AND SPECIAL GENERATORS
4117  BBB 0 30  2519  2521   SIGN#   LDL  LDLON   1F
2056  BBB 0 30  2519  2521   #OFF    LDL  LDLON   1F          U1. EQUALS SIGN
2521  BBB 0 50  4118  0170   1       STL  BIN:#
0170  BBB 0 05  0972  4428           LDX  OBIN#   -OP3
4118  BBB 0 67  4118  4118   BIN:#   HLT          *
2519  BBB 0 0B  1116  0373   LDLON   LIR1 A0016   ARITH
1116  BBB 0 0B  1732  2719   A0016   LIR1 J0032   1F
1118  BBB 0 05  1920  1922   A0018   LDX  FIXA    2F
1117  BBB 0 05  2919  1922   A0017   LDX  FLOTA   2F          U2. REPLACEMENT SETUP.
1119  BBB 0 0B  1732  2719   A0019   LIR1 J0032   1F
2719  BBB 1 29  9999  2430   1       LDA3  9999
2430  BBB 0 70  4301  2254           ADD  BIG90   -INRA
2254  BBB 0 07  4092  2657   -INRA   IIR   4092
2657  BBB 0 30  4417  0269           LDL  RATOR
0269  BBB 0 82  0472  2255           TEQ          &INRA
0472  BBB 0 30  1300  0702           LDL  TRCOF
0702  BBB 0 25  1307  2309           LDA  TRCSW
2309  BBB 0 82  0912  2255           TEQ          &INRA
0912  BBB 0 30  1914  0363           LDL          GET
1914  BBB 1 0G  9999  0318           IIR3  9999
0318  BBB 0 25  1395  0397           LDA  I0095
0397  BBB 0 30  0599  4350           LDL  7F      ASM2
2255  BBB 1 09  0000  2630   &INRA   LDX3  0000
2630  BBB 0 32  0100  0834           SHR   0100
0834  BBB 0 70  000A  0639           ADD  RA      -RE
0640  BBB 0 0B  1728  1244   &RE     LIR1 J0028
1244  BBB 0 30  2446  0442           LDL          UNOP3
2446  BBB 0 30  2448  0319           LDL  3F      ATL
1922  BBB 0 0B  1724  0639   2       LIR1 J0024   -RE
0639  BBB 0 30  2448  0442   -RE     LDL  3F      UNOP3
2448  BBB 1 0G  9999  2454   3       IIR3  9999   LDLOF
2454  BBB 1 29  0000  2830   LDLOF   LDA3  0000               U4. REPLACEMENT OPERATOR
2830  BBB 0 70  4603  2856           ADD  BIG60   -EEE
2857  BBB 0 30  2856  4799   &EEE    LDL  -EEE    EEE
2856  BBB 0 30  0599  3030   -EEE    LDL  7F      ASMTR
0599  BBB 0 30  2454  2256   7       LDL  LDLOF
2256  BBB 0 50  4118  0070           STL  BIN:#
0070  BBB 1 0G  9999  4215           IIR3  9999   OPX
3030  BBB 0 05  1232  1234   ASMTR   LDX  TRACE
1234  BBB 0 25  1636  0173           LDA  CTRC    ASM1
4155  BBB 0 05  1920  2122   FIXF    LDX  FIXA                U10.UNARY OPERATORS
2122  BBB 0 31  1325  1325           CLL
1325  BBB 0 25  4408  0760           LDA  BIG01
0760  BBB 0 60  0860  1262           STA  OTYPE   2F
4125  BBB 0 05  1127  0729   EXPF    LDX  EXP     1F
4120  BBB 0 05  2322  0729   SINF    LDX  SIN     1F
4121  BBB 0 05  0723  0729   COSF    LDX  COS     1F
4122  BBB 0 05  0924  0729   TANF    LDX  TAN     1F
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4123  BBB 0 05  1925  0729   ATANF   LDX  ATAN     1F
4124  BBB 0 05  0726  0729   LNF     LDX  LN       1F
4119  BBB 0 05  2721  0729   SQRTF   LDX  SQRT     1F
0729  BBB 0 31  1332  1332   1       CLL
1332  BBB 0 50  0860  1262           STL  OTYPE    2F
1262  BBB 1 29  0000  2631   2       LDA3 0000
2631  BBB 0 35  4740  2442           ERS  X1
2442  BBB 0 82  2646  2846           TEQ  1F       2F
4154  BBB 0 05  2919  2921   FLOTF   LDX  FLOTA
2921  BBB 0 31  1124  1124           CLL
1124  BBB 1 29  0000  2831           LDA3 0000
2831  BBB 0 35  4740  2642           ERS  X1
2642  BBB 0 82  4140  3046           TEQ  NORMX    5F
4161  BBB 0 05  0563  1365   BCOMP   LDX  COMPL
1365  BBB 0 30  4756  3046           LDL  BIG02    5F
3046  BBB 0 50  0860  2646   5       STL  OTYPE    1F
2646  BBB 0 0B  1724  1841   1       LIR1 J0024    UNOP
2846  BBB 0 25  2648  0336   2       LDA           NOMAL
2648  BBB 0 34  0500  0000           CON  34050    00000          F(I) ERR
4126  BBB 0 0B  1736  0929   ABSF    LIR1 J0036    1F
2814  BBB 1 0G  9999  3031   SQUAR   IIR3 9999
3031  BBB 0 09  0004  1632           LDX1 0004     2F
4141  BBB 0 05  0343  0145   WDPOZ   LDX  PAUSF    3F
4142  BBB 0 05  0744  0145   WDSTP   LDX  STOPF    3F
0145  BBB 1 07  0001  0549   3       IIR2 0001
0549  BBB 0 30  0351  0553           LDL  POZMD
0553  BBB 1 50  0000  1632           STL2 0000     2F
1130  BBB 1 0B  1190  1133   POZ$    LIR3 RAND     BOOL$
1632  BBB 0 0B  1724  0929   2       LIR1 J0024    1F
0929  BBB 1 29  0000  1832   1       LDA3 0000
1832  BBB 0 35  4740  2842           ERS  X1
2842  BBB 0 60  0860  1841           STA  OTYPE    UNOP
4127  BBB 0 30  1129  0731   OPO     LDL  1F                      THIS OPERATOR IS PERMANENTLY ON THE BOTTOM
0731  BBB 0 25  1333  4514           LDA           ALARM          OF THE OPERATOR STACK,IS ACTIVE ONLY ON AN
1333  BBB 0 18  0022  0025           CON  18002    20025          EXTRA RIGHT PARENTHESIS
1129  BBB 0 05  4093  4428   1       LDX  OOPO     -OP3
                             NO,     EQU  &IF1
                             POZ,    EQU  NO,
0336  BBB 0 30  4140  4514   NOMAL   LDL  NORMX    ALARM
1133  BBB 1 07  9999  4114   BOOL$   IIR2 9999     SIGN$
0543  BBB 0 30  4417  0169   NO$     LDL  RATOR                U12.END OF STATEMENT
0169  BBB 0 07  4092  1372           IIR  4092
1372  BBB 0 82  0575  1629           TEQ  4F       MRP
0575  BBB 0 25  1051  2654   4       LDA  CONO
2654  BBB 1 64  0000  2032           STA3 0000
2032  BBB 1 0G  0000  1836           IIR3 0000
1836  BBB 0 30  1238  0040           LDL  CRAND
0040  BBB 0 82  1644  1844           TEQ  1F
1844  BBB 0 87  1647  1847           TGR  2F
1847  BBB 1 0G  0001  1851           IIR3 0001
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need - entries.

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2953   1851  BBB 0 25  2854  2456          LDA          5F
2954   2854  BBB 0 32  2800  0000          CON  32280   00000        MISSING OPERAND
2955   1647  BBB 1 0G  9999  2051   2      IIR3  9999
2956   2051  BBB 0 25  3054  2456          LDA          5F
2957   3054  BBB 0 18  0028  0000          CON  18002   80000        EXTRA OPERAND
2958   2456  BBB 0 30  0575  4514   5      LDL  4B      ALARM
2959   1644  BBB 0 05  2047  1249   1      LDX  1F
2960   1249  BBB 0 0B  0851  2455          LIR1 ARAS
2961   2455  BBB 0 30  0543  4229          LDL  NO$     REM
2962   2047  BBB 0 60  2243  4140   1      STA  ACC     NORMX
2963   1238  BBB 0 00  1190  0000   CRAND  JMP  RAND    0000
2964   0363  BBB 0 50  1819  2232   GET    STL  &SAC                 SUBROUTINE TO BRING OPERAND INTO REGISTER A
2965   2232  BBB 1 09  0000  2432          LDX3  0000
2966   2432  BBB 0 32  0100  2036          SHR   0100
2967   2036  BBB 0 70  000A  3041          ADD  RA      -GET
2968   3042  BBB 0 0B  1728  2247   &GET   LIR1 J0028   1F
2969   3041  BBB 0 0B  1724  2247   -GET   LIR1 J0024   1F
2970   2247  BBB 0 25  4740  0292   1      LDA  X1
2971   0292  BBB 1 39  0000  2632          ERS3  0000
2972   2632  BBB 0 60  0860  1862          STA  OTYPE
2973   1862  BBB 0 32  0900  0274          SHR   0900
2974   0274  BBB 0 06  2645  2645          CLX  UNOP2
2975   4131  BBB 0 30  1933  0642   WDGO   LDL          EXPLB     U13. WORD 'GO'
2976   1933  BBB 0 30  0335  4044          LDL          SCAN
2977   0335  BBB 0 30  4221  0573          LDL  LPREN
2978   0573  BBB 0 82  1176  1776          TEQ  1F
2979   1776  BBB 0 30  4974  2832          LDL  BIG10
2980   2832  BBB 0 87  1235  1635          TGR          2F
2981   1235  BBB 0 30  1837  0089          LDL          LSW
2982   1837  BBB 0 30  4140  4736          LDL  NORMX   GOTO
2983   1635  BBB 1 64  0001  3032   2      STA3  0001
2984   3032  BBB 0 25  1634  2236          LDA  DOTAG
2985   2236  BBB 0 31  0839  0839          CLL
2986   0839  BBB 0 82  2044  2244          TEQ          2F
2987   2044  BBB 0 25  4824  1276          LDA  DOVAR
2988   1276  BBB 1 64  0002  2433          STA3  0002
2989   2433  BBB 0 25  1835  2037          LDA          3F
2990   1835  BBB 0 88  7989  0000          CON  88798   90000        IIR10 STA3 JMP2
2991   2244  BBB 0 25  2447  2037   2      LDA          3F
2992   2447  BBB 0 89  0000  0000          CON  89000   00000        JMP2
2993   2037  BBB 0 30  1239  0377   3      LDL          ASM11
2994   1239  BBB 1 0G  0001  2444          IIR3  0001
2995   2444  BBB 0 26  2647  2647          CLA
2996   2647  BBB 0 30  4151  4486          LDL  WDDIM   FILUP
2997   1176  BBB 1 07  0002  0980   1      IIR2  0002
2998   0980  BBB 0 05  0582  4927          LDX          INCUQ
2999   0582  BBB 1 50  9999  2633          STL2  9999
3000   2633  BBB 0 30  2035  0642          LDL          EXPLB
3001   2035  BBB 0 30  2237  1639          LDL  GOMD
3002   1639  BBB 0 05  2241  4238          LDX  OGO%    MDOP1
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3003   2833  BBB 0 30  2235  0642   GO'     LDL  1F       EXPLB
3004   2235  BBB 0 05  0089  0491   1       LDX  LSW
3005   0491  BBB 0 30  4140  1142           LDL  NORMX    GOSUB
3006   1142  BBB 0 50  4926  1778   GOSUB   STL  EXIT3
3007   1778  BBB 1 0G  9999  0782           IIR3  9999
3008   0782  BBB 1 29  0001  3033           LDA3  0001
3009   3033  BBB 0 30  2435  000C           LDL           RX
3010   2435  BBB 0 35  0043  2847           ERS  XM
3011   2847  BBB 0 60  4209  2461           STA  TEMP2
3012   2461  BBB 0 05  0663  4927           LDX           INCUQ
3013   0663  BBB 0 25  0008  1267           LDA  RL
3014   1267  BBB 0 30  4756  2308           LDL  BIG02
3015   2308  BBB 0 05  4926  4494           LDX  EXIT3    ASM42
3016   4128  BBB 0 30  1330  4044   GO%     LDL           SCAN
3017   1330  BBB 0 30  1074  1876           LDL  '
3018   1876  BBB 0 82  2235  0479           TEQ  1B
3019   0479  BBB 0 30  2235  2818           LDL  1B       MCAL
3020   1834  BBB 0 30  2436  0363   GO$     LDL           GET        U14.END COMPUTED GO.
3021   2436  BBB 0 25  1638  0240           LDA# 78770    60000         ADDOA JMP UZACC
3022   0240  BBB 0 30  2644  0377           LDL           ASM11
3023   2644  BBB 1 25  9999  2234           LDA2  9999
3024   2234  BBB 0 60  4880  0682           STA  NXLOC
3025   0682  BBB 0 30  0484  4736           LDL           GOTO
3026   0484  BBB 1 07  9998  0488           IIR2  9998
3027   0488  BBB 1 0G  9999  4114           IIR3  9999    SIGN$
3028   4130  BBB 0 30  1932  0642   ASS1    LDL           EXPLB      U17.WORD 'ASSIGN'
3029   1932  BBB 0 05  1134  4428           LDX           -OP3
3030   1134  BBB 0 75  0736  0000           SUB  ASS2      0000
3031   0736  BBB 0 25  4196  0148   ASS2    LDA  UNIQU
3032   0148  BBB 0 70  0550  0753           ADD  BIG29                U18. ASSIGN OP
3033   0753  BBB 0 30  0555  4357           LDL           ASM33
3034   0555  BBB 1 0G  9999  0959           IIR3  9999
3035   0959  BBB 0 05  0108  0910           LDX  LSWOF
3036   0910  BBB 0 30  1912  1142           LDL           GOSUB
3037   1912  BBB 1 0G  0002  0716           IIR3  0002
3038   0716  BBB 0 30  0518  3030           LDL           ASMTR
3039   0518  BBB 1 0G  9998  4215           IIR3  9998    OPX
3040   4151  BBB 0 30  1353  0755   WDDIM   LDL  DIMMD    INSMD      U21.'DIMENSION'
3041   0755  BBB 1 07  0001  1359   INSMD   IIR2  0001    ISMD1
3042   1359  BBB 1 50  0000  4140   ISMD1   STL2  0000    NORMX
3043   2844  BBB 0 07  HHHH  3047   DIM     IIR   HHHH
3044   3047  BBB 1 39  0000  2434           ERS3  0000
3045   2434  BBB 1 60  0001  2634           STA2  0001
3046   2634  BBB 0 20  2636  000A           BUF           RA
3047   2636  BBB 0 08  0000  2441           LIR1  0000
3048   2441  BBB 0 07  0002  3044           IIR   0002
3049   3044  BBB 0 70  4600  2655           ADD  MEML
3050   2655  BBB 0 60  4600  0902           STA  MEML
3051   0902  BBB 1 60  0002  2834           STA2  0002
3052   2834  BBB 0 70  1907  1910           ADD  TW09S
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3053  1910  BBB 0 77  1910  2313          ATL
3054  2313  BBB 0 29  0000  3034          LDA1  0000
3055  3034  BBB 0 05  000A  1838          LDX   RA
3056  1838  BBB 0 35  4724  2076          ERS   XC
3057  2076  BBB 0 20  0008  0280          BUF   RL
3058  0280  BBB 0 64  0000  2635          STA1  0000
3059  2635  BBB 0 25  000C  1839          LDA   RX
3060  1839  BBB 0 20  4247  1649          BUF   BIG30
3061  1649  BBB 0 35  4201  2855          ERS   XOM
3062  2855  BBB 0 05  000A  2459          LDX   RA
3063  2459  BBB 0 25  0008  0863          LDA   RL
3064  0863  BBB 0 70  0465  000A          ADD           RA
3065  0465  BBB 0 35  0000  2835          ERS   0000                    30 + ERS # STX
3066  2835  BBB 0 07  0001  2038          IIR   0001
3067  2038  BBB 1 60  0003  3035          STA2  0003
3068  3035  BBB 0 30  2437  2039          LDL   DIMMD
3069  2039  BBB 0 05  2641  4235          LDX   0DIM%     MDOP
3070                            DIM$      EQU   MRP
3071  0471  BBB 0 07  HHHH  0474  DIM.     IIR   HHHH
3072  0474  BBB 1 39  0000  2836          ERS3  0000
3073  2836  BBB 0 05  000A  0440          LDX   RA
3074  0440  BBB 0 70  2848  000A          ADD           RA
3075  2848  BBB 0 30  0001  3036          LDL   0001
3076  3036  BBB 0 07  0001  2239          IIR   0001
3077  2239  BBB 0 70  4600  3055          ADD   MEML
3078  3055  BBB 0 60  4600  1902          STA   MEML
3079  1902  BBB 0 70  0704  000A          ADD           RA
3080  0704  BBB 0 65  0000  2637          STX   0000
3081  2637  BBB 1 85  9999  2276          MUL2  9999
3082  2276  BBB 0 32  0400  1283          SHR   0400
3083  1283  BBB 1 65  9999  2837          STX2  9999      DIM.
3084  4139  BBB 0 07  HHHH  1342  DIM%     IIR   HHHH
3085  1342  BBB 1 39  0000  3037          ERS3  0000
3086  3037  BBB 0 70  2439  000A          ADD           RA
3087  2439  BBB 0 30  0001  2238          LDL   0001
3088  2238  BBB 1 85  9999  2476          MUL2  9999
3089  2476  BBB 0 32  0800  0687          SHR   0800
3090  0687  BBB 1 25  9997  0799          LDA2  9997
3091  0799  BBB 0 37  0200  2438          SHL   0200
3092  2438  BBB 0 32  0600  3048          SHR   0600
3093  3048  BBB 0 77  3048  2251          ATL
3094  2251  BBB 1 25  9998  2600          LDA2  9998
3095  2600  BBB 0 70  2638  000A          ADD           RA
3096  2638  BBB 0 50  0000  2838          STL   0000
3097  2838  BBB 1 07  9996  1849          IIR2  9996
3098  1849  BBB 0 07  FFFF  2656          IIR   FFFF
3099  2656  BBB 0 87  2837  2659          TGR   DIM.
3100  2659  BBB 0 30  2837  2639          LDL   DIM.
3101  2639  BBB 0 25  2841  4514          LDA           ALARM
3102  2841  BBB 0 03  3500  0000          CON   03350     00000         BAD DIMENSION
```

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- 3103  2837  888 1 0G  9999  4140  D1M*    IIR3  9999      NORMX
  3104  2822  888 1 0G  9999  1133  D1M$    IIR3  9999      BOOL$
  3105  4152  888 J 25  0754  0756  WDCOM   LDA   1F                    U27.'COMMON'
  3106  0756  888 J 60  2220  3038        STA   UASW
  3107  3038  888 J 30  0840  0755        LDL   COMMD     INSMD
  3108  2508  888 J 07  0001  0711  COM*    IIR    0001   2F
  3109  0754  888 J 07  HHHH  0557  1       IIR    HHHH
  3110  0557  888 1 39  0000  2839        ERS3  0000
  3111  2839  888 J 70  2049  000A        ADD             RA
  3112  2049  888 J 25  0001  3039        LDA    0001
  3113  3039  888 J 35  0043  0711        ERS   XM        2F
  3114  0711  888 J 30  4198  0750  2     LDL   COMON
  3115  0750  888 J 50  4631  1783        STL   TEMP1
  3116  1783  888 J 70  0008  0388        ADD   RL
  3117  0388  888 J 60  4198  2800        STA   COMON
  3118  2800  888 J 30  1240  4833        LDL             BR2
  3119  1240  888 J 20  4631  1883        BUF   TEMP1
  3120  1883  888 J 64  0000  1640        STA1   0000
  3121  1640  888 1 0G  9999  2249        IIR3  9999
  3122  2249  888 J 25  4030  1882        LDA   LAST
  3123  1882  888 J 30  1064  0466        LDL   $
  3124  0466  888 J 82  0469  4140        TEQ   EQ1$      NORMX
  3125  0469  888 J 25  1821  1840  EQ1$    LDA   MISUB
  3126  1840  888 J 60  2220  1133        STA   UASW      BOOL$
  3127                      COM$    EQU   COM*
  3128  0528  888 J 25  1930  4514  BED     LDA             ALARM
  3129  1930  888 J 03  2300  0000        CON   03230     00000          BAD EQUIV
  3130  4132  888 J 25  4277  0579  WDNO    LDA   BIG50
  3131  0579  888 J 60  4804  4050        STA   NOTAG     SCAN1     U29.CONTROL WORDS
  3132  4136  888 J 70  000A  1741  WDTRC   ADD   RA        -TRC
  3133  1742  888 J 60  4804  1356  &TRC    STA   NOTAG
  3134  1356  888 J 25  1300  2102        LDA   TRCOF     1F
  3135  1741  888 J 25  1855  2102  -TRC    LDA   TRCON     1F
  3136  2102  888 J 60  1307  4050  1       STA   TRCSW     SCAN1
  3137  4133  888 J 70  000A  1338  WDLIS   ADD   RA        -LIS
  3138  1339  888 J 60  4804  1756  &LIS    STA   NOTAG
  3139  1756  888 J 25  4735  0587        LDA   PROF      1F
  3140  1338  888 J 25  4975  0587  -LIS    LDA   PRON      1F
  3141  0587  888 J 60  4883  4050  1       STA   PRTSW     SCAN1
  3142  4137  888 J 70  000A  1942  WDCOR   ADD   RA        -COR
  3143  1943  888 J 60  4804  1956  &COR    STA   NOTAG
  3144  1956  888 J 07  0057  1759        IIR    0057   1F
  3145  1942  888 J 07  0007  1759  -COR    IIR    0007   1F
  3146  1759  888 J 60  4336  4050  1       STA   INCRE     SCAN1
  3147  4166  888 J 70  000A  1771  WDPRG   ADD   RA        -PRG
  3148  1772  888 J 60  4804  2040  &PRG    STA   NOTAG
  3149  2040  888 J 25  4758  2060        LDA   PCHOF     1F
  3150  1771  888 J 25  4651  2060  -PRG    LDA   PCHON     1F
  3151  2060  888 J 60  4981  4050  1       STA   PCHSW     SCAN1
```

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3152   4100  BBB 0 05  4740  2142   WDDO     LDX  X1       1F        D.  DO LOOP CONTROL
3153   4138  BBB 0 06  2142  2142   WDTRU    CLX  1F
3154   2142  BBB 0 25  0944  0546   1        LDA  3F
3155   0546  BBB 0 60  4206  0358            STA  LESW     WDDO1     D1. SET UP FOR LABEL
3156   0358  BBB 1 65  0001  2240   WDDO1    STX2  0001
3157   2240  BBB 1 07  0002  2449            IIR2  0002
3158   2449  BBB 0 30  2451  3056            LDL  1F       2F
3159   3056  BBB 0 50  4117  0669   2        STL  SIGN#
3160   0669  BBB 0 30  0671  1359            LDL  DOMD     ISMD1
3162   2451  BBB 1 25  0000  2440   1        LDA2  0000              D3. ZERO COMMA COUNT
3163   2440  BBB 0 35  3023  2640            ERS  XMC
3164   2640  BBB 1 60  0000  2840            STA2  0000
3165   2840  BBB 0 30  2056  3056            LDL  #OFF     2B
3166   0944  BBB 0 30  4402  0954   3        LDL  LEOFF
3167   0954  BBB 0 50  4206  000B            STL  LESW     RL
3168   0168  BBB 0 30  0970  2012   DO.      LDL           DOIF
3169   0970  BBB 0 05  4140  0883            LDX  NORMX    MAGET
3170   1370  BBB 0 30  1972  0374   DO$      LDL  DOO      DO$SB     D5. CHECK COMMAS
3171   0374  BBB 0 50  1976  4164   DO$SB    STL  EXIT8    DO$1
3172   4164  BBB 1 25  0000  3040   DO$1     LDA2  0000
3173   3040  BBB 0 70  2212  2849            ADD  BIG40    -DO2
3174   2849  BBB 0 07  1074  4086   -DO2     IIR  TO024    DIVT1
3175   2850  BBB 1 07  9998  3057   &DO2     IIR2  9998              D6. STORE EXP IN TEMP
3176   3057  BBB 0 05  2859  0283            LDX           CLACC
3177   2859  BBB 0 30  4745  1097            LDL  TROFF
3178   1097  BBB 0 50  4789  0741            STL  TRSW
3179   0741  BBB 0 07  HHHH  1144            IIR   HHHH
3180   1144  BBB 1 39  9996  0798            ERS3  9996
3181   0798  BBB 0 70  3000  000A            ADD           RA
3182   3000  BBB 0 25  0001  2649            LDA   0001
3183   2649  BBB 0 60  2651  0858            STA  DON
3184   0858  BBB 1 29  9997  0999            LDA3  9997
3185   0999  BBB 0 60  1079  2481            STA  TO029              D7. DO OR DONT
3186   2481  BBB 1 35  0001  3049            ERS2  0001
3187   3049  BBB 0 35  1634  3050            ERS  DOTAG
3188   3050  BBB 0 31  1858  1858            CLL
3189   1858  BBB 0 82  2661  2861            TEQ  DONT
3190   2861  BBB 1 29  0000  2851            LDA3  0000
3191   2851  BBB 0 35  4723  0675            ERS  KON.5
3192   0675  BBB 1 39  9998  3051            ERS3  9998
3193   3051  BBB 0 82  2661  2058            TEQ  DONT
3194   2058  BBB 0 50  1634  2258            STL  DOTAG
3195   2258  BBB 0 25  0509  1911            LDA  LSWON              D8. BEGIN DOO
3196   1911  BBB 0 60  0089  0691            STA  LSW
3197   0691  BBB 1 0G  9995  0095            IIR3  9995
3198   0095  BBB 0 07  HHHH  0098            IIR   HHHH
3199   0098  BBB 1 39  0005  2458            ERS3  0005
3200   2458  BBB 0 70  2260  000A            ADD           RA
3201   2260  BBB 0 25  0001  2658            LDA   0001
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3202  2658  888 J 20  1388  0590            BUF  10086
3203  0590  888 J 60  1375  2577            STA  10075
3204  2577  888 J 07  HHHH  1180            IIR  HHHH
3205  1180  888 1 39  0003  2858            ERS3 0003
3206  2858  888 J 70  2460  000A            ADD            RA
3207  2460  888 J 25  0001  3058            LDA  0001
3208  3058  888 J 20  2660  2062            BUF# 0R000     09999
3209  2062  888 J 30  0464  4350            LDL            ASM2
3210  0464  888 J 07  HHHH  1867            IIR  HHHH
3211  1867  888 1 39  0002  3059            ERS3 0002
3212  3059  888 J 60  4824  2676            STA  DOVAR
3213  2676  888 J 25  1278  0480            LDA            7F
3214  1278  888 J 19  7574  2021            CON  19757     42021        3F2H IIR1N LDL5 TGR9F MK9F
3215  2661  888 1 34  9998  2860  DONT      LDL3 9998                   D10•LDA INIT 3F
3216  2860  888 1 0G  0001  0664            IIR3 0001
3217  0664  888 1 54  0000  3060            STL3 0000
3218  3060  888 J 30  2262  0363            LDL            GET
3219  2262  888 1 0G  9999  0666            IIR3 9999
3220  0666  888 J 25  0668  0270            LDA# 06190     00000        UZACC 3F2H
3221  0270  888 J 30  0672  0377            LDL            ASM11        D11•   V + INC
3222  0672  888 J 07  1078  4698            IIR  T0028     DIVRT
3223  4157  888 1 0G  9995  0761  DONT1     IIR3 9995
3224  0761  888 J 25  0763  0480            LDA            7F
3225  0763  888 J 74  2079  0600            CON  74207     90600        LDL5 TGR9F STA3 UZACC
3226  0460  888 J 30  2082  0377  7         LDL            ASM11
3227  2082  888 J 25  4989  0891            LDA  TRON                   D12•LDL• TGR
3228  0891  888 J 60  4789  1976            STA  T•SW      EXIT8
3229  1972  888 J 25  2651  3061  DOO       LDA  DON                    D20•LABEL IN TABLE
3230  3061  888 J 20  0544  0746            BUF  NINEF
3231  0746  888 J 05  0531  2133            LDX  TWO8
3232  2133  888 J 08  0537  1136            LIR1 DOOST
3233  1136  888 J 30  0543  4449            LDL  NO$       INS
```

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3234   4226  888 1 25  0000  2462   FUNCT   LDA2  0000                 F.  FUNCTION CALLS
3235   2462  888 0 30  1353  0955           LDL   D1MMD
3236   0955  888 0 82  2844  0558           TEQ   DIM
3237   0558  888 0 30  0960  0362           LDL             FASIN
3238   0960  888 0 05  3022  2662           LDX   DUA                  F1. ASSIGN F
3239   2662  888 0 65  2220  2862           STX   UASW
3240   2862  888 0 05  0864  0866           LDX   OFC%
3241   0866  888 0 30  1600  4234           LDL   FCMD      MDOP2
3242   3062  888 0 30  1264  1266   FC.     LDL             PARSB      F2. SET FUNC MODE
3243   1264  888 1 25  0000  1863           LDA2  0000
3244   1863  888 0 70  4408  2111           ADD   BIG01
3245   2111  888 1 60  0000  4140           STA2  0000      NORMX
3246                                FC$     EQU   MRP
3247   4158  888 0 30  1360  1266   FC%     LDL             PARSB
3251   1360  888 0 30  0562  0364           LDL   DOWN      NAMEC      F4. BEGIN REVERSE PASS
3252   0364  888 0 50  0166  0368   NAMEC   STL   EXIT9
3253   0368  888 1 25  0000  2063           LDA2  0000
3254   2063  888 0 32  0400  0470           SHR   0400
3255   0470  888 0 35  0406  2263           ERS   X45
3256   2263  888 0 70  4095  0298           ADD   KON2
3257   0298  888 0 30  4196  0348           LDL   UNIQU
3258   0348  888 0 70  0008  1953           ADD   RL
3259   1953  888 0 60  4196  1798           STA   UNIQU     9F
3260   1798  888 0 75  4097  2463   9       SUB   KON1
3261   2463  888 1 60  0001  2663           STA2  0001
3262   2663  888 1 29  0000  2863           LDA3  0000
3263   2863  888 0 06  1866  1866           CLX
3264   1866  888 0 32  0900  1878           SHR   0900
3265   1878  888 0 70  0680  000A           ADD             RA
3266   0680  888 1 29  0000  4029           LDA3  0000      F0005
3267   4029  888 0 30  3063  4025   F0005   LDL   1F        F0001
3268   4025  888 0 05  0417  4744   F0001   LDX   FCEX      ASIGN
3269   3063  888 0 50  4191  0693   1       STL   TEMP5
3270   0693  888 0 25  0295  1297           LDA#  07HHH     H0000
3271   1297  888 0 30  2099  4556           LDL             ASM32
3272   2099  888 0 07  HHHH  2302           IIR   HHHH
3273   2302  888 0 35  4191  0743           ERS   TEMP5
3274   0743  888 0 20  0345  0547           BUF#  35000     00000
3275   0547  888 0 30  0749  4357           LDL   8F        ASM33
3276   4024  888 0 30  1864  0108   F0000   LDL             LSWOF
3277   1864  888 0 77  1864  2067           ATL             1F
3278   0417  888 0 25  0008  2067   FCEX    LDA   RL        1F
3279   4027  888 0 30  4623  2067   F0003   LDL   BIG05     1F
3280   2067  888 0 35  0043  2064   1       ERS   XM        2F
3281   2064  888 0 60  4209  2311   2       STA   TEMP2
3282   2311  888 1 25  0001  2264           LDA2  0001
3283   2264  888 0 05  2066  4494           LDX   7F        ASM42
3284   1266  888 0 50  1976  1978   PARSB   STL   EXIT8
3285   1978  888 1 29  0000  2464           LDA3  0000
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3286  2464  888 0 77  2464  2267                ATL
3287  2267  888 0 37  0900  0879                SHL   0900
3288  0879  888 0 70  000A  0684                ADD   RA          -PAR1
3289  0685  888 0 30  1287  0363  &PAR1         LDL   1F          GET
3290  0684  888 0 25  4431  2333  -PAR1         LDA   BIG21
3291  2333  888 0 82  0685  1287                TEQ   &PAR1       1F
3292  1287  888 0 05  1976  0283  1             LDX   EXIT8       CLACC
3293  3022  888 0 07  1068  4710  DUA           IIR   T0018       DIVT2
3294  4026  888 0 25  2664  2266  F0002         LDA#  07990       19999
- 3295  2266  888 0 30  0749  4350              LDL   8F          ASM2
3296  0749  888 1 25  0001  2864  8             LDA2  0001
3297  2864  888 0 20  2212  3064                BUF   BIG40
3298  3064  888 1 64  0000  0665                STA3  0000
3299  0665  888 0 25  1395  0597                LDA   I0095
3300  0597  888 0 30  2066  4350                LDL   7F          ASM2
3301  2066  888 1 0G  9999  0670  7             IIR3  9999
3302  0670  888 1 25  0000  0865                LDA2  0000
3303  0865  888 0 70  4225  2078                ADD   BIG99       -PAR4
3304  2079  888 1 60  0000  1865  &PAR4         STA2  0000
3305  1865  888 1 25  0001  1798                LDA2  0001        9B
3306  2078  888 0 30  0880  2282  -PAR4         LDL               4F
3307  0880  888 1 25  0001  2065                LDA2  0001
3308  2065  888 0 75  4097  0500                SUB   KON1
3309  0500  888 0 30  0166  0932                LDL   EXIT9       FILNX
3310  2282  888 1 29  0000  2265  4             LDA3  0000
- 3311  2265  888 0 32  0400  4970              SHR   0400        ASM36
3312  0962  888 0 05  1821  2465  DOWN          LDX   MISUB                   FS. LIR3
3313  2465  888 0 65  2220  2665                STX   UASW
3314  2665  888 1 07  9999  0869                IIR2  9999
3315  0869  888 1 29  0000  2865                LDA3  0000
3316  2865  888 0 35  4740  0492                ERS   X1
3317  0492  888 0 30  4140  2342                LDL   NORMX
3318  2342  888 0 50  1819  0463                STL   &SAC        SACC
3319                                  CAL*      EQU   NO*
3320  2320  888 1 29  0000  3065  CAL$          LDA3  0000
3321  3065  888 0 35  0645  2466                ERS   H1
3322  2466  888 0 30  4974  2876                LDL   BIG10
3323  2876  888 0 82  2822  1279                TEQ   D1M$
3324  1279  888 0 30  2681  0362                LDL               FASIN
3325  2681  888 0 30  2083  2282                LDL               4B
3326  2083  888 0 05  0485  4084                LDX               FARNL
3327  0485  888 0 30  2822  0932                LDL   D1M$        FILNX
3328  4160  888 0 30  0762  0755  WDCAL         LDL   CALMD       INSMD
3329  0362  888 0 50  0201  2666  FASIN         STL   EXIT4
3330  2666  888 0 30  0868  4833                LDL               BR2
3331  0868  888 0 77  0868  0871                ATL
3332  0871  888 0 70  2212  2866                ADD   BIG40       -FUNC
3333  2866  888 0 70  1268  2119  -FUNC         ADD               -FNC1
3334  1268  888 0 59  9999  0000                CON   59999       90000
3335  2119  888 0 07  0100  2522  -FNC1         IIR   0100
```

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3336  2522  888 0 70  1924  1327           ADD  FS
3337  1327  888 0 60  1924  1126           STA  FS
3338  1126  888 0 32  0200  1131           SHR   0200
3339  1131  888 0 34  0001  3066           LDL1  0001
3340  3066  888 0 05  1868  0204           LDX                SUBDF
3341  1868  888 0 30  0870  4833           LDL                BR2
3342  0870  888 0 20  1924  1326           BUF  FS
3343  1326  888 0 77  1326  1329           ATL
3344  1329  888 0 64  0000  2867           STA1  0000         &FUNC
3345  2867  888 1 29  0000  2467  &FUNC    LDA3  0000
3346  2467  888 0 35  4740  0692           ERS  X1
3347  0692  888 0 20  0008  0496           BUF  RL
3348  0496  888 1 64  0000  0201           STA3  0000         EXIT4
3349  0204  888 0 65  4926  2667  SUBDF    STX  EXIT3
3350  2667  888 0 50  4209  2511           STL  TEMP2
3351  2511  888 0 32  0200  1916           SHR   0200
3352  1916  888 0 35  0718  2520           ERS#  00000        0HH00
3353  2520  888 0 20  4603  1355           BUF  BIG60
3354  1355  888 0 30  0757  4700           LDL                ASM41
3355  0757  888 0 05  4209  1361           LDX  TEMP2         1F
3356  2156  888 0 50  4926  1361  SHEAD    STL  EXIT3         1F
3357  1361  888 0 25  1363  1765  1        LDA  HEAD
3358  1765  888 0 75  4097  3067           SUB  KON1          2F
3359  3067  888 0 60  1363  1965  2        STA  HEAD
3360  1965  888 0 31  0568  0568           CLL
3361  0568  888 0 82  0171  0371           TEO                1F
3362  0171  888 0 50  0775  0775           STL  WARN
3363  0775  888 0 07  0050  3067           IIR   0050         2B
3364  0371  888 0 70  1373  000A  1        ADD                RA
3365  1373  888 0 65  1549  4926           STX  00000         EXIT3
```

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3366   4129  BBB 0 25  1331  2533   LABL    LDA  LEXP1                 D.  D40. CLOSE OF DO RANGE.
3367   2533  BBB 0 60  4206  1358           STA  LESW
3368   1358  BBB 0 30  1760  4044           LDL            SCAN
3369   1760  BBB 0 30  0522  0089           LDL  LABLX     LSW
3370   0522  BBB 0 29  0000  2002   LABLX   LDA1  0000     LBLX1
3371   2002  BBB 0 35  4741  2068   LBLX1   ERS  XMH
3372   2068  BBB 0 60  4191  0893           STA  TEMP5
3373   0893  BBB 0 30  0495  4736           LDL            GOTO
3374   0495  BBB 0 05  4191  1143           LDX  TEMP5
3375   1143  BBB 0 65  4880  4140           STX  NXLOC     NORMX
3376   1331  BBB 0 77  1331  1334   LEXP1   ATL
3377   1334  BBB 0 25  0537  1939           LDA  DOOST
3378   1939  BBB 0 70  1141  000A           ADD            RA
3379   1141  BBB 0 25  0001  2268           LDA   0001
3380   2268  BBB 0 35  0043  2468           ERS  XM
3381   2468  BBB 0 82  1271  1871           TEQ            1F
3382   1271  BBB 0 25  0473  0875           LDA  DOEON
3383   0875  BBB 0 60  4170  1871           STA  DOESW     1F
3384   1871  BBB 0 50  4209  2711   1       STL  TEMP2     2F
3385   0244  BBB 0 60  4209  2711   LEXP    STA  TEMP2     2F
3386   2711  BBB 0 05  4277  1929   2       LDX  BIG50
3387   1929  BBB 0 65  4412  0564           STX  TYPE
3388   0564  BBB 0 25  0366  0768           LDA  LIT99
3389   0768  BBB 0 30  4410  4729           LDL  SEND      SRCH
3390   0473  BBB 0 0B  0537  3076   DOEON   LIR1 DOOST                 D40. GO TO 2B
3391   3076  BBB 0 30  2278  4229           LDL            REM
3392   2278  BBB 0 29  0001  2668           LDA1  0001
3393   2668  BBB 0 60  4191  1293           STA  TEMP5
3394   1293  BBB 0 35  0043  2868           ERS  XM
3395   2868  BBB 0 60  0024  3068           STA  TEMP6                 D41.DO OR DONT
3396   3068  BBB 0 25  000B  1272           LDA  RL
3397   1272  BBB 0 35  4741  1893           ERS  XMH
3398   1893  BBB 0 30  0695  4736           LDL            GOTO
3399   0695  BBB 0 25  4191  1343           LDA  TEMP5
3400   1343  BBB 0 37  0400  0950           SHL   0400
3401   0950  BBB 0 35  0043  1269           ERS  XM
3402   1269  BBB 0 20  4756  2708           BUF  BIG02
3403   2708  BBB 1 64  0003  1869           STA3  0003
3404   1869  BBB 0 25  4191  2093           LDA  TEMP5
3405   2093  BBB 0 35  4740  2542           ERS  X1
3406   2542  BBB 0 31  0545  0545           CLL
3407   0545  BBB 0 82  0548  0748           TEQ  8F
3408   0748  BBB 0 60  1634  2069           STA  DOTAG
3409   2069  BBB 0 25  0108  2110           LDA  LSWOF
3410   2110  BBB 0 60  0089  1291           STA  LSW
3411   1291  BBB 0 25  4824  1926           LDA  DOVAR
3412   1926  BBB 1 64  0002  2269           STA3  0002     7F
3413   2269  BBB 0 05  2071  0673   7       LDX  9F                    D42.EMPTY LLIST
3414   0673  BBB 0 0B  0415  0277           LIR1 LLIST
```

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3415   0277  BBB 0 30  1879  4229          LDL            REM
3416   1879  BBB 0 50  4631  2283          STL   TEMP1
3417   2283  BBB 0 29  0001  2469          LDA1  0001
3418   2469  BBB 0 35  4741  2293          ERS   XMH
3419   2293  BBB 0 05  000A  1897          LDX   RA
3420   1897  BBB 0 29  0001  2669          LDA1  0001
3421   2669  BBB 0 37  0400  0477          SHL   0400
3422   0477  BBB 0 35  0043  2869          ERS   XM
3423   2869  BBB 0 20  4277  2279          BUF   BIG50
3424   2279  BBB 1 64  0001  3069          STA3  0001
3425   3069  BBB 0 30  2271  4303          LDL            BR1
3426   2271  BBB 0 35  0435  1270          ERS   XCO
3427   1270  BBB 0 20  000C  0674          BUF   RX
3428   0674  BBB 0 64  0000  1870          STA1  0000
3429   1870  BBB 0 30  000C  0874          LDL   RX
3430   0874  BBB 0 25  4631  2483          LDA   TEMP1
3431   2483  BBB 0 35  4741  2493          ERS   XMH
3432   2493  BBB 0 82  2269  0696          TEQ   7B
3433   0696  BBB 0 60  4880  2132          STA   NXLOC
3434   2132  BBB 0 25  1934  1336          LDA# 88790     00000          IIR10 STA3
3435   1336  BBB 0 30  0738  0377          LDL            ASM11
3436   0738  BBB 1 29  0001  2070          LDA3  0001
3437   2070  BBB 0 30  1872  0089          LDL            LSW
3438   1872  BBB 0 30  2269  4686          LDL   7B       FILUP
3439   2071  BBB 0 60  4824  0548    9     STA   DOVAR    8F
3440   0548  BBB 1 29  0003  2270    8     LDA3  0003                 D50. ANY MORE
3441   2270  BBB 0 60  4880  2482          STA   NXLOC
3442   2482  BBB 0 25  0537  2139          LDA   DOOST
3443   2139  BBB 0 70  1341  000A          ADD            RA
3444   1341  BBB 0 25  0001  2470          LDA   0001
3445   2470  BBB 0 35  0043  2670          ERS   XM
3446   2670  BBB 0 30  0024  2870          LDL   TEMP6
3447   2870  BBB 0 82  0473  0873          TEQ   DOEON
3448   0873  BBB 0 25  4376  2478          LDA   DOEOF
3449   2478  BBB 0 60  4170  000A          STA   DOESW    RA
```

```
3450                                                                    X.  PROCESSING FORMAT STRING
3451                                                                    X1. COMPILE 02
3452  4149  888 0 25  4196  1998   WDFMT   LDA  UNIQU
3453  1998  888 0 70  4408  3070           ADD  BIG01
3454  3070  888 0 30  2072  4357           LDL  RESET     ASM33
3462  2072  888 0 25  1274  0677   RESET   LDA  FSWOF                  X2. RESET OP.N.W.D
3463  0677  888 0 60  2479  2881           STA  FSW                        N#TEMP5  OP#TEMP6  D#TEMP7  W#TEMP8
3464  2881  888 0 30  2683  0885           LDL                CLD
3465  2683  888 0 60  4191  2693           STA  TEMP5
3466  2693  888 0 60  0024  2471           STA  TEMP6
3467  2471  888 0 60  4750  1150           STA  TEMP8     X0000
3468  1150  888 0 30  1352  4202   X0000   LDL                NXTCH       X3. NEXT CHARACTER
3469  1352  888 0 08  1150  4205           LIR1 X0000         KIND
3470  1152  888 0 25  4194  0196   X0002   LDA  TEMP7
3471  0196  888 0 37  0100  2671           SHL   0100
3472  2671  888 0 20  000C  1275           BUF  RX
3473  1275  888 0 60  4194  1150           STA  TEMP7     X0000
3474  1154  888 0 25  2356  1758   X0004   LDA  FSWON
3475  1758  888 0 60  2479  3081           STA  FSW       CYCLE
3476  1153  888 0 26  2556  2556   X0003   CLA  1F
3477  1151  888 0 26  2556  2556   X0001   CLA  1F
3478  2556  888 0 32  0500  0764   1       SHR   0500
3479  0764  888 0 37  0400  0571           SHL   0400
3480  0571  888 0 32  0900  1983           SHR   0900
3481  1983  888 0 77  1983  0586           ATL
3482  0586  888 0 60  4394  0396           STA  TEMP9
3483  0396  888 0 20  2198  2871           BUF  3F
3484  2871  888 0 60  1155  0957           STA  X0005
3485  0957  888 0 08  1173  1960           LIR1 X0023     2F
3486  1960  888 0 29  0000  3071   2       LDA1  0000
3487  3071  888 0 35  1273  1875           ERS  X89
3488  1875  888 0 82  2678  2878           TEQ  1F
3489  2878  888 0 06  9999  1960           IIR1  9999     2B
3490  2678  888 0 29  0000  2272   1       LDA1  0000
3491  2272  888 0 32  0200  1277           SHR   0200
3492  1277  888 0 35  1273  0054           ERS  X89       BIG04
3493  2198  888 0 00  2472  0000   3       JMP                0000
3494  2472  888 0 25  4394  0896           LDA  TEMP9     VAR
3495  1173  888 0 00  0975  003A   X0023   JMP  FORCE      003A          ,
3496  1172  888 0 00  0574  0038   X0022   JMP  LEFT       0038          %
3497  1171  888 0 00  0975  0118   X0021   JMP  FORCE      0118          :
3498  1170  888 0 00  0975  1031   X0020   JMP  FORCE      1031          /
3499  1169  888 0 00  0896  0415   X0019   JMP  VAR        0415          E
3500  1168  888 0 00  0896  0516   X0018   JMP  VAR        0516          F
3501  1167  888 0 00  0896  0319   X0017   JMP  VAR        0319          I
3502  1166  888 0 00  1368  0637   X0016   JMP  POP        0637          X
3503  1165  888 0 00  0896  0711   X0015   JMP  VAR        0711          A
3504  1164  888 0 00  0896  0924   X0014   JMP  VAR        0924          M
3505  1163  888 0 00  2165  0818   X0013   JMP  HOL        0818          H
```

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3506  1162  888 0 00  0964  990H  X0012  JMP  ONWRD   990H        *
3507  1161  888 0 00  1368  0227  X0011  JMP  POP     0227        P
3508  1160  888 0 00  0962  010A  X0010  JMP  FSIGN   010A        -
3509  1159  888 0 00  0962  001C  X0009  JMP  FSIGN   001C        &
3510  1158  888 0 00  0962  0030  X0008  JMP  FSIGN   0030        +
3511  1157  888 0 00  0975  010C  X0007  JMP  FORCE   010C        )
3512  1156  888 0 00  0574  000F  X0006  JMP  LFFT    000F        (
3513  0896  888 0 60  0024  3081  VAR    STA  TEMP6   CYCLE     X4. SET OP+CYCLE.
3516  0962  888 0 60  4750  1150  FSIGN  STA  TEMP8   X0000     X5. SET SIGN INTO W
3518  1368  888 0 05  2072  1874  POP    LDX  RESET   ASMF1     X6. ASSEMBLE THIS OP
3521  0574  888 0 05  2176  1874  LEFT   LDX         ASMF1     X7. ASSEMBLE 2 LINES
3522  2176  888 0 26  0779  0779        CLA
3523  0779  888 0 05  2072  4289        LDX  RESET   ASM43
3526  0975  888 0 60  4394  0596  FORCE  STA  TEMP9              X8. ASSEMBLE TWO OPS
3527  0596  888 0 05  2398  2479        LDX          FSW
3528  2398  888 0 25  4394  2672        LDA  TEMP9
3529  2672  888 0 05  2072  2074        LDX  RESET   ASMF3
3532  2165  888 0 05  0567  1874  HOL    LDX  1F      ASMF1     X9. ASSEMBLE H OP
3533  0567  888 0 25  4191  0193  1     LDA  TEMP5
3534  0193  888 0 30  0395  0797        LDL# 99999   99995     X10.INSERT LITERAL
3535  0797  888 0 70  0008  2872        ADD  RL      -HOT
3536  2873  888 0 60  4191  2893  &HOT  STA  TEMP5
3537  2893  888 0 25  4424  2126        LDA  LIT5
3538  2126  888 0 30  0567  0369        LDL  18      FHSUB
3539  2872  888 0 82  2072  2075  -HOT  TEQ  RESET
3540  2075  888 0 75  0008  1880        SUB  RL
3541  1880  888 0 30  2072  0369        LDL  RESET   FHSUB
3542  2479  888 0 30  2356  1958  FSW    LDL  FSWON   CYC1
3543  1274  888 0 30  2356  1958  FSWOF  LDL  FSWON   CYC1
3544  3081  888 0 30  1150  1958  CYCLE  LDL  X0000   CYC1
3545  1958  888 0 25  4750  3072  CYC1   LDA  TEMP8
3546  3072  888 0 60  4191  3093        STA  TEMP5
3547  3093  888 0 25  4194  1146        LDA  TEMP7
3548  1146  888 0 60  4750  0885        STA  TEMP8   CLD
3549  0885  888 0 26  0688  0688  CLD    CLA
3550  0688  888 0 60  4194  0008        STA  TEMP7   RL
3551  2356  888 0 25  0024  2074  FSWON  LDA  TEMP6   ASMF3
3552  2074  888 0 31  1877  1877  ASMF3  CLL
3553  1877  888 0 82  000C  2080        TEQ  RX      ASMF2
3554  1874  888 0 30  4194  1296  ASMF1  LDL  TEMP7
3555  1296  888 0 50  4191  2080        STL  TEMP5   ASMF2
3556  2080  888 0 37  0300  2486  ASMF2  SHL  0300
3557  2486  888 0 20  4191  0894        BUF  TEMP5
3558  0894  888 0 37  0300  0700        SHL  0300
3559  0700  888 0 20  4750  1952        BUF  TEMP6
3560  1952  888 0 37  0200  1357        SHL  0200
3561  1357  888 0 20  4194  0796        BUF  TEMP7
3562  0796  888 0 31  1799  1799        CLL
3563  1799  888 0 50  4750  4289        STL  TEMP8   ASM43
3564  0369  888 0 50  4568  1873  FHSUB  STL  EXIT2
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3565   1873  888 0 60  4209  2911                STA   TEMP2
3566   2911  888 0 30  2513  4674                LDL                HOLSB
- 3567  2513  888 0 25  4420  4921                LDA   TEMP3        ASM44
3568   0964  888 0 05  4135  2080     ONWRD      LDX   SIGN'        ASMF2        X11.ASSEMBLE 99 OP
```

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3571                                    N78     NEW  78000    00000     W.  INPUT-OUTPUT (READ,PUNCH,PRINT)
3572   4146  888 0 05  1148  1350       WDRED   LDX           1F
3573   1148  888 0 78  1348  0405               N78  IN        0405
3574   4159  888 0 05  1761  1350       WDPCH   LDX           1F
3575   1761  888 0 78  1961  0406               N78  OUT       0406
3576   4147  888 0 05  0949  1350       WDPRT   LDX           1F
3577   0949  888 0 78  1961  0407               N78  OUT       0407
3578   1350  888 0 65  2152  1354       1       STX  IOOP                W1. SET TWO OPERANDS
3579   1354  888 1 0G  0002  2158               IIR3  0002
3580   2158  888 0 32  0600  0767               SHR   0600
3581   0767  888 0 35  0043  2073               ERS  XM
3582   2073  888 0 20  1178  1780               BUF  BIG20
3583   1780  888 1 64  0000  2273               STA3  0000
3584   2273  888 0 32  0200  3078               SHR   0200
3585   3078  888 0 30  2280  0188               LDL           CALPK
3586   2280  888 0 30  2682  0642               LDL           EXPLB
3587   2682  888 0 25  0884  2686               LDA  IO#
3588   2686  888 0 60  4117  2720               STA  SIGN#
3589   2720  888 0 25  2722  2124               LDA# 00040    00000
3590   2124  888 1 64  9999  2473               STA3  9999
3591   2473  888 0 30  2275  0755               LDL  IO1MD    INSMD
3592   0792  888 0 30  0394  2818       IO1$    LDL  IO2$     MCAL           MISSING COMMA
3593   0393  888 0 30  0595  0364       IO1,    LDL           NAMEC     W2. CALL FUNCTION
3594   0595  888 0 25  0997  1999               LDA  IOARA
3595   1999  888 0 60  2220  2673               STA  UASW
3596   2673  888 0 25  2475  2077               LDA  IO2MD
3597   2077  888 1 60  0000  3073               STA2  0000    IO2,
3598   0997  888 0 30  2199  4833       IOARA   LDL           BR2
3601   2199  888 0 29  0001  2274               LDA1  0001               W5. UNDIM ARRAY
3602   2274  888 0 35  0043  2474               ERS  XM
3603   2474  888 0 30  2277  4260               LDL           CONST
3604   2277  888 0 0G  0000  2882               IIR1  0000
3605   2882  888 0 20  1884  2886               BUF# 01000    05000
3606   2886  888 0 60  1093  0895               STA  T0043
3607   0895  888 0 30  2097  4426               LDL           REMRT
3608   2097  888 0 07  1082  4710               IIR  T0032    DIVT2
3609   3073  888 0 30  2675  4044       IO2,    LDL           SCAN      W10.SCAN FOR (
3610   2675  888 0 30  1064  2674               LDL  $
3611   2674  888 0 82  0394  2477               TEQ  IO2$
3612   2477  888 0 30  4221  1123               LDL  LPREN
3613   1123  888 0 82  4165  2326               TEQ  IO2,1
3614   2326  888 0 65  4209  2161               STX  TEMP2
3615   2161  888 0 25  2152  1954               LDA  IOOP
3616   1954  888 0 30  2756  4242               LDL           INSRT
3617   2756  888 0 05  4209  2361               LDX  TEMP2    RESCN
3618   4165  888 0 25  0967  0569       IO2,1   LDA# 19000    00000          3F2H
3619   0569  888 0 30  0771  0173               LDL           ASM1      W12.INTERRUPT SEQUENCE
3620   0771  888 0 25  1773  1175               LDA  OIO%
3621   1175  888 0 30  2777  4242               LDL           INSRT
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3622  2777  888 1 07  0003  0381          IIR2  0003
3623  0381  888 0 25  2183  0985          LDA   IO3MD
3624  0985  888 1 60  0000  2874          STA2  0000
3625  2874  888 0 25  0323  2125          LDA   THREF
3626  2125  888 1 60  9999  3074          STA2  9999
3627  3074  888 0 25  0531  2733          LDA   TWO8
3628  2733  888 1 60  9998  3073          STA2  9998      IO2.
3629  1348  888 0 30  1950  2352  IN      LDL             ENTER     W14.IN
3630  1950  888 0 30  1814  3030          LDL   ANSL      ASMTR
3631  1961  888 0 30  1763  0363  OUT     LDL             GET       W15.OUT
3632  1763  888 0 30  1814  2352          LDL   ANSL      ENTER
3633  2352  888 1 29  0000  2875  ENTER   LDA3  0000
3634  2875  888 0 32  0200  2480          SHR   0200
3635  2480  888 0 35  3082  2084          ERS   X3
3636  2084  888 0 70  3086  0889          ADD#  04010     00000
3637  0889  888 0 05  000A  1294          LDX   RA
3638  1294  888 0 25  1896  0173          LDA   BIG13     ASM1          LIR5
3639  0884  888 0 30  1887  4426  IO#     LDL             REMRT     W17.EQUALS SIGN
3640  1887  888 0 30  1289  1891          LDL             IMPDO
3641  1289  888 0 06  0358  0358          CLX   #DDO1
3642  3075  888 1 25  0000  2677  IO%     LDA2  0000
3643  2677  888 0 35  3023  2877          ERS   XMC
3644  2877  888 0 30  0671  3077          LDL   DOMD                  W20.   (LIST)
3645  3077  888 0 82  2680  2880          TEQ             1F
3646  2680  888 0 05  0742  1344          LDX   TOBIO
3647  1344  888 0 65  0927  2129          STX   TOBSW
3648  2129  888 0 30  1931  0374          LDL             DO$SB
3649  1931  888 0 05  0140  2742          LDX   TOB
3650  2742  888 0 65  0927  2329          STX   TOBSW
3651  2329  888 1 0G  0001  2933          IIR3  0001
3652  2933  888 0 25  0884  2087          LDA   IO#
3653  2087  888 0 60  4117  2920          STA   SIGN#     2F
3654  2880  888 0 30  2920  1891  1       LDL   2F        IMPDO
3655  2920  888 1 25  9998  2679  2       LDA2  9998
3656  2679  888 0 30  2883  4736          LDL             GOTO
3657  2883  888 0 25  0544  1346          LDA   NINEF
3658  1346  888 0 37  0400  2153          SHL   0400
3659  2153  888 0 20  4756  2358          BUF   BIG02
3660  2358  888 0 60  4880  0982          STA   NXLOC
3661  0982  888 1 07  9997  4140          IIR2  9997      NORMX
3662  1891  888 0 50  4195  2297  IMPDO   STL   EXIT6
3663  2297  888 0 05  2299  4084          LDX             FARNL
3664  2299  888 0 60  0544  1746          STA   NINEF
3665  1746  888 0 30  1748  4686          LDL             FILUP
3666  1748  888 1 25  9999  2879          LDA2  9999
3667  2879  888 0 60  4880  4195          STA   NXLOC     EXIT6
3668  0394  888 0 05  1796  2598  I02$    LDX#  04040     00000
3669  2598  888 0 25  1896  0498          LDA   BIG13                 #30.END
3670  0498  888 0 30  0900  0173          LDL             ASM1
3671  0900  888 1 0G  9999  0904          IIR3  9999
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3672    0904  BBB 0 25  2056  3079                LDA  #OFF
3673    3079  BBB 0 60  4117  0469                STA  SIGN#     EQ1$
3674                                   IO3$       EQU  NO$
3675                                   IO3,       EQU  IO2,
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3676   4144  BBB 0 05  1946  1948   WDFUN   LDX            1F        P.  FUNCTION AND SUBROUTINE DECLARATIONS
3677   1946  BBB 0 88  2223  9915           CON  88222    39915         IIR10 BUF1F LIR10 LDA1 ATL
3678   4145  BBB 0 05  0747  1948   WDSUB   LDX            1F
3679   0747  BBB 0 88  2223  0000           CON  88222    30000         IIR10 BUF1F LIR10
3680   1948  BBB 0 65  2651  3080   1       STX  DON                  P1. COMPILE PREAMBLE
3681   3080  BBB 0 05  0231  3083           LDX  BAND
3682   3083  BBB 0 65  4880  2332           STX  NXLOC
3683   2332  BBB 0 05  1419  2284           LDX  ONE15
3684   2284  BBB 0 65  2287  1889           STX  XLINE
3685   1889  BBB 0 30  2091  4044           LDL            SCAN
3686   2091  BBB 1 64  0001  2484           STA3  0001
3687   2484  BBB 0 35  0043  2684           ERS  XM
3688   2684  BBB 0 70  2487  000A           ADD            RA
3689   2487  BBB 0 30  0001  2884           LDL   0001
3690   2884  BBB 0 05  2687  2089           LDX  1F        NAME
3691   2089  BBB 0 65  4464  2116   NAME    STX  EXIT1
3692   2116  BBB 1 0G  0001  2922           IIR3  0001
3693   2922  BBB 0 25  2324  2526           LDA  HEAD1
3694   2526  BBB 0 70  0728  000A           ADD            RA
3695   0728  BBB 0 50  1549  0551           STL  00000
3696   0551  BBB 0 25  000B  1755           LDA  RL
3697   1755  BBB 0 05  4974  2376           LDX  BIG10
3698   2376  BBB 0 32  0500  0984           SHR   0500
3699   0984  BBB 0 37  0500  0992           SHL   0500
3700                                        OFF   9000
3708                                        ON    9000
3709                                        ON    9001
3710                                        ON    9002
3711   0992  BBB 0 65  0908  2310           STX  R0108
3712   2310  BBB 0 60  0913  2715           STA  R0113
3713   2715  BBB 0 50  0948  4464           STL  R0148    EXIT1
3714                                        ON    8001
3715                                        ON    8002
3716   2687  BBB 0 25  2289  2291   1       LDA  BIG0G                P2. SET UP CARD
3717   2291  BBB 0 30  1894  4521           LDL            ASM37
3718   1894  BBB 0 25  2096  0698           LDA# 01000    20000
3719   0698  BBB 0 60  4196  2148           STA  UNIQU
3720   2148  BBB 0 25  4603  1955           LDA  BIG60
3721   1955  BBB 0 30  1757  4357           LDL            ASM33
3722   1757  BBB 0 25  2651  3084           LDA  DON
3723   3084  BBB 0 30  2887  0377           LDL            ASM11
3724   2887  BBB 0 25  4408  2510           LDA  BIG01
3725   2510  BBB 0 30  2112  4686           LDL            FILUP
3726   2112  BBB 0 25  0323  2325           LDA  THREF
3727   2325  BBB 0 60  4880  2532           STA  NXLOC
3728   2532  BBB 0 25  2134  1936           LDA# 60000    10000
3729   1936  BBB 0 30  1138  4357           LDL            ASM33
3730   1138  BBB 0 25  0540  2942           LDA# 70200    00000
3731   2942  BBB 0 06  0745  0745           CLX
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3732  0745  888 0 30  0947  4535          LDL              ASM4
3733  0947  888 0 30  1149  0751          LDL# 34000       20000
3734  0751  888 0 50  2651  1885          STL  DON                      P3. SCAN PARAMETERS
3735  1885  888 0 30  3087  0755          LDL  PARMD       INSMD
3736  2136  888 0 07  0001  2339  PAR.    IIR   0001
3737  2339  888 0 70  2651  2085          ADD  DON
3738  2085  888 0 60  2651  4140          STA  DON         NORMX
3739  2539  888 0 30  1941  4044  PAR$    LDL              SCAN         P4. SCAN AHEAD
3740  1941  888 0 30  1743  0945          LDL  OWDIM
3741  0945  888 0 82  4042  2348          TEQ  NORM
3742  2348  888 0 30  1064  2285          LDL  $
3743  2285  888 0 82  2539  0888          TEQ  PAR$        8F           P5. GENERATE THUNKS
3746  0888  888 1 0G  9999  1292  8       IIR3  9999
3747  1292  888 0 30  1238  2485          LDL  CRAND
3748  2485  888 0 82  1288  1888          TEQ  1F
3749  1868  888 0 25  2651  2685          LDA  DON
3750  2685  888 0 75  4097  1900          SUB  KON1
3751  1900  888 0 60  2651  2885          STA  DON
3752  2885  888 0 30  2088  4521          LDL              ASM37
3753  2088  888 1 29  0001  3085          LDA3  0001
3754  3085  888 0 30  2288  4303          LDL              BR1
3755  2288  888 0 70  4392  2295          ADD  BIG70       -F8
3756  1288  888 1 07  9999  2361  1       IIR2  9999       RESCN
3757  2361  888 0 25  4030  4042  RESCN   LDA  LAST         NORM
3758  2295  888 0 30  2497  2499  -FB     LDL              FBSB1
3759  2497  888 0 25  4196  2548          LDA  UNIQU
3760  2548  888 0 60  0288  0490          STA  TMP13
3761  0490  888 0 70  0613  2488          ADD  KON3
3762  2488  888 0 60  4196  0898          STA  UNIQU
3763  0898  888 0 25  4604  2507          LDA  BIG25
3764  2507  888 0 30  2509  2312          LDL              FBSUB
3765  2509  888 0 25  4247  1349          LDA  BIG30
3766  1349  888 0 30  1351  2312          LDL              FBSUB
3767  1351  888 0 25  4277  0979          LDA  BIG50
3768  0979  888 0 30  0888  2312          LDL  88          FBSUB
3769  2296  888 0 30  1098  4303  &FB     LDL              BR1
3770  1098  888 0 30  2100  2499          LDL              FBSB1
3771  2100  888 0 05  2502  4927          LDX              INCUQ
3772  2502  888 0 70  1904  2707          ADD# 48999       90000
3773  2707  888 0 30  0888  4357          LDL  88          ASM33
3774  2499  888 0 25  4196  2748  FBSB1   LDA  UNIQU
3775  2748  888 0 70  2150  2353          ADD  BIG03
3776  2353  888 0 24  0000  2688          BUF1  0000
3777  2688  888 0 64  0000  0008          STA1  0000       RL
3778  2312  888 0 50  0379  0581  FBSUB   STL  EXIT7
3779  0581  888 0 20  0022  2888          BUF  X9
3780  2888  888 0 30  0690  4260          LDL              CONST
3781  0690  888 0 05  1892  0072          LDX              CASIN
3782  1892  888 0 25  0008  2496          LDA  RL
3783  2496  888 0 70  1298  0101          ADD  BIG24
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3784	0101	888	0 30	2303	4357		LDL		ASM33
3785	2303	888	0 25	1380	1182		LDA	I0080	
3786	1182	888	0 30	1184	4350		LDL		ASM2
3787	1184	888	0 25	0288	0890		LDA	TMP13	
3788	0890	888	0 70	4097	2300		ADD	KON1	
3789	2300	888	0 60	0288	1290		STA	TMP13	
3790	1290	888	0 70	2092	1295		ADD#	58999	90000
3791	1295	888	0 30	0379	4357		LDL	EXIT7	ASM33
3792	4150	888	0 30	4140	1792	WDRTN	LDL	NORMX	RETRN
3793	1792	888	0 25	2287	4736	RETRN	LDA	XLINE	GOTO

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- 3794   0594  BBB 0 30  4095  3088   INIT    LDL  KON2                  Z.  INITIALIZATION AND TERMINATION
  3795   3088  BBB 0 25  1363  2365           LDA  HEAD
  3796   2365  BBB 0 87  1768  1968           TGR  1F
  3797   1968  BBB 0 50  0773  1775           STL  WARN                  Z1. SET UP HEADER TABLE
  3798   1775  BBB 0 07  0050  1768           IIR   0050   1F
  3799   1768  BBB 0 60  2324  2726   1       STA  HEAD1
  3800   2726  BBB 0 75  000B  2131           SUB  RL
  3801   2131  BBB 0 60  1363  2565           STA  HEAD
  3802   2565  BBB 0 30  1367  0769           LDL  2F
  3803   0769  BBB 0 05  1371  2089           LDX          NAME
  3804   1371  BBB 0 07  4038  0774           IIR  N0008
  3805   0774  BBB 0 60  4427  1179           STA  NWORD   INITT
  3806   1367  BBB 0 21  1224  195B   2       ALF  MAIN*
  3807   1179  BBB 0 07  3099  1782   INITT   IIR  MEML1                 Z2. CLEAR SYMBOL TABLE
  3808   1782  BBB 0 60  4600  2489           STA  MEML
  3809   2489  BBB 0 05  2491  2094           LDX  MEMU1
  3810   2094  BBB 0 65  4292  1744           STX  MEMU
  3811   1744  BBB 0 07  0099  1147           IIR   0099   1F
  3812   1147  BBB 0 60  4420  2172   1       STA  TEMP3   2F
  3813   2172  BBB 0 70  0974  000A   2       ADD          RA
  3814   0974  BBB 0 0B  1420  1980           LIR1 Z0000
  3815   1980  BBB 0 34  0000  2689           LDL1  0000
  3816   2689  BBB 0 25  2491  2294           LDA  MEMU1
  3817   2294  BBB 0 87  2697  2699           TGR          2F     +02
  3818   2697  BBB 0 05  2699  0301           LDX  2F
  3819   0301  BBB 0 30  2503  4229           LDL          REM
  3820   2503  BBB 0 25  4420  2172           LDA  TEMP3   2B
  3821   2699  BBB 0 25  4420  1923   2       LDA  TEMP3
  3822   1923  BBB 0 31  2926  2926           CLL
  3823   2926  BBB 0 82  2529  2729           TEQ  1F
  3824   2729  BBB 0 75  4097  1147           SUB  KON1    1B
  3825   2529  BBB 0 50  0027  2889   1       STL  LEVEL
  3826   2889  BBB 0 50  4635  0737           STL  AVAIL          STL  DOVAR
  3827   0737  BBB 0 50  4928  2180           STL  RWORD
  3828   2180  BBB 0 50  4579  3089           STL  IWORD
  3829   3089  BBB 0 50  4088  0740           STL  DUMMY
  3830   0740  BBB 0 05  2143  1145           LDX# 60090   00000
  3831   1145  BBB 0 65  1924  1927           STX  FS
- 3832   1927  BBB 0 05  4577  1779           LDX  B10                   Z3. INITIALIZE COUNTERS
  3833   1779  BBB 0 65  0503  0705           STX  P0103
  3834   0705  BBB 0 65  0508  2710           STX  P0108
  3835   2710  BBB 0 0B  0004  2713           LIR1  0004
  3836   2713  BBB 0 31  2316  2316           CLL  1F
  3837   2316  BBB 0 26  2123  2123   1       CLA
  3838   2123  BBB 0 24  1750  2552           BUF1 W0000
  3839   2552  BBB 0 64  1750  2752           STA1 W0000
  3840   2752  BBB 0 0G  9999  2956           IIR1  9999
  3841   2956  BBB 0 82  1959  2316           TEQ          1B
  3842   1959  BBB 0 25  4408  1890           LDA  BIG01
```

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3843   1890  888 J 60  4196  1898          STA  UNIQU
3844   1898  888 J 70  4408  2512          ADD  BIG01
3845   2512  888 0 60  0231  2090          STA  BAND
3846   2090  888 J 70  4408  2712          ADD  BIG01
3847   2712  888 0 60  4198  2350          STA  COMON
3848   2350  888 0 05  4277  1979          LDX  BIG50
3849   1979  888 0 65  4456  2290          STX  NZONS
3850   2290  888 0 05  4623  2525          LDX  BIG05
3851   2525  888 0 65  4094  2146          STX   4094
- 3852   2146  888 0 65  4096  2798          STX   4096
- 3853   2798  888 0 65  4098  2490          STX   4098
3854   2490  888 0 50  4374  2127          STL  OLDLC
3855   2127  888 0 50  4701  2553          STL  TEMPS
3856   2553  888 0 07  0004  1957          IIR   0004
3857   1957  888 0 60  4880  1982          STA  NXLOC
3858   1982  888 0 07  0010  1785          IIR   0010
3859   1785  888 0 60  2287  2690          STA  XLINE
3860   2690  888 0 07  4183  2494          IIR  50003
3861   2494  888 0 60  4980  2732          STA  ASMST
3862                                       OFF   9000
3866                                       ON    9000
3867                                       ON    9001
3868                                       ON    9002
3869                                       OFF   8001
3870                                       OFF   8002
3871   2732  888 0 50  0928  2130          STL  R0128
3872                                       ON    8001
3873                                       ON    8002
3874   2130  888 1 02  1520  2334          LIR2 MODE
3875   2334  888 1 08  1190  4140          LIR3 RAND      NORMX
3876   4143  888 J 30  1345  1792  WDEND   LDL            RETRN     250.END IS SENSED
3877   1345  888 0 30  1347  1627          LDL            ADDNX
3878   1347  888 0 30  1749  1951          LDL            ASMSD
3879   1749  888 J 25  0908  2910          LDA  RWD1
3880   2910  888 J 35  0009  2890          ERS  H5
3881   2890  888 J 60  0908  2912          STA  RWD1
3882   2912  888 J 25  2114  2516          LDA  1F
3883   2516  888 J 20  2324  000A          BUF  HEAD1     RA
3884   2114  888 1 02  0000  2917  1       LIR2  0000                 251.PUNCH HEADERS
3885   2917  888 0 25  0231  3090          LDA  BAND
- 3886   3090  888 J 70  4541  1944          ADD  KN200
3887   1944  888 0 05  4198  2550          LDX  COMON
3888   2550  888 J 32  0400  2157          SHR   0400
3889   2157  888 J 35  4724  2576          ERS  XC
3890   2576  888 J 20  2178  2380          BUF# 71000     10000
3891   2380  888 1 60  1547  1949          STA2 09998
3892   1949  888 J 25  4196  2998          LDA  UNIQU
3893   2998  888 J 37  0200  2691          SHL   0200
3894   2691  888 J 32  0600  2500          SHR   0600
3895   2500  888 J 35  3023  2891          ERS  XMC
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3896  2891  888 0 20  2212  3091          BUF  BIG40
3897  3091  888 1 60  1548  2750          STA2 09999
3898  2750  888 0 06  2753  2753          CLX
3899  2753  888 0 30  2155  2156          LDL            SHEAD
3900  2155  888 0 25  2357  2159          LDA  1F
3901  2159  888 0 05  2561  1963          LDX  2F
3902  1963  888 0 60  0503  0905          STA  P0103
3903  0905  888 0 65  0508  2913          STX  P0108     3F
3904                                      OFF   9000
3911                                      ON    9000
3912  2357  888 0 64  A7FA  27G0     1    CON  64A7F     A27G0
3913  2561  888 0 31  0200  1110     2    CON  31020     01110
3914                                      ON    9001
3915                                      ON    9002
3916                                      ON    8001
3917                                      ON    8002
3918  2913  888 1 25  1549  2151     3    LDA2 00000
3919  2151  888 0 31  2154  2154          CLL
3920  2154  888 0 82  2557  2757          TEQ  3F
3921  2757  888 0 05  4577  2179          LDX  B10
3922  2179  888 0 30  0781  4533          LDL            PRNT
3923  0781  888 1 25  1549  2351          LDA2 00000
3924  2351  888 0 30  2953  4337          LDL            ASM5
3925  2953  888 1 07  9999  2957          IIR2 9999
3926  2957  888 0 31  2160  2160          CLL
3927  2160  888 0 82  2163  2913          TEQ            3B
3928  2163  888 1 02  0050  2913          LIR2 0050      3B
3929  2557  888 0 30  2359  1951     3    LDL            ASM5D      252•READ NEXT CARD
3930  2359  888 0 25  2761  2363          LDA  1F
3931  2363  888 0 05  2765  0337          LDX            3U
3932  2765  888 0 30  0135  0937          LDL  CHALT     POUT
3933  2761  888 0 25  0011  2292     1    LDA  HWD1
3934  2292  888 0 30  2694  2696          LDL  *LOAD
3935  2696  888 0 82  2899  0594          TEQ  PASS2     INIT
3936  2694  888 0 82  6638  3801  *LOAD   NUM  *ROOT      L 01
3937  2899  888 0 30  0501  0937  PASS2   LDL  HALT      POUT
3938  0937  888 0 50  1976  2378  POUT    STL  EXIT8
3939  2378  888 0 30  0050  2492          LDL  LC                  SUBROUTINE TO EJECT CARDS AND PAPER
3940  2492  888 0 85  2894  1971          MUL  1F
3941  1971  888 0 70  1973  000A          ADD            RA
3942  1973  888 0 16  0049  2580          PFD   0049     -POT
3943  2581  888 0 67  3333  000A  &POT    HLT   3333     RA
3944  2580  888 0 30  2182  1784  -POT    LDL            ASM5C
3945  2182  888 0 30  1984  1784          LDL            ASM5C
3946  1984  888 0 30  0786  1784          LDL            ASM5C
3947  0786  888 0 16  0017  0790          PFD   0017     -POT1
3948  0791  888 0 67  3333  000A  &POT1   HLT   3333     RA
3949  0790  888 0 16  0086  0794  -POT1   PFD   0086     -POT2
3950  0795  888 0 67  3333  000A  &POT2   HLT   3333     RA
3951  0794  888 0 30  1976  1784  -POT2   LDL   EXIT8    ASM5C
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3952   2894  BBB 1 00  0050  0000   1       CON1  00005   00000
3953   0501  BBB 0 25  0773  1975   HALT    LDA   WARN
3954   1975  BBB 0 70  000A  2780           ADD   RA      -PAS2
3955   2781  BBB 0 05  2383  1985   &PAS2   LDX   1F      2F
3956   1985  BBB 0 72  000C  000C   2       HCC   RX      RX
3957   2383  BBB 0 42  0787  1985   1       HBT           2B
3958   0787  BBB 0 96  0000  2692           HBU   HDW2
3959   2692  BBB 0 72  000A  1895           HCC   RA
3960   1895  BBB 0 96  0000  2892           HBU   HDW2    3F
3961   2892  BBB 0 07  2896  2095   3       IIR   2F
3962   2095  BBB 0 60  2892  2781           STA   3B      &PAS2
3963   2896  BBB 1 07  1548  2700   2       IIR2  09999
3964   2700  BBB 0 08  0000  0021           LIR1  0000    HDW3
3965   2780  BBB 0 67  0A2A  0A2A   -PAS2   HLT   0A2A    0A2A
3966   1784  BBB 0 50  4568  3092   ASM5C   STL   EXIT2   1F
3967   3092  BBB 0 26  2495  2495   1       CLA
3968   2495  BBB 0 30  2897  4337           LDL   2F      ASM5
3969   1951  BBB 0 50  4568  2897   ASM5D   STL   EXIT2   2F
3970   2897  BBB 0 07  4181  2900   2       IIR   50001
3971   2900  BBB 0 30  4980  2932           LDL   ASM5T
3972   2932  BBB 0 82  4568  3092           TEQ   EXIT2   1B
3973   2491  BBB 0 00  4000  0000   MEMU1   JMP   MEMU2   0000
3974   4514  BBB 0 05  2780  2382   ALARM   LDX   -PAS2                ERROR PRINTOUT SUBROUTINE
3975   2382  BBB 0 65  0501  1628           STX   HALT    PANIC
3976                                        OFF   8001
3977                                        OFF   9000
3984                                        ON    9000
3985                                        ON    9001
3986                                        ON    8001
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3987   4012  BBB 0 07  0001  3094   C0002   IIR   0001                  E.  EQUIVALENCE DECLARATIONS.
3988   3094  BBB 0 60  4209  2314           STA   TEMP2
3989   2314  BBB 0 26  1918  1918           CLA
3990   1918  BBB 0 60  4420  2323           STA   TEMP3
3991   2323  BBB 0 25  4631  2534           LDA   TEMP1     2F
3992   2534  BBB 0 05  000A  1938   2       LDX   RA
3993   1938  BBB 0 70  4974  2977           ADD   BIG10     -ASN2
3994   2978  BBB 0 35  4741  0593   &ASN2   ERS   XMH
3995   0593  BBB 0 75  4623  2695           SUB   BIG05
3996   2695  BBB 0 60  4624  2327           STA   TEMP4
3997   2327  BBB 0 70  4209  1362           ADD   TEMP2
3998   1362  BBB 0 31  2965  2965           CLL                         E1. SEARCH THROUGH CHAIN
41 3999   2965  B0B 0 87  3096  2168           TGR   1F    +03
4000   2168  BBB 0 07  0001  3096           IIR   0001      1F
4001   3096  BBB 0 60  4209  2514   1       STA   TEMP2     3F
4002   2514  BBB 0 25  4420  2523   3       LDA   TEMP3
- 4003   2523  BBB 0 75  4624  2578           SUB   TEMP4
4004   2578  BBB 0 87  1181  1781           TGR   1F
4005   1781  BBB 0 50  4420  2895           STL   TEMP3     6F
4006   1181  BBB 0 60  4420  2895   1       STA   TEMP3     6F
4007   2977  BBB 0 70  4603  3097   -ASN2   ADD   BIG60     -ASN3
4008   3098  BBB 0 37  0400  1705   &ASN3   SHL   0400
4009   1705  BBB 0 35  0043  2098           ERS   XM
4010   2098  BBB 0 30  4209  2714           LDL   TEMP2
4011   2714  BBB 0 87  2118  2171           TGR             1F     +54
4012   2118  BBB 0 60  4209  2171           STA   TEMP2     1F
4013   2171  BBB 0 77  2171  1174   1       ATL
4014   1174  BBB 0 07  HHHH  2778           IIR   HHHH
4015   2778  BBB 0 39  0001  2298           ERS1  0001
4016   2298  BBB 0 75  000B  2703           SUB   RL
4017   2703  BBB 0 30  4420  2723           LDL   TEMP3
4018   2723  BBB 0 87  2527  2980           TGR             1F     +54
4019   2527  BBB 0 60  4420  2980           STA   TEMP3     1F
4020   2980  BBB 0 25  000C  3097   1       LDA   RX        -ASN3
4021   2895  BBB 0 32  0600  3097   6       SHR   0600      -ASN3
4022   3097  BBB 0 30  3099  4303   -ASN3   LDL             BR1
4023   3099  BBB 0 30  4631  2734           LDL   TEMP1
4024   2734  BBB 0 82  1137  2534           TEQ             2B
4025   1137  BBB 0 25  4196  2948           LDA   UNIQU
4026   2948  BBB 0 70  4209  1762           ADD   TEMP2
4027   1762  BBB 0 77  1762  0566           ATL
4028   0566  BBB 0 70  4420  2173           ADD   TEMP3
4029   2173  BBB 0 60  4196  2399           STA   UNIQU
4030   2399  BBB 0 25  4545  2498           LDA   ASGN1     EQASN
4031   2498  BBB 0 50  4631  2934   EQASN   STL   TEMP1                 E2. ASSIGN CHAIN
4032   2934  BBB 0 60  4464  0766           STA   EXIT1
4033   0766  BBB 0 25  4740  1992           LDA   X1
4034   1992  BBB 0 35  000B  1996           ERS   RL
4035   1996  BBB 0 60  4420  2698           STA   TEMP3
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4036  2698  888 0 06  0000  2702          IIR1  0000
4037  2702  888 0 60  4209  2914          STA   TEMP4
4038  2914  888 0 29  0000  2898          LDA1  0000
4039  2898  888 0 70  4392  2345          ADD   BIG70      -EQV3
4040  2346  888 0 37  0400  2354  &EQV3    SHL   0400
4041  2354  888 0 35  0043  0701          ERS   XM
4042  0701  888 0 70  4631  0535          ADD   TEMP1
4043  0535  888 0 60  4631  2345          STA   TEMP1      -EQV3
4044  2345  888 0 29  0000  1901  -EQV3    LDA1  0000     2F
4045  1901  888 0 05  000A  1905  2        LDX   RA
4046  1905  888 0 70  4974  2727          ADD   BIG10      -EQV1
4047  2728  888 0 35  4741  2343  &EQV1    ERS   XMH
4048  2343  888 0 70  4631  2184          ADD   TEMP1
4049  2184  888 0 75  4623  2101          SUB   BIG05
4050  2101  888 0 60  4631  0735          STA   TEMP1
4051  0735  888 0 32  0600  2144          SHR   0600       3F
4052  2727  888 0 70  4603  2558  -EQV1    ADD   BIG60      -EQV2
4053  2559  888 0 37  0400  1366  &EQV2    SHL   0400
4054  1366  888 0 35  0043  2301          ERS   XM         1F
4055  2558  888 0 07  0001  2301  -EQV2    IIR   0001       1F
4056  2301  888 0 75  4631  0935  1        SUB   TEMP1
4057  0935  888 0 77  0935  2138          ATL
4058  2138  888 0 25  000C  2543          LDA   RX
4059  2543  888 0 70  4392  2195          ADD   BIG70      -EQV4
4060  2196  888 0 25  4247  2501  &EQV4    LDA   BIG30      1F
4061  2195  888 0 35  4724  2501  -EQV4    ERS   XC         1F
4062  2501  888 0 20  000B  2105  1        BUF   RL
4063  2105  888 0 64  0000  2701          STA1  0000
4064  2701  888 0 35  4740  2743          ERS   X1
4065  2743  888 0 30  4420  2372          LDL   TEMP3
4066  2372  888 0 82  2175  2375          TEQ   1F
4067  2375  888 0 30  4464  0528          LDL   EXIT1      8ED
4068  2175  888 0 25  000C  2144  1        LDA   RX         3F
4069  2144  888 0 35  0043  2901  3        ERS   XM
4070  2901  888 0 30  4209  2915          LDL   TEMP2
4071  2915  888 0 82  4464  2318          TEQ   EXIT1
4072  2318  888 0 70  2923  000A          ADD               RA
4073  2923  888 0 08  0000  2345          LIR1  0000       -EQV3
4074  4153  888 0 30  2355  2758  WDEQU     LDL   EQ1MD
4075  2758  888 1 50  0001  2902          STL2  0001
4076  2902  888 0 25  3022  2903          LDA   DUA
4077  2903  888 0 60  2220  2104          STA   UASW
4078  2104  888 1 07  0001  2908          IIR2  0001       EQ1*
4079  2908  888 0 30  2716  4044  EQ1*      LDL               SCAN
4080  2716  888 0 30  4221  2524          LDL   LPREN
4081  2524  888 0 82  2927  0526          TEQ               MLP
4082  2927  888 0 31  2330  2330          CLL
4083  2330  888 1 50  0001  2304          STL2  0001
4084  2304  888 0 50  2907  2709          STL   RRRR
4085  2709  888 0 50  2916  2518          STL   ZLINK
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4086  2518  BBB 1 50  0003  2504                STL2  0003
4087  2504  BBB 0 30  2400  2704                LDL   EQUMD
4088  2704  BBB 0 05  2909  4235                LDX   0EQU&      MDOP
4089  2904  BBB 0 30  4140  2943  EQU.          LDL   NORMX      EQSVB
4090  2943  BBB 0 50  4464  1766  EQSVB         STL   EXIT1                 E3. 'EQUIVALENCE'
4091  1766  BBB 1 29  0000  2305                LDA3  0000
4092  2305  BBB 0 70  4301  2554                ADD   BIG90      -EQ.
4093  2555  BBB 0 30  2958  0528  &EQ.          LDL   8F         8ED
4094  2554  BBB 0 30  2759  4833  -EQ.          LDL              8R2
4095  2759  BBB 0 35  4741  0793                ERS   XMH
4096  0793  BBB 0 05  000A  1797                LDX   RA
4097  1797  BBB 0 31  2505  2505                CLL
4098  2505  BBB 0 82  2718  2918                TEQ   1F
4099  2918  BBB 0 35  4740  2344                ERS   X1
4100  2344  BBB 0 30  4756  2959                LDL   BIG02
4101  2959  BBB 0 82  1962  2162                TEQ   2F
4102  2162  BBB 1 25  9999  2705                LDA2  9999
4103  2705  BBB 0 31  2724  2724                CLL
4104  2724  BBB 0 82  1128  2555                TEQ              &EQ.
4105  1128  BBB 1 65  9999  2905                STX2  9999
4106  2905  BBB 0 0G  0000  2924                IIR1  0000
4107  2924  BBB 1 60  9998  2725                STA2  9998       3F
4108  2718  BBB 0 0G  0000  2725  1             IIR1  0000       3F
4109  2725  BBB 1 30  9997  2599  3             LDL2  9997       4F
4110  2599  BBB 1 60  9997  2799  4             STA2  9997
4111  2799  BBB 0 25  2907  2925                LDA   RRRR
4112  2925  BBB 0 32  0400  1135                SHR   0400
4113  1135  BBB 0 35  4724  2776                ERS   XC
4114  2776  BBB 0 05  000A  1981                LDX   RA
4115  1981  BBB 0 26  2384  2384                CLA
4116  2384  BBB 0 82  0987  1787                TEQ              1F
4117  0987  BBB 0 0G  0000  0391                IIR1  0000
4118  0391  BBB 0 60  2916  1787                STA   ZLINK      1F
4119  1787  BBB 0 29  0000  1328  1             LDA1  0000
4120  1328  BBB 0 35  0435  1928                ERS   XC0
4121  1928  BBB 0 20  000B  1335                BUF   RL
4122  1335  BBB 0 20  4756  2360                BUF   BIG02
4123  2360  BBB 0 20  000C  1364                BUF   RX
4124  1364  BBB 0 64  0000  2958                STA1  0000       8F
4125  1962  BBB 0 29  0000  2128  2             LDA1  0000
4126  2128  BBB 0 70  4392  2545                ADD   BIG70      -EQ1.
4127  2545  BBB 0 07  HHHH  2149  -EQ1.         IIR   HHHH
4128  2149  BBB 0 39  0000  2725                ERS1  0000       3B
4129  2546  BBB 0 37  0400  2754  &EQ1.         SHL   0400
4130  2754  BBB 0 35  0043  2328                ERS   XM
4131  2328  BBB 0 77  2328  2331                ATL
4132  2331  BBB 0 07  HHHH  1935                IIR   HHHH
4133  1935  BBB 0 35  2907  2528                ERS   RRRR
4134  2528  BBB 0 82  2545  2531                TEQ   -EQ1.
4135  2531  BBB 0 75  000B  2336                SUB   RL
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4136  2336  888 0 60  4209  2961          STA  TEMP2
4137  2961  888 0 70  4623  2976          ADD  BIG05
4138  2976  888 0 20  4301  2928          BUF  BIG90
4139  2928  888 0 60  4631  2135          STA  TEMP1
4140  2135  888 1 25  9997  2999          LDA2  9997
4141  2999  888 0 31  2929  2929          CLL
4142  2929  888 0 50  2907  2530          STL  RRRR
4143  2530  888 0 82  2335  2535          TEQ                 1F
4144  2335  888 0 07  0001  2338          IIR   0001
4145  2338  888 0 70  4600  2954          ADD  MEML
4146  2954  888 0 60  2916  2730          STA  ZLINK
4147  2730  888 0 26  2535  2535          CLA  1F
4148  2535  888 0 06  2538  2538     1    CLX
4149  2538  888 0 32  0400  1745          SHR   0400
4150  1745  888 0 20  4631  2583          BUF  TEMP1
4151  2563  888 0 77  2583  1786          ATL
4152  1786  888 0 07  0001  0789          IIR   0001
4153  0789  888 0 70  4600  2930          ADD  MEML
4154  2930  888 0 60  4420  2572          STA  TEMP3
4155  2572  888 0 70  1774  000A          ADD                 RA
4156  1774  888 0 50  0000  2731          STL   0000
4157  2731  888 0 25  4623  2575          LDA  BIG05
4158  2575  888 0 75  4209  2931          SUB  TEMP2
4159  2931  888 0 20  4301  2755          BUF  BIG90
4160  2755  888 0 60  4631  2783          STA  TEMP1
4161  2783  888 0 07  HHHH  1986          IIR   HHHH
4162  1986  888 0 39  0000  2735          ERS1  0000
4163  2735  888 0 32  0400  2544          SHR   0400
4164  2544  888 0 20  4631  2983          BUF  TEMP1
4165  2983  888 0 77  2983  2186          ATL
4166  2186  888 0 07  0002  0989          IIR   0002
4167  0989  888 0 70  4600  2935          ADD  MEML
4168  2935  888 0 60  4600  2952          STA  MEML
4169  2952  888 0 70  2955  000A          ADD                 RA
4170  2955  888 0 50  0000  2536          STL   0000
4171  2536  888 0 25  4600  2560          LDA  MEML
4172  2560  888 0 30  4420  2599          LDL  TEMP3          4B
4173  2958  888 1 0G  9999  4464     8    IIR3  9999          EXIT1
4174  2028  888 1 29  0000  2736  AEQU    LDA3  0000                    CHECK THAT SUBSCRIPT WAS CONSTANT
4175  2736  888 0 30  1051  2936          LDL  CON0
4176  2936  888 0 82  2739  2939          TEQ  1F             3F
4177  2939  888 0 30  2141  0528     3    LDL  2F             8E0
4178  2739  888 1 25  9999  1337     1    LDA2  9999
4179  1337  888 0 70  4097  2950          ADD  KON1
4180  2950  888 0 30  1815  1937          LDL  FOR9S
4181  1937  888 0 87  0940  2939          TGR                 3B
4182  0940  888 0 60  2907  2141          STA  RRRR           2F
4183  2141  888 1 07  9996  1945     2    IIR2  9996
4184  1945  888 1 0G  9999  2349          IIR3  9999
4185  2349  888 0 07  HHHH  2760          IIR   HHHH
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4186  2760  888 1 39  0000  2137          ERS3  0000
4187  2137  888 1 64  0000  4140          STA3  0000      NORMX
4188  4156  888 0 30  2960  2943  EQU%    LDL             EQSVB
4189  2960  888 0 25  2916  2337          LDA   ZLINK
4190  2337  888 0 31  1140  1140          CLL
4191  1140  888 0 82  2744  2944          TEQ   4F        1F
4192  2744  888 0 30  2746  0528  4       LDL   8F        8ED
4193  2944  888 0 30  2946  4641  1       LDL             8R
4194  2946  888 0 70  000A  2562          ADD   RA        -EQU%
4195  2563  888 1 25  9997  2537  &EQU%   LDA2  9997
4196  2537  888 0 06  1340  1340          CLX
4197  1340  888 0 32  0400  1747          SHR   0400      1F
4198  2562  888 1 25  9997  1747  -EQU%   LDA2  9997      1F
4199  1747  888 0 24  0000  2737  1       BUF1  0000
4200  2737  888 0 64  0000  2937          STA1  0000
4201  2937  888 1 30  9999  2738          LDL2  9999
4202  2738  888 0 26  2341  2341          CLA
4203  2341  888 0 82  2746  2145          TEQ   8F
4204  2145  888 0 25  0054  2938          LDA   BIG04
4205  2938  888 0 87  2541  2744          TGR             4B
4206  2541  888 1 25  9998  1740          LDA2  9998
4207  1740  888 0 20  2745  000A          BUF             RA
4208  2745  888 0 08  0000  2551          LIR1  0000
4209  2551  888 0 25  2746  2498          LDA   8F        EQASN
4210  2746  888 1 07  9996  4140  8       IIR2  9996      NORMX
4211                      EQU%  KON*E     EQU   MRP
4212  1856  888 1 09  9999  1940  KON*E   LDX3  9999      ROUTINE FOR N*() WHERE N IS A COSTANT
4213  1940  888 0 32  0100  2945          SHR   0100
4214  2945  888 0 70  000A  2762          ADD   RA        -MUL
4215  2762  888 0 32  0300  2368  -MUL    SHR   0300
4216  2368  888 0 70  000A  2373          ADD   RA        -MUL1
4217  2374  888 0 07  HHHH  2379  &MUL1   IIR   HHHH
4218  2379  888 1 39  9999  2140          ERS3  9999
4219  2140  888 0 70  1947  000A          ADD             RA
4220  1947  888 0 25  0001  2340          LDA   0001
4221  2340  888 0 31  2147  2147          CLL
4222  2147  888 0 82  1814  2751          TEQ   ANSL
4223  2751  888 0 06  2362  2362          CLX
4224  2362  888 0 32  0500  1770          SHR   0500
4225  1770  888 0 82  2573  2773          TEQ   1F
4226  2773  888 0 32  0100  2579          SHR   0100
4227  2579  888 0 82  2582  2782          TEQ   2F
4228  2782  888 0 32  0100  2386          SHR   0100
4229  2386  888 0 82  1789  1989          TEQ   3F
4230  1969  888 0 32  0100  1793          SHR   0100
4231  1793  888 0 82  2396  2763          TEQ   4F        &MUL
4232  2582  888 0 07  0100  2573  2       IIR   0100      1F
4233  1789  888 0 07  0200  2573  3       IIR   0200      1F
4234  2396  888 0 07  0300  2573  4       IIR   0300      1F
4235  2573  888 0 60  2775  2779  1       STA   PAR3
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4236  2779  888 0 30  000C  2584          LDL  RX
4237  2584  888 0 25  4974  2540          LDA  BIG10
4238  2540  888 0 82  2347  2547          TEQ  1F
4239  2547  888 0 70  000A  2962          ADD  RA
4240  2962  888 0 82  2347  1966          TEQ  1F
4241  1966  888 0 31  0969  0969          CLL
4242  0969  888 0 25  4305  2740          LDA  LITA      2F
4243  2740  888 0 32  0900  2963    2     SHR   0900
4244  2963  888 0 82  2166  2366          TEQ  2F
4245  2366  888 0 32  0F00  2740          SHR   0F00     2B
4246  2166  888 0 25  000C  1970    2     LDA  RX
4247  1970  888 0 30  2772  4260          LDL            CONST
4248  2772  888 0 0G  0000  2979          IIR1  0000
4249  2979  888 0 20  4723  2940          BUF  KON.5
4250  2940  888 1 64  9999  2741          STA3  9999
4251  2741  888 0 06  2747  2747          CLX
4252  2747  888 0 0B  1716  2951          LIR1 J0016     3F
4253  2347  888 0 0B  1720  2951    1     LIR1 J0020     3F
4254  2951  888 1 0G  9999  1764    3     IIR3  9999
4255  1764  888 1 29  0001  2941          LDA3  0001
4256  2941  888 0 30  4215  2004          LDL  OPX       UNOP1
4257  2763  888 0 0B  1034  0199  &MUL    LIR1 Q0034     BINSB
4258  2373  888 0 0B  1034  0199  -MUL1   LIR1 Q0034     BINSB
4259  1316  888 0 07  0100  2947  I0016   IIR   0100     1F
4260  2947  888 0 70  2775  2181    1     ADD  PAR3
4261  2181  888 0 70  2784  0930          ADD  BIG37     TAS32
4262  1317  888 0 25  0104  2549  I0017   LDA  PAR1
4263  2549  888 0 30  1178  2381          LDL  BIG20
4264  2381  888 0 82  2984  2185          TEQ            2F
4265  2984  888 0 25  2586  0588          LDA# 70000     A0000
4266  0588  888 0 30  2185  4556          LDL  2F        ASM32
4267  2165  888 0 30  2775  2981    2     LDL  PAR3
4268  2981  888 0 26  2385  2385          CLA
4269  2365  888 0 82  0130  2947          TEQ  IX        1B
4270  1628  888 0 50  2566  2568  PANIC   STL  -ALRM
4271  2568  888 0 0B  1250  2371          LIR1 10000     5F
4272  2371  888 0 06  1974  1974    5     CLX
4273  1974  888 0 32  0800  2585          SHR   0800
4274  2585  888 0 65  1987  2189          STX  WDS
4275  2189  888 0 37  0400  2596          SHL   0400     4F
4276  2596  888 0 60  2749  1964    4     STA  WD
4277  1964  888 0 70  2766  000A          ADD            RA
4278  2706  888 0 25  1650  2949          LDA  30000
4279  2949  888 0 60  2164  2966          STA  ALF
4280  2966  888 0 06  1369  1369          CLX
4281  1369  888 0 32  0500  2982          SHR   0500
4282  2982  888 0 37  0500  0990          SHL   0500
4283  0990  888 0 04  0000  0000          JMP1  0000
4284  1256  888 0 60  0533  2364  10006   STA  THETA      1F
4285  1254  888 0 60  0533  2364  10004   STA  THETA      1F
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4286	1252	888	0	60	0533	2364	10002	STA	THETA	1F
4287	1250	888	0	60	0533	2364	10000	STA	THETA	1F
4288	2364	888	0	65	0139	2564	1	STX	CHI	3F
4289	1257	888	0	32	0500	2764	10007	SHR	0500	2F
4290	1255	888	0	32	0500	2764	10005	SHR	0500	2F
4291	1253	888	0	32	0500	2764	10003	SHR	0500	2F
4292	1251	888	0	32	0500	2764	10001	SHR	0500	2F
4293	2764	888	0	20	0533	2964	2	BUF	THETA	
4294	2964	888	0	32	0F00	2785		SHR	0F00	
4295	2785	888	0	20	0139	1767		BUF	CHI	
4296	1767	888	0	04	0008	0008		JMP1	0008	
4297	1265	888	0	60	0650	1967	10015	STA	20050	
4298	1967	888	0	65	0655	2564		STX	20055	3F
4299	1263	888	0	60	0765	2167	10013	STA	20165	
4300	2167	888	0	65	0770	2564		STX	20170	3F
4301	1261	888	0	60	0681	2367	10011	STA	20081	
4302	2367	888	0	65	0686	2564		STX	20086	3F
4303	1259	888	0	60	0600	2767	10009	STA	20000	
4304	2767	888	0	65	0605	2564		STX	20005	3F
4305	2564	888	0	0G	0001	2768	3	IIR1	0001	
4306	2768	888	0	25	2164	2967		LDA	ALF	
4307	2967	888	0	70	0015	2968		ADD	H10	-AL2
4308	2969	888	0	07	0001	2972	&AL2	IIR	0001	
4309	2972	888	0	70	2749	2596		ADD	WD	4B
4310	2968	888	0	25	1987	2371	-AL2	LDA	WDS	5B
4311	1258	888	0	25	0050	1769	10008	LDA	LC	
4312	1769	888	0	70	0054	2169		ADD	BIG04	-AL1
4313	2170	888	0	60	0050	1969	&AL1	STA	LC	
4314	1969	888	0	11	0618	2566		PRN	20018	-ALRM
4315	2169	888	0	60	0050	2369	-AL1	STA	LC	
4316	2369	888	0	11	0602	2566		PRN	20002	-ALRM
4317	2567	888	0	00	0190	0190	&ALRM	JMP	&CRD3	
4318	0739	888	0	00	0000	0000	20139	ZON		
4319	0623	888	0	00	0000	0000	20023	ZON		
4320	0708	888	0	00	0000	0000	20108	ZON		
4321	0646	888	0	00	0000	0000	20046	ZON		
4322	0730	888	0	00	0000	0000	20130	ZON		
4323	0614	888	0	00	0000	0000	20014	ZON		
4324	0699	888	0	00	0000	0000	20099	ZON		
4325	0783	888	0	00	0000	0000	20183	ZON		
4326	0667	888	0	00	0000	0000	20067	ZON		
4327								OFF	9000	
4376								ON	9000	
4377	1650	888	1	00	0000	0000	30000	CON1	00000	00000
4378	1651	888	1	03	0009	C600	30001	CON1	03000	9C600
4379	1652	888	1	31	2202	6110	30002	CON1	31220	26110
4380	1653	888	1	02	0007	7F00	30003	CON1	02000	77F00
4381	1654	888	1	00	1106	A770	30004	CON1	00110	6A770
4382	1655	888	1	01	101A	22B2	30005	CON1	01101	A22B2
4383	1656	888	1	23	0007	7900	30006	CON1	23000	77900

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4384  1657  BBB 1 03  2009  7700  30007  CON1 03200  97700
4385  1658  BBB 1 20  0007  3900  30008  CON1 20000  73900
4386  1659  BBB 1 00  2009  3700  30009  CON1 00200  93700
4387  1660  BBB 1 01  0008  2000  30010  CON1 01000  82000
4388  1661  BBB 0 32  0232  1874  30011  CON  32023  21874
4389  1662  BBB 1 02  1009  6500  30012  CON1 02100  96500
4390  1663  BBB 0 11  0117  6771  30013  CON  11011  76771
4391  1664  BBB 1 10  1302  9840  30014  CON1 10130  29840
4392  1665  BBB 1 23  0007  9900  30015  CON1 23000  79900
4393  1666  BBB 1 03  2009  9700  30016  CON1 03200  99700
4394  1667  BBB 1 00  0209  3370  30017  CON1 00020  93370
4395  1668  BBB 1 03  312A  1427  30018  CON1 03312  A1427
4396  1669  BBB 1 22  0021  77A1  30019  CON1 22002  177A1
4397  1670  BBB 1 10  0021  8667  30020  CON1 10002  18667
4398  1671  BBB 1 03  101A  1808  30021  CON1 03101  A1808
4399  1672  BBB 1 10  1132  9544  30022  CON1 10113  29544
4400  1673  BBB 1 01  102A  969A  30023  CON1 01102  A969A
4401  1674  BBB 1 20  3301  A240  30024  CON1 20330  1A240
4402  1675  BBB 0 12  102B  72A6  30025  CON  12102  B72A6
4403  1676  BBB 0 31  0104  4A79  30026  CON  31010  44A79
4404  1677  BBB 1 10  0007  0000  30027  CON1 10000  70000
4405  1678  BBB 0 01  0128  8A27  30028  CON  01012  88A27
4406  1679  BBB 1 20  0006  F000  30029  CON1 20000  6F000
4407  1680  BBB 0 10  2131  8674  30030  CON  10213  18674
4408  1681  BBB 1 22  3007  6400  30031  CON1 22300  76400
4409  1682  BBB 0 00  1106  9779  30032  CON  00110  69779
4410  1683  BBB 1 21  0006  5000  30033  CON1 21000  65000
4411  1684  BBB 1 33  0102  69G0  30034  CON1 33010  269G0
4412  1685  BBB 0 00  002F  96A6  30035  CON  00002  F96A6
4413  1686  BBB 1 10  0207  9860  30036  CON1 10020  79860
4414  0734  BBB 0 00  0000  0000  20134  ZON
4415  0618  BBB 0 00  0000  0000  20018  ZON
4416  0703  BBB 0 00  0000  0000  20103  ZON
4417  0641  BBB 0 00  0000  0000  20041  ZON
4418  0725  BBB 0 00  0000  0000  20125  ZON
4419  0609  BBB 0 00  0000  0000  20009  ZON
4420  0694  BBB 0 00  0000  0000  20094  ZON
4421  0778  BBB 0 00  0000  0000  20178  ZON
4422  0662  BBB 0 00  0000  0000  20062  ZON
4423                                     ON    8001
4424                                     ON    9001
4425                                     ON    9002
4426                                     ON    8002
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0000000000	0000000000	0000410000	0000000000	4494400055
0000000000	0000000000	0000420000	0000000000	4444400000
0000000000	0000000000	0000430000	0000000000	4444400005
0000000000	0000000000	0000440000	0000000000	4444900055
0000000000	0000000000	0000450000	0000000000	0444900055
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0000000000	0000000000	0000490000	0000000000	0000000000

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                                                  BLA   MEMLL     MEML2
                                                  BLR   WDFOR
                                                  BLR   MEMLL
                                                  BLR    2201      2211
3100  BBB 0 25  2491  3293     MEMLL              LDA   MEMU1                  ROUTINE FOR INSERTING RESERVED WORDS
3293  BBB 0 60  4292  3144                        STA   MEMU
3144  BBB 0 20  3146  000A                        BUF             RA
3146  BBB 0 0B  0000  3151                        LIR1  0000
3151  BBB 0 31  3154  3154                        CLL
3154  BBB 0 54  9994  2796                        STL1  9994
2796  BBB 0 0G  9994  3200                        IIR1  9994
3200  BBB 0 60  4635  3237                        STA   AVAIL
3237  BBB 0 25  3239  4264                        LDA             SCAN9
3239  BBB 0 90  3241  0000                        SML   LCARD      0000
3241  BBB 0 07  HHHH  3244     LCARD              IIR    HHHH
3244  BBB 1 39  9999  3201                        ERS3  9999
3201  BBB 0 20  3203  000A                        BUF             RA
3203  BBB 0 0B  0000  3208                        LIR1  0000
3208  BBB 0 07  HHHH  3211                        IIR    HHHH
3211  BBB 1 39  0000  3202                        ERS3  0000
3202  BBB 0 77  3202  3205                        ATL
3205  BBB 0 70  3207  000A                        ADD             RA
3207  BBB 0 25  0001  3204                        LDA   0001
3204  BBB 0 24  0000  3206                        BUF1  0000
3206  BBB 0 64  0000  3209                        STA1  0000
3209  BBB 0 25  2491  3294                        LDA   MEMU1
3294  BBB 0 75  4095  3148                        SUB   KON2
3148  BBB 0 60  2491  3295                        STA   MEMU1
3295  BBB 0 0B  1519  3298                        LIR1  Z0099     1F
3298  BBB 0 29  0000  3210     1                  LDA1  0000
3210  BBB 0 82  3213  3214                        TEQ   1F
3214  BBB 0 0G  9999  3298                        IIR1  9999      1B
3213  BBB 1 0G  9998  3217     1                  IIR3  9998
3217  BBB 0 30  1179  4229                        LDL   INITT     REM
3262  BBB 0 11  0200  2389     PRIME              PRN   K0000     -GOD           FIRST TIME INITIALIZATION,SET UP TEMP STORES
2390  BBB 0 67  3333  000A     &GOD               HLT    3333     RA
2389  BBB 0 30  0591  1993     -GOD               LDL             ZZONS
0591  BBB 0 72  000A  0994                        HCC   RA        -GOD1
0995  BBB 0 67  2222  2389     &GOD1              HLT    2222     -GOD
0994  BBB 0 31  1997  1997     -GOD1              CLL   1F
1997  BBB 0 50  0050  3252     1                  STL   LC
3252  BBB 0 50  0415  3218                        STL   LLIST
3218  BBB 0 50  2243  3245                        STL   ACC
3245  BBB 0 50  0851  3253                        STL   ARAS
3253  BBB 0 50  0537  3139                        STL   DOOST
3139  BBB 0 50  4701  3153                        STL   TEMPS
3153  BBB 0 50  4824  3176                        STL   DOVAR
3176  BBB 0 50  4834  2786                        STL   DSAVE
2786  BBB 0 07  0057  2589                        IIR   INCR1
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4477   2589  BBB 0 60  4336  3238                STA  INCRE
4478   3238  BBB 0 07  0050  3242                IIR   0050
4479   3242  BBB 0 60  1363  3165                STA  HEAD
4480   3165  BBB 0 50  4804  3212                STL  NOTAG
4481   3212  BBB 0 05  4376  3228                LDX  DOEOF
4482   3228  BBB 0 65  4170  3272                STX  DOESW
4483   3272  BBB 0 05  4402  3104                LDX  LEOFF
4484   3104  BBB 0 65  4206  3108                STX  LESW
4485   3108  BBB 0 05  4405  3157                LDX  BOS
4486   3157  BBB 0 65  4770  3172                STX  COMT
4487   3172  BBB 0 05  0154  3156                LDX  CRDC
4488   3156  BBB 0 65  0141  3143                STX  CRDSW
4489   3143  BBB 0 05  4408  3160                LDX  BIGO1
4490   3160  BBB 0 65  1634  3236                STX  DOTAG
4491   3236  BBB 0 05  1821  3223                LDX  MISUB
4492   3223  BBB 0 65  2220  3222                STX  UASW
4493   3222  BBB 0 05  4735  3240                LDX  PROF
4494   3240  BBB 0 65  4883  3285                STX  PRTSW
4495   3285  BBB 0 05  4050  3102                LDX  SCAN1
4496   3102  BBB 0 65  4248  3150                STX  SCANX
4497   3150  BBB 0 05  0108  3110                LDX  LSWOF
4498   3110  BBB 0 65  0089  3291                STX  LSW
4499   3291  BBB 0 05  4989  3141                LDX  TRON
4500   3141  BBB 0 65  4789  1791                STX  TRSW
4501   1791  BBB 0 05  1300  3103                LDX  TRCOF
4502   3103  BBB 0 65  1307  3109                STX  TRCSW
4503   3109  BBB 0 0B  0000  3112                LIR1  0000      -ISIS
4504   3112  BBB 0 0G  0001  3116      -ISIS     IIR1  0001
4505   3116  BBB 0 70  3118  3112                ADD             -ISIS
4506   3118  BBB 0 99  9980  0000                CON  99998      00000
4507   3113  BBB 0 47  0100  3117      &ISIS     HSS   0100
4508   3117  BBB 0 30  0594  4613                LDL  INIT       NXTW
4509                                  LDCN4     EQU   1521
4510   3111  BBB 0 0G  0010  1525      LDCN3     IIR1  0010       1525
4511   3114  BBB 0 23  2120  0000      LDCN2     ZON  *TRAN      40000
4512   3115  BBB 0 B3  9154  0000      LDCN1     NUM  *TRAN      40000
4513   2200  BBB 0 07  4181  3215      WDFOR     IIR  50001                ROUTINE IN 2200 IS TO PUNCH OUT THE TRANSLATR
4514   3215  BBB 0 60  4980  3232                STA  ASM5T
4515   3232  BBB 0 30  3234  1993                LDL             ZZONS
4516   3234  BBB 0 25  3115  3119                LDA  LDCN1
4517   3119  BBB 0 05  3114  3120                LDX  LDCN2
4518                                            OFF   9000
4537                                            ON    9000
4538                                            ON    9001
4539                                            ON    9002
4540   3120  BBB 0 60  0908  3121                STA  R0108
4541   3121  BBB 0 65  0913  3122                STX  R0113
4542   3122  BBB 1 02  9999  3125                LIR2  9999
4543   3125  BBB 0 25  3127  3129                LDA# ABABA      00000
4544   3129  BBB 0 20  3131  3133                BUF# 00000      BABAB
```

```
3133  BBB 0 60  3135  3137                STA   FGFG
3137  BBB 0 60  0011  3216                STA   H0011
3216  BBB 0 60  0031  3233                STA   H0031
3233  BBB 0 60  0051  3254                STA   H0051
3254  BBB 0 60  0071  3273                STA   H0071
3273  BBB 0 60  0112  3123                STA   H0112
3123  BBB 0 60  0132  3134                STA   H0132
3134  BBB 0 60  0152  3155                STA   H0152
3155  BBB 0 60  0172  2174                STA   H0172      4F
                                          ON     8001
                                          ON     8002
2174  BBB 1 07  0001  3178      4         IIR2   0001
3178  BBB 1 25  2201  3219                LDA2  90000
3219  BBB 0 30  3221  3224                LDL#  CCCCC      CCCCC
3224  BBB 0 87  3227  000A                TGR              RA
3227  BBB 0 37  0400  3235                SHL    0400
3235  BBB 0 35  0043  3246                ERS   XM
3246  BBB 0 60  4420  3274                STA   TEMP3
3274  BBB 0 20  3276  3278                BUF#  08000      0000C
3278  BBB 0 30  3280  3282                LDL              ASM5E
3280  BBB 0 25  3283  3286                LDA   1F
3286  BBB 0 20  4420  000A                BUF   TEMP3      RA
3283  BBB 1 0B  0000  3287      1         LIR3   0000      1F
3168  BBB 1 0G  0000  2973      7         IIR3   0000
2973  BBB 1 30  2201  3220                LDL2  90000
3220  BBB 0 87  3225  3226                TGR              5F
3225  BBB 0 30  2174  3177                LDL   4B         ASM5F
3226  BBB 1 0G  0001  3287      5         IIR3   0001      1F
3173  BBB 1 0G  0010  3287      PRM5      IIR3   0010      1F
3287  BBB 1 29  0000  3229      1         LDA3   0000
3229  BBB 0 36  3243  3243                CAA
3243  BBB 0 31  3247  3247                CLL
3247  BBB 0 82  3250  3251                TEQ   3F
3251  BBB 0 25  4980  3284                LDA   ASM5T
3284  BBB 0 70  3288  000A                ADD              RA
3288  BBB 0 25  0000  3230                LDA    0000
3230  BBB 0 35  4201  3255                ERS   XOM
3255  BBB 0 70  3257  3260                ADD   2F
3260  BBB 0 77  3260  3263                ATL
3263  BBB 0 25  4016  000B                LDA   LIT1       RL
3257  BBB 0 00  0005  3231      2         JMP    0005      1F
3231  BBB 0 26  3248  3248      1         CLA
3248  BBB 1 24  0000  3249                BUF3   0000      2F
3250  BBB 1 29  0000  3249      3         LDA3   0000      2F
3249  BBB 0 30  3256  4337      2         LDL              ASM5
3256  BBB 0 07  4181  3259                IIR   50001
3259  BBB 0 30  4980  3289                LDL   ASM5T
3289  BBB 0 82  3292  3168                TEQ              7B
3292  BBB 0 30  3168  3177                LDL   7B         ASM5F
3282  BBB 0 05  0908  3124      ASM5E     LDX   RWD1
```

4595	3124	888	0	32	0F00	3138		SHR	0F00	
4596	3138	888	0	20	3140	3142		BUF#	00000	50000
4597	3142	888	0	32	0F00	3158		SHR	0F00	
4598	3158	888	0	65	0908	4337		STX	RWD1	ASM5
4599	3177	888	0	50	4568	3258	ASM5F	STL	EXIT2	1F
4600	3258	888	0	07	4181	3261	1	IIR	50001	
4601	3261	888	0	30	4980	3290		LDL	ASM5T	
4602	3290	888	0	82	3296	3297		TEQ	1F	
4603	3297	888	0	25	3135	3145		LDA	FGFG	
4604	3145	888	0	30	3258	4337		LDL	1B	ASM5
4605	3296	888	0	25	0908	3126	1	LDA	RWD1	
4606	3126	888	0	35	3128	3130		ERS#	HHHHH	CHHHH
4607	3130	888	0	60	0908	3132		STA	RWD1	
4608	3132	888	0	30	4568	1993		LDL	EXIT2	ZZONS
4609	1993	888	0	26	2996	2996	ZZONS	CLA		
4610								OFF	9000	
4621								ON	9000	
4622								ON	9001	
4623								ON	9002	
4624	2996	888	0	60	0923	3136		STA	R0123	
4625	3136	888	0	60	0933	3147		STA	R0133	
4626	3147	888	0	60	0943	3149		STA	R0143	
4627	3149	888	0	60	0953	3159		STA	R0153	
4628	3159	888	0	60	0963	3166		STA	R0163	
4629	3166	888	0	60	0973	0008		STA	R0173	RL
4630								ON	8002	
4631								OFF	9000	
4649								ON	9000	
4650								ON	9001	
4651								ON	8001	
4652	2201	888	0	00	1190	0000	90000	JMP	1190	0000
4653	2202	888	0	00	1519	1230	90001	JMP	1519	1230
4654	2203	888	0	00	3298	1600	90002	JMP	3298	1600
4655	2204	888	0	00	4998	3800	90003	JMP	4998	3800
4656	2205	888	1	77	2205	3264	90004	ATL2		
4657	3264	888	0	67	HHHH	3264		HLT	HHHH	*
4658								ON	8002	
4659								ON	9002	

0000000000 0000000000 0000000000 0000000000 0000000000
0000000000 0000000000 0000000000 0000000000 0000000000
0000000000 0000000000 0000000000 0000000000 0000000000

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4661    4417  BBB 0 00  4092  0000    RATOR   CON  00409  20000
4662    1420  BBB 0 00  4098  0000    Z0000   CON  00409  80000    CON ZERO
4663    1421  BBB 0 00  4096  0000    Z0001   CON  00409  60000    CON 1
4664    1422  BBB 0 00  4094  0000    Z0002   CON  00409  40000    CON 2
4665    1423  BBB 0 00  0000  0000    Z0003   CON  00000  00000
4666    1424  BBB 0 00  0000  0000    Z0004   CON  00000  00000
4667    1425  BBB 0 00  0000  0000    Z0005   CON  00000  00000
4668    1426  BBB 0 00  0000  0000    Z0006   CON  00000  00000
4669    1427  BBB 0 00  0000  0000    Z0007   CON  00000  00000
4670    1428  BBB 0 00  0000  0000    Z0008   CON  00000  00000
4671    1429  BBB 0 00  4090  0000    Z0009   CON  00409  00000    APOSTROPHE
4672    1430  BBB 0 00  0000  0000    Z0010   CON  00000  00000
4673    1431  BBB 0 00  0000  0000    Z0011   CON  00000  00000
4674    1432  BBB 0 00  0000  0000    Z0012   CON  00000  00000
4675    1433  BBB 0 00  0000  0000    Z0013   CON  00000  00000
4676    1434  BBB 0 00  0000  0000    Z0014   CON  00000  00000
4677    1435  BBB 0 00  0000  0000    Z0015   CON  00000  00000
4678    1436  BBB 0 00  0000  0000    Z0016   CON  00000  00000
4679    1437  BBB 0 00  0000  0000    Z0017   CON  00000  00000
4680    1438  BBB 0 00  0000  0000    Z0018   CON  00000  00000
4681    1439  BBB 0 00  0000  0000    Z0019   CON  00000  00000
4682    1440  BBB 0 00  0000  0000    Z0020   CON  00000  00000
4683    1441  BBB 0 00  0000  0000    Z0021   CON  00000  00000
4684    1442  BBB 0 00  0000  0000    Z0022   CON  00000  00000
4685    1443  BBB 0 00  0000  0000    Z0023   CON  00000  00000
4686    1444  BBB 0 00  0000  0000    Z0024   CON  00000  00000
4687    1445  BBB 0 00  0000  0000    Z0025   CON  00000  00000
4688    1446  BBB 0 00  0000  0000    Z0026   CON  00000  00000
4689    1447  BBB 0 00  0000  0000    Z0027   CON  00000  00000
4690    1448  BBB 0 00  0000  0000    Z0028   CON  00000  00000
4691    1449  BBB 0 00  0000  0000    Z0029   CON  00000  00000
4692    1450  BBB 0 00  0000  0000    Z0030   CON  00000  00000
4693    1451  BBB 0 00  0000  0000    Z0031   CON  00000  00000
4694    1452  BBB 0 00  0000  0000    Z0032   CON  00000  00000
4695    1453  BBB 0 00  0000  0000    Z0033   CON  00000  00000
4696    1454  BBB 0 00  0000  0000    Z0034   CON  00000  00000
4697    1455  BBB 0 00  0000  0000    Z0035   CON  00000  00000
4698    1456  BBB 0 00  0000  0000    Z0036   CON  00000  00000
4699    1457  BBB 0 00  0000  0000    Z0037   CON  00000  00000
4700    1458  BBB 0 00  0000  0000    Z0038   CON  00000  00000
4701    1459  BBB 0 00  0000  0000    Z0039   CON  00000  00000
4702    1460  BBB 0 00  0000  0000    Z0040   CON  00000  00000
4703    1461  BBB 0 00  0000  0000    Z0041   CON  00000  00000
4704    1462  BBB 0 00  0000  0000    Z0042   CON  00000  00000
4705    1463  BBB 0 00  0000  0000    Z0043   CON  00000  00000
4706    1464  BBB 0 00  0000  0000    Z0044   CON  00000  00000
4707    1465  BBB 0 00  0000  0000    Z0045   CON  00000  00000
4708    1466  BBB 0 00  0000  0000    Z0046   CON  00000  00000
4709    1467  BBB 0 00  0000  0000    Z0047   CON  00000  00000
```

```
4710    1468    888 0 00    0000    0000    Z0048    CON    00000    00000
4711    1469    888 0 00    0000    0000    Z0049    CON    00000    00000
4712    1470    888 0 00    0000    0000    Z0050    CON    00000    00000
4713    1471    888 0 00    0000    0000    Z0051    CON    00000    00000
4714    1472    888 0 00    0000    0000    Z0052    CON    00000    00000
4715    1473    888 0 00    0000    0000    Z0053    CON    00000    00000
4716    1474    888 0 00    0000    0000    Z0054    CON    00000    00000
4717    1475    888 0 00    0000    0000    Z0055    CON    00000    00000
4718    1476    888 0 00    0000    0000    Z0056    CON    00000    00000
4719    1477    888 0 00    0000    0000    Z0057    CON    00000    00000
4720    1478    888 0 00    0000    0000    Z0058    CON    00000    00000
4721    1479    888 0 00    0000    0000    Z0059    CON    00000    00000
4722    1480    888 0 00    0000    0000    Z0060    CON    00000    00000
4723    1481    888 0 00    0000    0000    Z0061    CON    00000    00000
4724    1482    888 0 00    0000    0000    Z0062    CON    00000    00000
4725    1483    888 0 00    0000    0000    Z0063    CON    00000    00000
4726    1484    888 0 00    0000    0000    Z0064    CON    00000    00000
4727    1485    888 0 00    0000    0000    Z0065    CON    00000    00000
4728    1486    888 0 00    0000    0000    Z0066    CON    00000    00000
4729    1487    888 0 00    0000    0000    Z0067    CON    00000    00000
4730    1488    888 0 00    0000    0000    Z0068    CON    00000    00000
4731    1489    888 0 00    0000    0000    Z0069    CON    00000    00000
4732    1490    888 0 00    0000    0000    Z0070    CON    00000    00000
4733    1491    888 0 00    0000    0000    Z0071    CON    00000    00000
4734    1492    888 0 00    0000    0000    Z0072    CON    00000    00000
4735    1493    888 0 00    0000    0000    Z0073    CON    00000    00000
4736    1494    888 0 00    0000    0000    Z0074    CON    00000    00000
4737    1495    888 0 00    0000    0000    Z0075    CON    00000    00000
4738    1496    888 0 00    0000    0000    Z0076    CON    00000    00000
4739    1497    888 0 00    0000    0000    Z0077    CON    00000    00000
4740    1498    888 0 00    0000    0000    Z0078    CON    00000    00000
4741    1499    888 0 00    0000    0000    Z0079    CON    00000    00000
4742    1500    888 0 00    0000    0000    Z0080    CON    00000    00000
4743    1501    888 0 00    0000    0000    Z0081    CON    00000    00000
4744    1502    888 0 00    0000    0000    Z0082    CON    00000    00000
4745    1503    888 0 00    0000    0000    Z0083    CON    00000    00000
4746    1504    888 0 00    0000    0000    Z0084    CON    00000    00000
4747    1505    888 0 00    0000    0000    Z0085    CON    00000    00000
4748    1506    888 0 00    0000    0000    Z0086    CON    00000    00000
4749    1507    888 0 00    0000    0000    Z0087    CON    00000    00000
4750    1508    888 0 00    0000    0000    Z0088    CON    00000    00000
4751    1509    888 0 00    0000    0000    Z0089    CON    00000    00000
4752    1510    888 0 00    0000    0000    Z0090    CON    00000    00000
4753    1511    888 0 00    0000    0000    Z0091    CON    00000    00000
4754    1512    888 0 00    0000    0000    Z0092    CON    00000    00000
4755    1513    888 0 00    0000    0000    Z0093    CON    00000    00000
4756    1514    888 0 00    0000    0000    Z0094    CON    00000    00000
4757    1515    888 0 00    0000    0000    Z0095    CON    00000    00000
4758    1516    888 0 00    0000    0000    Z0096    CON    00000    00000
4759    1517    888 0 00    0000    0000    Z0097    CON    00000    00000
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4760	1518	888	0 00	0000	0000	Z0098	CON	00000	00000	
4761	1519	888	0 00	0000	0000	Z0099	CON	00000	00000	
4762	0405	888	0 00	0000	0000	P0005	ZON			
4763	0486	888	0 00	0000	0000	P0086	ZON			
4764	0570	888	0 00	0000	0000	P0170	ZON			
4765	0455	888	0 00	0000	0000	P0055	ZON			
4766	0539	888	0 00	0000	0000	P0139	ZON			
4767	0423	888	0 00	0000	0000	P0023	ZON			
4768	0508	888	0 00	0000	0000	P0108	ZON			
4769	0446	888	0 00	0000	0000	P0046	ZON			
4770	0530	888	0 00	0000	0000	P0130	ZON			
4771	0414	888	0 00	0000	0000	P0014	ZON			
4772	0499	888	0 00	0000	0000	P0099	ZON			
4773	0583	888	0 00	0000	0000	P0183	ZON			
4774	0467	888	0 00	0000	0000	P0067	ZON			
4775	0339	888	0 00	0000	0000	K0139	ZON			
4776	0223	888	0 00	0000	0000	K0023	ZON			
4777	0308	888	0 00	0000	0000	K0108	ZON			
4778	0246	888	0 00	0000	0000	K0046	ZON			
4779	0330	888	0 00	0000	0000	K0130	ZON			
4780	0214	888	0 00	0000	0000	K0014	ZON			
4781	0299	888	0 00	0000	0000	K0099	ZON			
4782	0383	888	0 00	0000	0000	K0183	ZON			
4783	0267	888	0 00	0000	0000	K0067	ZON			
4784							OFF	9000		
4807							ON	8001		
4810							ON	9001		
4813							ON	9002		
4815							ON	9001		
4816							ON	8001		
4817							ON	8002		
4828							ON	9000		
4829							OFF	9001		
4830							OFF	9002		
4831							OFF	8001		
4832							OFF	8002		
4833	0400	888	0 00	0000	0000	P0000	ZON			
4834	0481	888	0 00	0000	0000	P0081	ZON			
4835	0450	888	0 00	0000	0000	P0050	ZON			
4836	0418	888	0 00	0000	0000	P0018	ZON			
4837	0503	888	0 00	0000	0000	P0103	ZON			
4838	0441	888	0 00	0000	0000	P0041	ZON			
4839	0525	888	0 00	0000	0000	P0125	ZON			
4840	0409	888	0 00	0000	0000	P0009	ZON			
4841	0494	888	0 00	0000	0000	P0094	ZON			
4842	0578	888	0 00	0000	0000	P0178	ZON			
4843	0462	888	0 00	0000	0000	P0062	ZON			
4844	0200	888	0 67	7028	2427	K0000	CON	67702	82427	USS FORTRA
4845	0205	888	0 11	1030	1312	K0005	CON	11103	01312	
4846	0281	888	0 60	9900	3330	K0081	CON	60990	03330	N I1 ***

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0286  BBB 0 20  0000  0000   K0086   CON  20000   00000
0365  BBB 0 0A  A279  B608   K0167   CON  0AA27   9B608      VERSION #
0370  BBB 0 02  0110  0201   K0170   CON  02011   00201
0250  BBB 0 01  11F1  0F52   K0050   CON  0111F   10F52      9000-MONTH-YEAR
0255  BBB 0 20  0010  3122   K0055   CON  20001   03122
0334  BBB 0 00  0000  0000   K0134   ZON
0218  BBB 0 00  0000  0000   K0018   ZON
0303  BBB 0 00  0000  0000   K0103   ZON
0241  BBB 0 00  0000  0000   K0041   ZON
0325  BBB 0 00  0000  0000   K0125   ZON
0209  BBB 0 00  0000  0000   K0009   ZON
0294  BBB 0 00  0000  0000   K0094   ZON
0378  BBB 0 00  0000  0000   K0178   ZON
0262  BBB 0 00  0000  0000   K0062   ZON
                                     ON    9002
                                     ON    9001
0988  BBB 0 00  0000  0000   R0188   CON  00000   00000
0993  BBB 0 00  0000  0000   R0193   CON  00000   00000
0998  BBB 0 00  0000  0000   R0198   CON  00000   00000
0903  BBB 0 00  0000  0000   R0103   CON  00000   00000
0983  BBB 0 00  0000  0000   R0183   CON  00000   00000
                                     OFF   9000
                                     ON    8001
                                     ON    8002
                                     ON    9000
                                     ON    9001
                                     ON    9002
                                                                INTERPRETIVE CODES FOR BINARY OPERATION
                                                                V1 OP V2  OR  V2 PO V1.
                                                                KEY: S#SIMPLE VARIABLE,CONSTANT,OR TEMP STORE
                                                                A#REGISTER A     I # INDEX REGISTER 1
                                                                D#SUBSCRIPTED VARIABLE
1700  BBB 0 05  0199  0800   J0000   CON  05019   90800      SS CLACC CHG1 LDA1 OP2
1701  BBB 0 06  0900  0000   J0001   CON  06090   00000      SA UZACC PO1
1702  BBB 0 05  8809  0000   J0002   CON  05880   90000      SI CLACC IIR10 PO1
1703  BBB 0 02  9699  1000   J0003   CON  02969   91000      SD CHG2 LDL2 LDA1 OPRL
1704  BBB 0 06  0800  0000   J0004   CON  06080   00000      AS UZACC OP2
                                                                AA IMPOSIBLE CASE
1706  BBB 0 06  1588  1100   J0006   CON  06158   81100      AI UZACC ATL IIR10 PORL
1707  BBB 0 06  1598  1100   J0007   CON  06159   81100      AD UZACC ATL LDA2 PORL
1708  BBB 0 05  8808  0000   J0008   CON  05880   80000      IS CLACC IIR10 OP2
1709  BBB 0 06  1588  1000   J0009   CON  06158   81000      IA UZACC ATL IIR10 OPRL
1710  BBB 0 05  8815  1000   J0010   CON  05881   51000      II CLACC IIR10 ATL OPRL
1711  BBB 0 96  8810  0000   J0011   CON  96881   00000      ID LDL2 IIR10 OPRL
1712  BBB 0 03  9908  0000   J0012   CON  03990   80000      DS CHG3 LDA1 OP2
1713  BBB 0 06  1599  1000   J0013   CON  06159   91000      DA UZACC ATL LDA1 OPRL
1714  BBB 0 97  8811  0000   J0014   CON  97881   10000      DI LDL1 IIR10 PORL
1715  BBB 0 04  9699  1000   J0015   CON  04969   91000      DD CHG4 LDL2 LDA1
                                                                INTERPRETIVE CODES FOR VARIOUS UNARY OPS
1716  BBB 0 05  9687  1600   J0016   CON  05968   71600      MUL  S CLACC LDL2 MUL1 SHL
```

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4900   1717  BBB 0 06  1587  1600   J0017   CON  06158   71600   MUL  A UZACC ATL MUL1 SHL
4901   1718  BBB 0 05  8815  8716   J0018   CON  05881   58716   MUL  I CLACC IIR10 ATL MUL1 SHL
4902   1719  BBB 0 96  8716  0000   J0019   CON  96871   60000   MUL  D LDL2 MUL1 SHL
4903   1720  BBB 0 05  9817  0000   J0020   CON  05981   70000   MULL S CLACC LDA2 ADSHL
4904   1721  BBB 0 06  1700  0000   J0021   CON  06170   00000   MULL A UZACC ADSHL
4905   1722  BBB 0 05  8817  0000   J0022   CON  05881   70000   MULL I CLACC IIR10 ADSHL
4906   1723  BBB 0 98  1700  0000   J0023   CON  98170   00000   MULL D LDA2 ADSHL
4907   1724  BBB 0 05  9918  0000   J0024   CON  05991   80000   GET+ S CLACC LDA1 UNARY
4908   1725  BBB 0 06  1800  0000   J0025   CON  06180   00000   GET+ A UZACC UNARY
4909   1726  BBB 0 05  8818  0000   J0026   CON  05881   80000   GET+ I CLACC IIR10 UNARY
4910   1727  BBB 0 99  1800  0000   J0027   CON  99180   00000   GET+ D LDA1 UNARY
4911   1728  BBB 0 05  8685  0000   J0028   CON  05868   50000   GET- S CLACC CLA SUB1
4912   1729  BBB 0 06  1586  8400   J0029   CON  06158   68400   GET- A UZACC ATL CLA SUBRL
4913   1730  BBB 0 05  8815  8684   J0030   CON  05881   58684   GET- I CLACC IIR10 ATL CLA SUBRL
4914   1731  BBB 0 97  8684  0000   J0031   CON  97868   40000   GET- D LDL1 CLA SUBRL
4915   1732  BBB 0 97  0000  0000   J0032   CON  97000   00000   LDL  S LDL1      NOTE:CLACC NOT USED HERE.
4916   1733  BBB 0 06  1500  0000   J0033   CON  06150   00000   LDL  A UZACC ATL
4917   1734  BBB 0 05  8815  0000   J0034   CON  05881   50000   LDL  I CLACC IIR10 ATL
4918   1735  BBB 0 97  0000  0000   J0035   CON  97000   00000   LDL  D LDL1
4919   1736  BBB 0 05  8681  2400   J0036   CON  05868   12400   ABS  S CLACC CLA BUF1 XIT
4920   1737  BBB 0 06  1586  8024   J0037   CON  06158   68024   ABS  A UZACC ATL CLA BUFRL XIT
4921   1738  BBB 0 05  8824  0000   J0038   CON  05882   40000   ABS  I CLACC IIR10 XIT
4922   1739  BBB 0 97  8680  2400   J0039   CON  97868   02400   ABS  D LDL1 CLA BUFRL XIT
4923   1636  BBB 0 94  0713  0000   CTRC    CON  94071   30000   STL1 TRACE LIR3
4924   0801  BBB 0 13  0001  3000   CSUB    CON  13000   13000   LIR3 - LIR3  LEFT SIDE IS OP,RIGHT SIDE IS PO
4925   3014  BBB 0 93  9109  2900   C345    CON  93910   92900   TGR5 TEQ43 - TGR 3 TEQ45
4926   0115  BBB 0 93  9108  2000   C4#5    CON  93910   82000   TGR5 TEQ43 - TGR34
4927   1615  BBB 0 83  0009  2900   C3#4    CON  83000   92900   TGR54 - TGR3 TEQ45
4928   1613  BBB 0 91  0009  1000   C3#5    CON  91000   91000   TEQ43 - TEQ43
4929   1908  BBB 0 12  0001  2000   COP     CON  12000   12000   OPRLX - OPRLX
4930                                                             SUBROUTINE ENTRANCES.LEFT:OP  RIGHT:PO
4931   1000  BBB 0 01  0600  1060   00000   CON  01060   01060   &&  FAD   FAD
4932   1001  BBB 0 01  0700  1080   00001   CON  01070   01080   -&  RFSUB FSUB
4933   1002  BBB 0 01  0800  1070   00002   CON  01080   01070   &-  FSUB  RFSUB
4934   1003  BBB 0 01  0650  1065   00003   CON  01065   01065   --  FAD-  FAD-
4935   1004  BBB 0 01  0900  1090   00004   CON  01090   01090   &&  FMUL  FMUL
4936   1005  BBB 0 01  1000  1100   00005   CON  01100   01100   -&  NFMUL NFMUL
4937   1006  BBB 0 01  1000  1100   00006   CON  01100   01100   &-  NFMUL NFMUL
4938   1007  BBB 0 01  0900  1090   00007   CON  01090   01090   --  FMUL  FMUL
4939   1008  BBB 0 01  1100  1130   00008   CON  01110   01130   &&  FDIV  RFDIV
4940   1009  BBB 0 01  1200  1140   00009   CON  01120   01140   -&  NFDIV NRFDV
4941   1010  BBB 0 01  1200  1140   00010   CON  01120   01140   &-  NFDIV NRFDV
4942   1011  BBB 0 01  1100  1130   00011   CON  01110   01130   --  FDIV  RFDIV
4943   1012  BBB 0 01  0200  1040   00012   CON  01020   01040   &&  DIV   RDIV
4944   1013  BBB 0 01  0300  1050   00013   CON  01030   01050   -&  NDIV  NRDIV
4945   1014  BBB 0 01  0300  1050   00014   CON  01030   01050   &-  NDIV  NRDIV
4946   1015  BBB 0 01  0200  1040   00015   CON  01020   01040   --  DIV   RDIV
4947   1016  BBB 0 02  0600  2100   00016   CON  02060   02100   &&  PLL   RPLL
4948   1017  BBB 0 02  0700  2120   00017   CON  02070   02120   -&  PLL2  PLL7
4949   1018  BBB 0 02  0800  2110   00018   CON  02080   02110   &-  PLL3  PLL6
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4950  1019  BBB 0 02  0900  2130  Q0019  CON  02090  02130        --  PLL4  PLL8
4951  1020  BBB 0 02  1400  2180  Q0020  CON  02140  02180        &&  PLX   RPLX
4952  1021  BBB 0 02  1500  2200  Q0021  CON  02150  02200        -&  PLX2  PLX7
4953  1022  BBB 0 02  1600  2190  Q0022  CON  02160  02190        &-  PLX3  PLX6
4954  1023  BBB 0 02  1700  2210  Q0023  CON  02170  02210        --  PLX4  PLX8
4955  1024  BBB 0 01  2500  1250  Q0024  CON  01250  01250            FLSQ  FLSQ
4956  1025  BBB 0 02  2200  2260  Q0025  CON  02220  02260        &&  PXX   RPXX
4957  1026  BBB 0 02  2300  2280  Q0026  CON  02230  02280        -&  PXX2  PXX7
4958  1027  BBB 0 02  2400  2270  Q0027  CON  02240  02270        &-  PXX3  PXX6
4959  1028  BBB 0 02  2500  2290  Q0028  CON  02250  02290        --  PXX4  PXX8
4960  1029  BBB 0 01  2400  1240  Q0029  CON  01240  01240            FXSQ  FXSQ
4961  1030  BBB 0 70  0007  0000  Q0030  CON  70000  70000        &&  ADD   ADD
4962  1031  BBB 0 75  0057  5000  Q0031  CON  75005  75000        -&  SUB-  SUB
4963  1032  BBB 0 75  0007  5005  Q0032  CON  75000  75005        &-  SUB   SUB-
4964  1033  BBB 0 70  0057  0005  Q0033  CON  70005  70005        --  ADD-  ADD-
4965  1034  BBB 0 01  0000  1000  Q0034  CON  01000  01000        &&  MUL   MUL
4966  1035  BBB 0 01  0100  1010  Q0035  CON  01010  01010        -&  NMUL  NMUL
4967  1036  BBB 0 01  0100  1010  Q0036  CON  01010  01010        &-  NMUL  NMUL
4968  1037  BBB 0 01  0000  1000  Q0037  CON  01000  01000        --  MUL   MUL
4969  1038  BBB 0 35  0003  5000  Q0038  CON  35000  35000            ERS   ERS
4970  1039  BBB 0 35  0003  5000  Q0039  CON  35000  35000            ERS   ERS
4971  1040  BBB 0 35  0003  5000  Q0040  CON  35000  35000            ERS   ERS
4972  1041  BBB 0 35  0003  5000  Q0041  CON  35000  35000            ERS   ERS
4973  1042  BBB 0 20  0002  0000  Q0042  CON  20000  20000            BUF   BUF
4974  1043  BBB 0 20  0002  0000  Q0043  CON  20000  20000            BUF   BUF
4975  1044  BBB 0 20  0002  0000  Q0044  CON  20000  20000            BUF   BUF
4976  1045  BBB 0 20  0002  0000  Q0045  CON  20000  20000            BUF   BUF
4977  1127  BBB 0 02  0300  2020  EXP    CON  02030  02020            EXP   NEXP   LEFT SIDE IS F(X)
4978  0726  BBB 0 02  0500  2040  LN     CON  02050  02040            LN    NLN    RIGHT SIDE IS F(-X)
4979  1925  BBB 0 03  0300  3035  ATAN   CON  03030  03035            ATAN  ATAN-
4980  0924  BBB 0 03  0200  3025  TAN    CON  03020  03025            TAN   TAN-
4981  2721  BBB 0 02  0000  2010  SQRT   CON  02000  02010            SQRT  NSQRT
4982  0723  BBB 0 03  0100  3010  COS    CON  03010  03010            COS   COS
4983  2322  BBB 0 03  0000  3005  SIN    CON  03000  03005            SIN   SIN-
4984  2919  BBB 0 01  1600  1170  FLOTA  CON  01160  01170            FLT   NFLT
4985  1920  BBB 0 01  2000  1210  FIXA   CON  01200  01210            FIX   NFIX
4986  0563  BBB 0 01  1500  1150  COMPL  CON  01150  01150            COMP  COMP
4987  1232  BBB 0 04  1200  4120  TRACE  CON  04120  04120          TRACE TRACE
4988  0343  BBB 0 01  2700  1270  PAUSF  CON  01270  01270         PAUSE  PAUSE
4989  0744  BBB 0 01  2800  1280  STOPF  CON  01280  01280         STOP   STOP
4990  1750  BBB 0 31  2203  5478  W0000  ALF  TEMP
4991  1751  BBB 0 12  2226  3728  W0001  ALF  FLPK*                 NAMES OF LIBRARY PCKAGES
4992  1752  BBB 0 13  2225  7728  W0002  ALF  EXPK*
4993  1753  BBB 0 32  1123  9978  W0003  ALF  TRIG*
4994  1754  BBB 0 11  2225  4728  W0004  ALF  EDPK*
4995  3009  BBB 0 01  4094  5000  CON2   CON  01409  45000
4996  1363  BBB 0 00  0050  0000  HEAD   CON  00005  00000
4997  0773  BBB 0 FF  FFFF  FFFF  WARN   CON  FFFFF  FFFFF
4998  1050  BBB 0 99  4110  0000  T0000  CON  99411  00000          99 TARA*
4999  1051  BBB 0 02  4098  5000  T0001  CON  02409  85000          CON ZERO
```

```
5000  1052  BBB 0 82  4106  0000   T0002  CON  82410  60000   82 BIN&
5001  1053  BBB 0 00  0000  0000   T0003  CON  00000  00000   SENTINEL
5002  1054  BBB 0 84  4112  0000   T0004  CON  84411  20000   84 BIN*
5003  1055  BBB 0 00  0000  0000   T0005  CON  00000  00000   SENTINEL
5004  1057  BBB 0 82  4106  0000   T0007  CON  82410  60000   82 BIN&
5005  1058  BBB 0 02  4098  5000   T0008  CON  02409  85000   FILLED IN
5006  1059  BBB 0 99  4109  0000   T0009  CON  99410  90000   99 TARA*
5007  1060  BBB 0 02  4098  5000   T0010  CON  02409  85000   CON ZERO
5008  1061  BBB 0 82  4106  0000   T0011  CON  82410  60000   82 BIN&
5009  1062  BBB 0 00  0000  0000   T0012  CON  00000  00000   SENTINEL
5010  1063  BBB 0 70  0000  0000   T0013  CON  70000  00000   RIGHT PAREN
5011  1064  BBB 0 73  4114  0000   T0014  CON  73411  40000   73 SIGN$
5012  1065  BBB 0 00  0000  0000   T0015  CON  00000  00000   SENTINEL
5013  1066  BBB 0 99  4101  0000   T0016  CON  99410  10000   99 SIGN%
5014  1067  BBB 0 00  0000  0000   T0017  CON  00000  00000   SENTINEL
5015  1068  BBB 0 99  4110  0000   T0018  CON  99411  00000   99 TARA%
5016  1069  BBB 0 02  4098  5000   T0019  CON  02409  85000   CON ZERO
5017  1070  BBB 0 82  4106  0000   T0020  CON  82410  60000   82 BIN&
5018  1071  BBB 0 01  4096  5000   T0021  CON  01409  65000   CON 1
5019  1072  BBB 0 70  0000  0000   T0022  CON  70000  00000   RIGHT PARENTHESIS
5020  1073  BBB 0 00  0000  0000   T0023  CON  00000  00000   SENTINEL
5021  1074  BBB 0 78  4113  0000   T0024  CON  78411  30000   78 SIGN'
5022  1075  BBB 0 01  4096  5000   T0025  CON  01409  65000   CONSTANT 1
5023  1076  BBB 0 99  4164  0000   T0026  CON  99416  40000   99 DO$1
5024  1077  BBB 0 00  0000  0000   T0027  CON  00000  00000   SENTINEL
5025  1078  BBB 0 82  4106  0000   T0028  CON  82410  60000   82 BIN&
5026  1079  BBB 0 31  2005  1988   T0029  ALF  VAR             FILLED IN
5027  1080  BBB 0 73  4157  0000   T0030  CON  73415  70000   73 DONT1
5028  1081  BBB 0 00  0000  0000   T0031  CON  00000  00000   SENTINEL
5029  1082  BBB 0 99  4165  0000   T0032  CON  99416  50000   99 I02.1
5030  1083  BBB 0 99  4110  0000   T0033  CON  99411  00000   99 TARA%
5031  1084  BBB 0 02  4098  5000   T0034  CON  02409  85000   CON ZERO
5032  1085  BBB 0 82  4106  0000   T0035  CON  82410  60000   82 BIN&
5033  1086  BBB 0 01  4088  0000   T0036  CON  01408  80000      *I*
5034  1087  BBB 0 70  0000  0000   T0037  CON  70000  00000   RIGHT PAREN
5035  1088  BBB 0 78  4113  0000   T0038  CON  78411  30000   78 SIGN'
5036  1089  BBB 0 01  4088  0000   T0039  CON  01408  80000     *I*
5037  1090  BBB 0 99  4117  0000   T0040  CON  99411  70000   99 SIGN#
5038  1091  BBB 0 01  4096  5000   T0041  CON  01409  65000   CONSTANT 1
5039  1092  BBB 0 78  4113  0000   T0042  CON  78411  30000   78 SIGN'
5040  1093  BBB 0 21  2313  5538   T0043  ALF  LENTH           FILLED IN
5041  1094  BBB 0 78  4113  0000   T0044  CON  78411  30000   78 SIGN'
5042  1095  BBB 0 01  4096  5000   T0045  CON  01409  65000   CON 1
5043  1096  BBB 0 70  0000  0000   T0046  CON  70000  00000   RIGHT PAREN
5044  4221  BBB 0 99  4101  0000   LPREN  CON  99410  10000   99 SIGN%
5045  4370  BBB 0 99  4129  0000   LABEL  CON  99412  90000   99 LABL
5046  0316  BBB 0 82  4103  0000   0BIN-  CON  82410  30000   82 BIN-
5047  0972  BBB 0 75  4118  0000   0BIN#  CON  75411  80000   75 BIN1#
5048  0922  BBB 0 87  4116  0000   0BN**  CON  87411  60000   87 BIN**
5049  2641  BBB 0 70  4139  0000   0DIM%  CON  70413  90000   70 DIM%
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5050  2909  888 0 70  4156  0000  0EQU*  CON  70415  60000      70 EQU%
5051  1406  888 0 70  4108  0000  0IF%   CON  70410  80000      70 IF%
5052  1743  888 0 99  4151  0000  0WDIM  CON  99415  10000      99 WDIM
5053  1915  888 0 99  4111  0000  0*     CON  99411  10000      99 SIGN*
5054  4093  888 0 70  4127  0000  0OPO   CON  70412  70000      70 OPO
5055  2317  888 0 84  4102  0000  0UN-   CON  84410  20000      84 UN-
5056  2241  888 0 70  4128  0000  0GO%   CON  70412  80000      70 GO%
5057  0864  888 0 70  4158  0000  0FC%   CON  70415  80000      70 FC%
5058  2103  888 0 70  4140  0000  0LPRN  ADD  NORMX   0000
5059  1816  888 0 70  0538  0000  0ARA*  ADD  ARA*    0000
5060  2009  888 0 70  1139  0000  0ARA%  ADD  ARA%    0000
5061  4109  888 0 05  1816  4428  TARA*  LDX  0ARA*   -0P3
5062  1773  888 0 70  3075  0000  0IO%   ADD  IO%     0000
5063  2615  888 0 00  2307  1629  ARAMD  JMP  ARA.    ARA$
5064  0840  888 0 00  2508  2508  COMMD  JMP  COM.    COM$
5065  1353  888 0 00  2837  2822  DIMMD  JMP  DIM.    DIM$
5066  2437  888 0 00  0471  1629  DIMMD  JMP  DIM.    DIM$
5067  0671  888 0 00  0168  1370  DOMD   JMP  DO.     DO$
5068  2355  888 0 00  2908  0469  EQ1MD  JMP  EQ1.    EQ1$
5069  2400  888 0 00  2904  1629  EQUMD  JMP  EQU.    EQU$
5070  1600  888 0 00  3062  1629  FCMD   JMP  FC.     FC$
5071  2237  888 0 00  2833  1834  GOMD   JMP  GO.     GO$
5072  2224  888 0 00  0589  0195  IFMD   JMP  IF.     IF$
5073  1520  888 0 00  2016  0543  MODE   JMP  NO.     NO$
5074  0351  888 0 00  2016  1130  POZMD  JMP  POZ.    POZ$
5075  3087  888 0 00  2136  2539  PARMD  JMP  PAR.    PAR$
5076  0762  888 0 00  2016  2320  CALMD  JMP  CAL.    CAL$
5077                             NO1    NEW  01000   00000
- 5078  2275  888 0 01  0393  0792  IO1MD  NO1  IO1.    IO1$
5079  2475  888 0 00  3073  0394  IO2MD  JMP  IO2.    IO2$
5080  2163  888 0 00  3073  0543  IO3MD  JMP  IO3.    IO3$
5081  4408  888 0 01  0000  0000  BIG01  CON  01000   00000
5082  4756  888 0 02  0000  0000  BIG02  CON  02000   00000
5083  2150  888 0 03  0000  0000  BIG03  CON  03000   00000
5084  0054  888 0 04  0000  0000  BIG04  CON  04000   00000
5085  4623  888 0 05  0000  0000  BIG05  CON  05000   00000
5086  0805  888 0 07  0000  0000  BIG07  CON  07000   00000
5087  2041  888 0 09  0000  0000  BIG09  CON  09000   00000
5088  2289  888 0 0G  0000  0000  BIG0G  CON  0G000   00000
5089  4974  888 0 10  0000  0000  BIG10  CON  10000   00000
5090  1896  888 0 13  0000  0000  BIG13  CON  13000   00000
5091  1178  888 0 20  0000  0000  BIG20  CON  20000   00000
5092  4431  888 0 21  0000  0000  BIG21  CON  21000   00000
5093  1298  888 0 24  0000  0000  BIG24  CON  24000   00000
5094  4604  888 0 25  0000  0000  BIG25  CON  25000   00000
5095  0550  888 0 29  0000  0000  BIG29  CON  29000   00000
5096  4247  888 0 30  0000  0000  BIG30  CON  30000   00000
5097  2784  888 0 37  0000  0000  BIG37  CON  37000   00000
5098  2212  888 0 40  0000  0000  BIG40  CON  40000   00000
5099  4277  888 0 50  0000  0000  BIG50  CON  50000   00000
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5100  4603  BBB 0 60  0000  0000  BIG60  CON  60000  00000
5101  0461  BBB 0 69  0000  0000  BIG69  CON  69000  00000
5102  4392  BBB 0 70  0000  0000  BIG70  CON  70000  00000
5103  4203  BBB 0 71  0000  0000  BIG71  CON  71000  00000
5104  0121  BBB 0 77  0000  0000  BIG77  CON  77000  00000
5105  0355  BBB 0 87  0000  0000  BIG87  CON  87000  00000
5106  4301  BBB 0 90  0000  0000  BIG90  CON  90000  00000
5107  4225  BBB 0 99  0000  0000  BIG99  CON  99000  00000
5108  4617  BBB 0 HH  0000  0000  XO     CON  HH000  00000
5109  0043  BBB 0 00  HHHH  0000  XM     CON  00HHH  H0000
5110  4724  BBB 0 00  0000  HHHH  XC     CON  00000  0HHHH
5111  3023  BBB 0 00  HHHH  HHHH  XMC    CON  00HHH  HHHHH
5112  4201  BBB 0 HH  HHHH  0000  XOM    CON  HHHHH  H0000
5113  4667  BBB 0 HH  0000  HHHH  XOC    CON  HH000  0HHHH
5114  4267  BBB 0 01  HHHH  0000  XM1    CON  01HHH  H0000
5115  4741  BBB 0 0H  HHHH  0000  XMH    CON  0HHHH  H0000
5116  0435  BBB 0 H0  0000  HHHH  XCO    CON  H0000  0HHHH
5117  4740  BBB 0 0H  0000  0000  X1     CON  0H000  00000
5118  3062  BBB 0 00  0H00  0000  X3     CON  000H0  00000
5119  0022  BBB 0 00  0000  000H  X9     CON  00000  0000H
5120  0037  BBB 0 H0  000H  0000  X05    CON  H0000  H0000
5121  1237  BBB 0 00  00H0  000H  X49    CON  0000H  0000H
5122  0012  BBB 0 00  000H  0000  X5     CON  00000  H0000
5123  0406  BBB 0 00  00HH  0000  X45    CON  0000H  H0000
5124  1273  BBB 0 00  0000  00HH  X89    CON  00000  000HH
5125  0645  BBB 0 H0  0000  0000  H1     CON  H0000  00000
5126  0009  BBB 0 HH  HHH0  0000  H5     CON  HHHHH  00000
5127  0015  BBB 0 HH  HHHH  HHHH  H10    CON  HHHHH  HHHHH
5128  4733  BBB 0 BB  BBB0  0000  B5     CON  BBBBB  00000
5129  4405  BBB 0 00  0008  BBBB  B05    CON  00000  BBBBB
5130  4577  BBB 0 BB  BBBB  BBBB  B10    CON  BBBBB  BBBBB
5131  1419  BBB 0 01  0001  0000  ONE15  CON  01000  10000
5132  4628  BBB 1 00  0000  0000  MZERO  CON1 00000  00000
5133  4723  BBB 0 00  0000  5000  KON.5  CON  00000  05000
5134  4097  BBB 0 00  0001  0000  KON1   CON  00000  10000
5135  4095  BBB 0 00  0002  0000  KON2   CON  00000  20000
5136  0613  BBB 0 00  0003  0000  KON3   CON  00000  30000
5137  4298  BBB 0 00  0030  0000  KON30  CON  00003  00000
5138  4541  BBB 0 00  0200  0000  KN200  CON  00020  00000
5139  4016  BBB 0 00  0000  0001  LIT1   CON  00000  00001
5140  4720  BBB 0 00  0000  0004  LIT4   CON  00000  00004
5141  4424  BBB 0 00  0000  0005  LIT5   CON  00000  00005
5142  4413  BBB 0 00  0000  0008  LIT8   CON  00000  00008
5143  0633  BBB 0 00  0000  0010  LIT10  CON  00000  00010
5144  0063  BBB 0 00  0000  0011  LIT11  CON  00000  00011
5145  0366  BBB 0 00  0000  0099  LIT99  CON  00000  00099
5146  4305  BBB 0 00  0000  000A  LITA   CON  00000  0000A
5147  4362  BBB 0 00  0000  000B  LITB   CON  00000  0000B
5148  1907  BBB 0 29  9999  0000  TW09S  CON  29999  90000
5149  1815  BBB 0 04  9999  0000  FOR9S  CON  04999  90000
```

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END PRIME

```
*    1.  FORTRAN II COMPILER  PASS 1
*        THE TRANSLATOR IS DIVIDED INTO TWO MAJOR
*        CO-ROUTINES, 'SCAN' AND 'GEN'.
*        SCAN HAS THE DUTY OF READING CARDS, CONDEN-
*        SING IDENTIFIERS AND CONSTANTS INTO SINGLE
*        ENTITIES AND TO FEED ITEMS, IN A CONVENIENT
*        INTERNAL CODE, ONE AT A TIME TO GEN.
*        GEN HAS THE DUTY OF PRODUCING OBJECT
*        CODE FROM THESE ITEMS.  CONTROL IS
*        PASSED BETWEEN GEN AND SCAN IN A FASHION
*        SUCH THAT EACH ROUTINE LOOKS LIKE A
*        SUBROUTINE OF THE OTHER.
*        THE PROGRAM BEGINS BY PRINTING THE TITLE LINE
*        FEEDING A CARD, AND GOING TO THE
*        INITIALIZATION ROUTINE, STEP 21.
*    TABLE OF CONTENTS
*        A. ARRAY SUBSCRIPTING
*        B. BINARY AND ARITHMETIC OPERATORS
*        C. CONSTANT SCANNER
*        D. DO LOOP CONTROL
*        E. EQUIVALENCE PROCESSING
*        F. FUNCTION CALLS
*        G. GENERATOR CONTROL
*        I. ASSEMBLER STRUCTURE
*        L. LINKED MEMORY SUBROUTINES
*        N. 'GET NEXT CHARACTER' ROUTINE
*        P. FUNCTION AND SUBROUTINE DECLARATIONS
*        Q. SPECIAL SCANNING ROUTINES
*        S. SCANNER CONTROL
*        T. SYMBOL TABLE SEARCH
*        U. UNARY OPERATORS AND SPECIAL GENERATORS
*        W. INPUT OUTPUT (READ PUNCH PRINT)
*        X. PROCESSING FORMAT STRING
*        Z. INITIALIZATION AND TERMINATION
*        FRANKLY, IT'S A MIRACLE IF THIS PROGRAM
*              EVER WORKS.
*    TABLE OF FORMATS
*        INFORMATION INSIDE THE COMPILER IS TREATED IN
*        TWO PRINCIPAL FORMATS, ONE FOR THE SYMBOL
*        TABLE ENTRIES IN THE SCANNER, AND ANOTHER FOR
*        GENERATOR CO-ROUTINE.
*        SYMBOL TABLE EQUIVALENTS ARE IN THE FORMAT
*              KM AAAA LLLL
*        WHERE LLLL IS A LINK TO THE NEXT SYMBOL,
*        FOR SEARCHING
*             < EQUALS 0:   SIMPLE VARIABLE
*               M IS 0:     NO MEMORY ASSIGNMENT AS YET
*                           AAAA IS 0000
*               M IS 1:     ASSIGNED AAAA IN UNIQUE
*                           STORAGE
*               M IS 2:     EQUIVALENCED, NOT YET
*                           ASSIGNED.  AAAA IS LINK TO
*                           OTHER MEMBERS OF THE
*                           EQUIVALENCE CLASS
*               M IS 3:     ASSIGNED AAAA IN COMMON
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*          M IS 4:   A FORMAL PARAMETER, WHOSE
*                    SUBROUTINES ARE ASSIGNED
*                    AAAA, AAAA+1, AND AAAA+2
*                    IN UNIQUE.
*          M IS 5:   THE SYMBOL IS A 10 DIGIT
*                    CONSTANT.  IF AAAA IS 0,
*                    THIS CONSTANT HAS NOT BEEN
*                    NEEDED IN OBJECT PROGRAM
*                    YET, ELSE IT IS ASSIGNED TO
*                    LOCATION AAAA IN UNIQUE.
*        K EQUALS 3:   ARRAY
*           AAAA LINKS TO THE DIMENSION TABLE
*           ENTRY, M IS IGNORED.  THE DIMENSION
*           TABLE HAS N+1 ENTRIES IF THERE ARE N
*           SUBSCRIPTS TO THIS ARRAY.
*             AAAA+0:   3 M BBBB RRRR
*             AAAA+1:   0 0 TTTT SSSS
*             AAAA+2:   0 0 CCCC 0000
*             AAAA+3:   0 0 CCCC 0000   ETC
*           SSSS IS LINK BACK TO SYMBOL TABLE
*           ENTRY
*           CCCC WORDS, IF PRESENT, ARE LINKS TO
*           SYMBOL TABLE ENTRIES FOR CONSTANTS
*           (EXCEPT FOR THE LAST DIMENSION)
*           TTTT IS THE TOTAL LENGTH OF THE ARRAY
*          M IS 0:   NO MEMORY ASSIGNMENT HAS
*                    BEEN MADE AS YET, BBBB IS 0
*          M IS 1:   THE ADDRESS BBBB IS FOR
*                    A(1), I.E. THE FIRST CELL
*                    OF THE ARRAY, IN UNIQUE
*                    STORAGE
*          M IS 2:   EQUIVALENCED ARRAY A(RRRR),
*                    BBBB IS LINK TO OTHER
*                    ELEMENTS IN EQUIVALENCE
*                    CLASS
*          M IS 3:   SAME AS M EQUAL TO 1 EXCEPT
*                    COMMON STORAGE
*          M IS 4:   FORMAL PARAMETER, BASE
*                    ADDRESS IS STORED IN BBBB
*                    OF UNIQUE STORAGE.
*        K EQUALS 5:   LABEL
*                    AAAA IS THE ASSIGNMENT IN
*                    PROGRAM STORAGE.
*          M IS 0:   UNASSIGNED AS YET.
*          M IS 1:   TEMPORARY ASSIGNMENT FOR DO
*                    LOOPS. AAAA LINKS TO AN ITEM
*                    IN LLIST,
*                       AAAA+0:  02 TTTT XXXX
*                       AAAA+1:  SS SSSS LLLL
*                    WHERE XXXX IS LLIST LINK,
*                    TTTT IS TEMPORARY ASSIGNMENT
*                    OF THE LABEL, SS SSSS IS
*                    LIKE A PERMENENT SYMBOL
*                    TABLE ENTRY FOR LABELS, AND
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*                    LLLL IS A LINK BACK TO THE
*                    SYMBOL TABLE ENTRY.
*              M IS 2:   AAAA IS THE ASSIGNMENT FOR
*                    THE LABEL.
*           K EQUALS 6:    FUNCTION
*              M IS 2:   ASSIGNED AAAA IN PROGRAM
*                    STORAGE
*              M IS 5:   ASSIGNED AAAA, EXTERNAL
*                    REFERENCE
*              M IS 9:   SPECIAL OPERATOR FOR SCANNER
*                    ONLY
*           K EQUALS 7, 8, OR 9   OPERATOR, RESERVED
*                                              WORD
*           KM AAAA IS CODE FOR OPERATORS.
*     IN EQUIVALENCE LOOPS, A SPECIAL MEANING IS
*     GIVEN FOR K EQUAL TO 9, WHEN M AAAA IS A
*     CHANGE IN REFERENCE POINT OF THE EQUIVALENCE
*     LOOP, PLUS 50000.
*     GENERATOR CODE FORMATS
*          K T SSSS COOP
*     FOR OPERANDS, P IS THE SIGN, 0 PLUS, 5 MINUS
*     T IS THE TYPE:  0 FLOATING, 1 INTEGER,
*                       2 UNSPECIFIED
*           K EQUALS 0:    SIMPLE VARIABLE, OR
*                       A CONSTANT (IF C IS 5)
*                       PERHAPS A HAPPY ARRAY.
*                       SSSS IS A LINK TO THE
*                       CORRESPONDING SYMBOL TABLE
*                       ENTRY.
*              K EQUALS 1:    COMPUTED RESULT IN RA
*              K EQUALS 2:    INDEX REGISTER 1
*                       (DO VARIABLE)
*              K EQUALS 3:    ARRAY
*                       SSSS LINKS TO DIMENSION
*                       TABLE ENTRY WHEN THIS ARRAY
*                       IS SENT FROM SCAN, AND THEN
*                       AFTER THE SUBSCRIPT FOR THE
*                       ARRAY IS PROCESSED, SSSS
*                       LINKS TO AN ENTRY ON THE
*                       ARAS LIST.SEE ROUTINE A FOR
*                       THE FORMATS IN ARAS.
*              K EQUALS 4:    TEMP STORAGE.
*                       SSSS IS THE ASSIGNMENT IN
*                       UNIQUE.
*              K EQUALS 5:    LABEL
*                       HERE SSSS IS A LINK TO THE
*                       CORRESPONDING SYMBOL TABLE
*                       ENTRY.
*              K EQUALS 6:    FUNCTION
*                       SSSS IS LINK TO SYMBOL TABLE
*              K EQUALS 7:    SPECIAL
*                       IN THE OPERAND STACK THIS IS
*                       SOMETIMES USED FOR AN ARRAY
*                       WITHOUT A SUBSCRIPT
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*       DIMENSION   9941510000 99 WDDIM
*       COMMON      9941520000 99 WDCOM
*       EQUIVLENCE  9941530000 99 WDEQU
*       SIN         9841200000 98 SINF
*       COS         9841210000 98 COSF
*       SQRT        9841190000 98 SQRTF
*       TAN         9841220000 98 TANF
*       ARCTAN      9841230000 98 ATANF
*       LN          9841240000 98 LNF
*       EXP         9841250000 98 EXPF
*       ABS         9841260000 98 ABSF
*       FLOAT       9841540000 98 FLOTF
*       FIX         9841550000 98 FIXF
*       PUNCH       9941590000 99 WDPCH
*       CALL        9941600000 99 WDCAL
*       NOT         9841610000 98 BCOMP
*       OR          7941630000 79 BOR
*       AND         8041620000 80 BLAND
*       CARDS       6941660000 69 WDPRG
*
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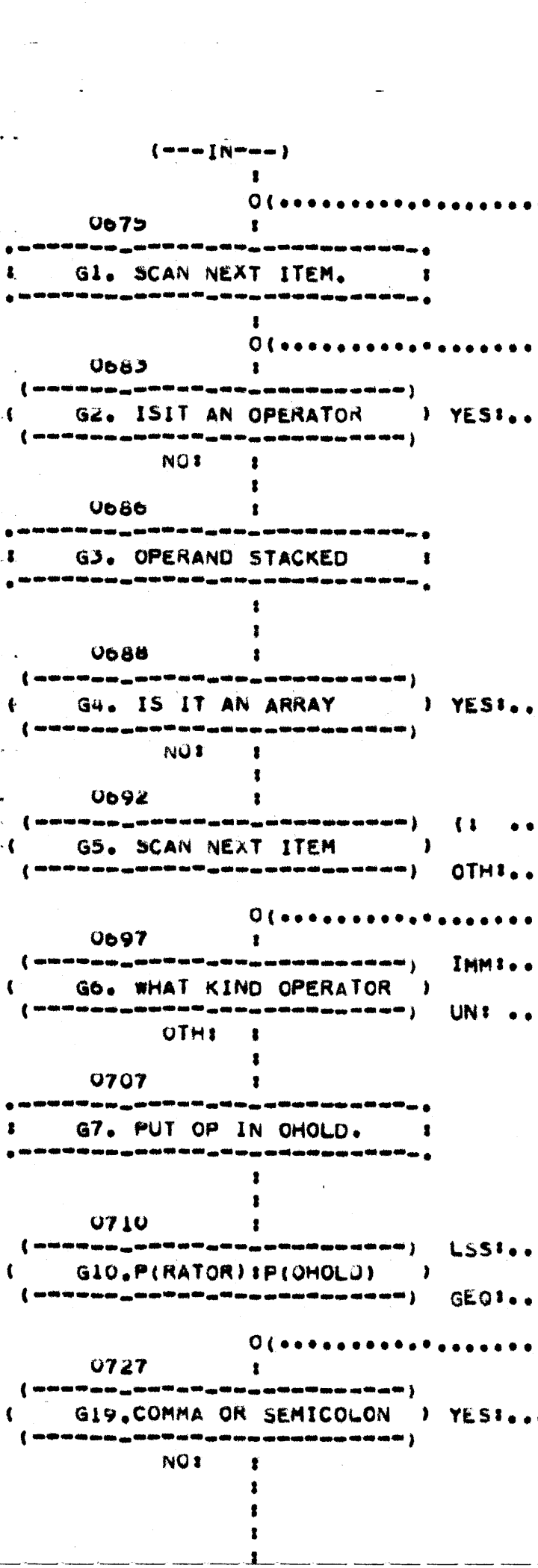


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*   G.  GENERATOR CONTROL
*       THIS ROUTINE CONTROLS THE
*       GENERATOR CO-ROUTINE.
*       THE NORMAL EXIT AT THE COMPLETION OF A GENER-
*       ATED ITEM IS TO G1, WHICH STARTS THE
*       PROCESSING OF THE NEXT ITEM. AT THE END OF
*       GENERATING CODE FOR CERTAIN OPERATORS, EXIT
*       OCCURS TO G10 RATHER THAN G1, SINCE WE MAY
*       WISH TO PERFORM SEVERAL OPERATIONS BEFORE
*       SCANNING ANOTHER ITEM.
*   G1. SCAN NEXT ITEM.
*       ACTIVATE THE SCANNER COROUTINE.
*       NORMALLY THIS MEANS WE ENTER STEP S1.
*   G2. ISIT AN OPERATOR
*       IF THE ITEM SCANNED IS AN OPERATOR, GO TO G6.
*   G3. OPERAND STACKED
*       PUT THE ITEM AT THE TOP OF THE OPERAND STACK.
*   G4. IS IT AN ARRAY
*       IF THE OPERAND IS A DIMENSIONED VARIABLE,
*       GO TO A1.
*   G5. SCAN NEXT ITEM
*       IF THE NEXT ITEM IS A LEFT PARENTHESIS, WE
*       TENTATIVELY HAVE A FUNCTION CALL SO WE GO
*       TO      STEP F1.
*       OTHERWISE WE GO BACK TO STEP G2.
*   G6. WHAT KIND OPERATOR
*       IF THE OPERATOR JUST SCANNED IS ONE THAT
*       REQUIRES IMMEDIATE ACTION (CODE 99), BRANCH
*       TO THE ROUTINE FOR THIS OP.
*       IF WE HAVE A UNARY OPERATOR (CODE 96) SUCH
*       AS LN OR ABS, GO TO G20.
*             OTHERWISE WE HAVE A BINARY OPERATOR
*       OR A DELIMITER WHOSE PRECEDENCE IS TO BE
*       TESTED.
*   G7. PUT OP IN OHOLD.
*       PUT THE OPERATOR JUST SCANNED INTO LOCATION
*       'OHOLD' BEFORE DECIDING WHAT TO DO WITH IT.
*  G10.P(RATOR):P(OHOLD)
*       CHECK THE PRECEDENCE OF THE TOP OPERATOR ON
*       THE OPERATOR STACK AGAINST THE PRECEDENCE OF
*       THE OPERATOR IN 'OHOLD'.
*       IF IT IS LESS (E.G., IN A+B*C, + IS LESS
*       THAN *), WE MUST WAIT BEFORE OPERATING
*       FURTHER SO WE GO TO G19.
*       IF IT HAS GREATER PRECEDENCE OR
*       EQUAL PRECEDENCE,HOWEVER,THE OPERATOR ON TOP
*       OF THE STACK IS REMOVED AND WE BRANCH TO THE
*       APPROPRIATE ROUTINE FOR THIS OP.
*       PRECEDENCE IS 70 FOR VARIOUS KINDS OF LEFT
*       PARENTHESES,   73 FOR :    75 FOR  EQUALS
*       78 FOR COMMA, 79 FOR OR, 80 FOR AND,
*       82 FOR PLUS AND MINUS, 84 FOR UNARY MINUS,
*       FOR MULTIPLY, AND FOR DIVIDE,   87 FOR POWER,
*       AND 99 FOR UNARY OPERATORS
*  G19.COMMA OR SEMICOLON
*       IF OHOLD HAS A PRECEDENCE WHOSE UNITS DIGIT
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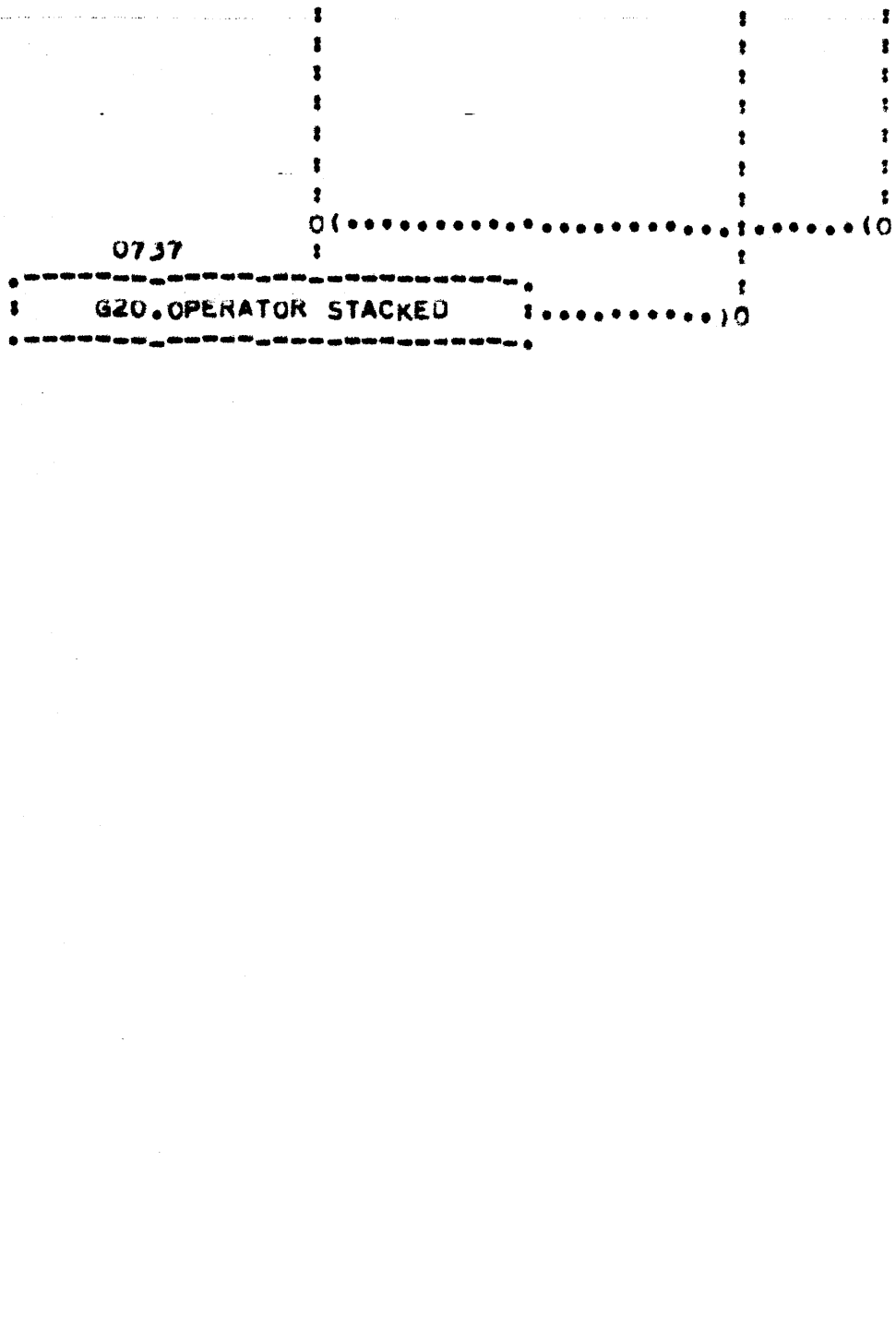


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*       IS1,3,6,OR 8 IT MEANS WE ARE TO BRANCH TO
*       THIS  OP NOW THAT THE PRECEDENCE HAS BEEN
*       CHECKED.  AT PRESENT THIS IS USED ONLY FOR
*       SEMICOLON (EON OF STATEMENT) OR COMMA AND THI
*       MEANS BRANCH TO THE ROUTINE SPECIFIED BY THE
*       CURRENT MODE.
*               OTHERWISE WE GO TO G20 TO PUT OHOLD
*       ON THE OPERATOR STACK
*    G20.OPERATOR STACKED
*       THE OPERATOR IS PUT ON TOP OF THE OPERATOR
*       STACK AND WE RETURN TO G1.
*    CODING DETAILS:
*       UPON ENTRY TO GET, REGISTER A CONTAINS THE
*       CURRENT ITEM AND REGISTER X CONTAINS THE
*       PREVIOUS ITEM. THESE ARE IN 'GENERATOR CODE'
*       WHICH IS EXPLAINED IN THE TABLE OF FORMATS
*       IN THE BEGINNING OF THE FLOWCHARTS.
*
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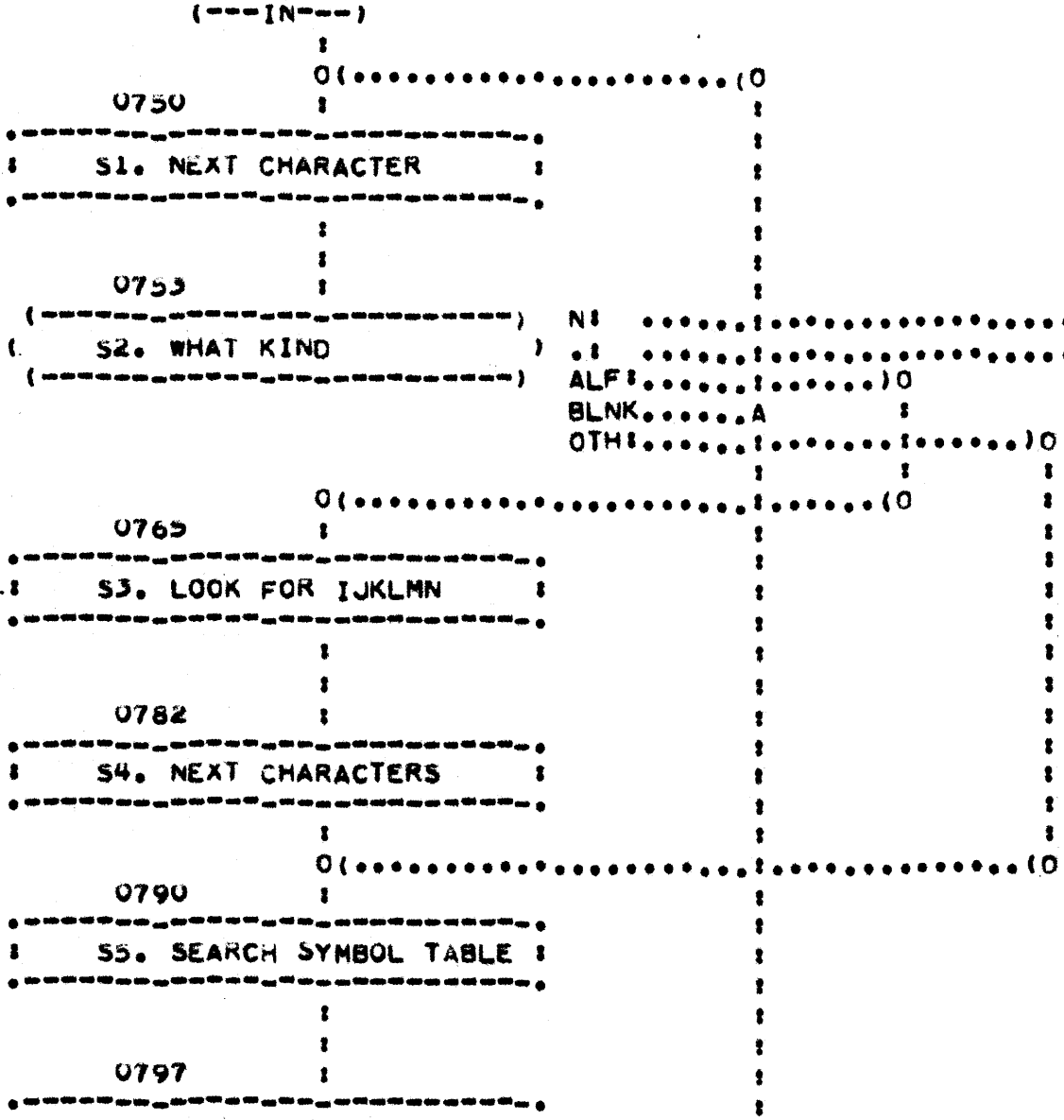


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*    S.  SCANNER CONTROL
*        THIS ROUTINE CONTROLS THE SCANNER CO-ROUTINE.
*        NORMALLY ENTRY TO THE SCANNER IS TO STEP S1
*        WHICH BEGINS TO SCAN A NEW ITEM.
*    S1. NEXT CHARACTER
*        GET THE NEXT CHARACTER FORM THE INPUT CARD
*        (ROUTINE N).
*    S2. WHAT KIND
*        IF THE CHARACTER IS NUMERIC, IT IS THE
*        BEGINNING OF A CONSTANT, SO WE GO TO C1.
*        A DECIMAL POINT ALSO MEANS A CONSTANT, GO TO
*        STEP C2.
*        IF THE CHARACTER IS ALPHABETIC IT MEANS THE
*        FIRST LETTER OF AN IDENTIFIER, SO WE GO TO
*         S3.
*        IF THE CHARACTER IS BLANK,RETURN TO S1.
*        OTHERWISE WE HAVE A SPECIAL CHARACTER.  EACH
*        SPECIAL CHARACTER IS TREATED EXACTLY AS AN
*        IDENTIFIER TO LENGTH 1 AND WE GO TO STEP S5.
*    S3. LOOK FOR IJKLMN
*        IF THIS CHARACTER IS THE LETTER I THROUGH N,
*        RECORD FOR FUTURE REFERENCE THAT THIS
*        IDENTIFIER IS INTEGER TYPE. ALSO PREPARE TO
*        BUILD UP TO FIVE CHARACTERS OF EVERY IDEN-
*        TIFIER IN A COMPUTER WORD, IN THE FORM
*        ZZZZZNNNNN WITH LEADING BLANKS.
*    S4. NEXT CHARACTERS
*        SUCCESSIVELY GET CHARACTERS FROM THE CARD
*        (ROUTINE N) UNTIL THE FIRST NON-ALPHNUMERIC
*        CHARACTER APPEARS. IF THE TERMINAL CHARACTER
*        IS NONBLANK, PUT IT BACK ON THE CARD SO IT
*        WILL COME THROUGH AGAIN NEXT TIME.
*    S5. SEARCH SYMBOL TABLE
*        ACTIVATE ROUTINE T TO SEARCH FOR THIS IDENT-
*        IFIER OR SPECIAL CHARACTER IN THE SYMBOL
*        TABLE. IF NOT FOUND, IT IS ENTERED IN THE
*        TABLE AS A SIMPLE VARIABLE.  IF FOUND, THE
*        CODE FOUND IS USED IN STEP S10.
*    S10.TRANSLATE TO GEN CODE.
*        WE HAVE AN ITEM WHICH WE WANT TO SEND
*        TO THE GENERATOR, BUT IT IS IN SYMBOL TABLE
*        FORMAT RATHER THAN GENERATOR FORMAT.
*        SPECIFICATIONS OF THESE FORMATS ARE GIVEN AT
*        THE BEGINNING OF THE FLOWCHART LISTINGS.
*        THE CONVERSION IS MADE AT THIS POINT. IF THE
*        SPECIAL CODE 69 OCCURS HERE A BRANCH IS MADE
*        TO THE SPECIAL SCANNER OPERATOR WHICH NEVER
*        GETS TO THE GENERATOR CO-ROUTINE, SUCH AS
*        TRACE,LIST,CARDS,ETC. THE APOSTROPHE OPERATOR
*        (MEANING END OF CARD), ROUTINE Q, IS ONE OF
*        THESE SPECIAL SCANNER OPERATORS    , THE
*        OTHERS ARE MENTIONED IN STEP U29.
*    S20.SEND TO GEN
*        THE CODED ITEM IS SENT TO GEN. USUALLY
*        THIS IS TO STEP G1. UPON REENTRY, SCAN WILL
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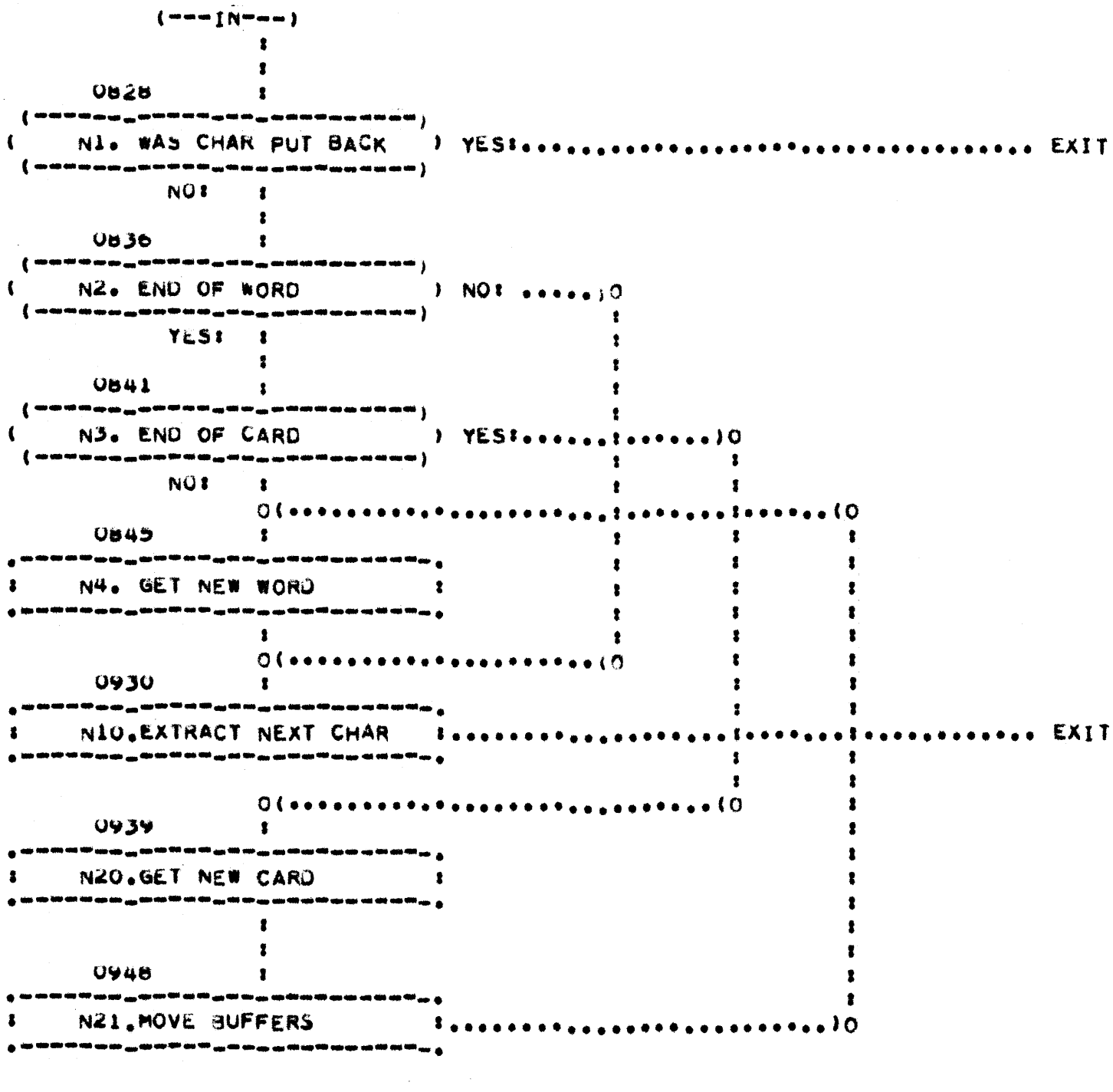
START UP AGAIN AT 51.

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*   N.  'GET NEXT CHARACTER' ROUTINE
*   N1. WAS CHAR PUT BACK
*       IF A CHARACTER HAS BEEN 'PUT BACK' ONTHE CARD
*       RE-EMIT THIS CHARACTER AND EXIT.
*   N2. END OF WORD
*       IF WE ARE NOT AT THE END OF THE CURRENT
*       TEN-COLUMN PART OF THE CARD, GO TO STEP N10.
*       ELSE WE MUST BRING UP ANOTHER SECTION OF THE
*                CARD.
*   N3. END OF CARD
*       IF WE ARE AT THE END OF THIS CARED,   GO TO
*       STEP N20.
*   N4. GET NEW WORD
*       BRING UP THE NEW WORD. THIS MEANS USUALLY
*       THAT THE NEXT TEN ZONES AND NEXT TEN
*       NUMERICS ARE BROUGHT UP. SPECIAL ACTION IS
*       TAKEN ON THE 8TH WORD OF 80-COLUMN  CARDS
*       TO STOP AFTER COLUMN 72, AND ON THE FIRST
*       WORD TO START EITHER AT COLUMN 7 OR AT
*       COLUMN 1 IF THERE IS A LABEL.
*   N10.EXTRACT NEXT CHAR
*       REMOVE THE NEXT CHARACTER FROM THE CARD AND
*        EXIT.
*   N20.GET NEW CARD
*       UNLOAD HSR BUFFER IF IT HAS NOT ALREADY BEEN
*       UNLOADED. IF NO CARD IS CURRENTLY IN PROCESS,
*       GIVE 2223 ERROR HALT.
*   N21.MOVE BUFFERS
*       INITIATE READING NEXT CARD, AND TRANSFER
*       HSR INTERLACE TO PRINTER INTERLACE.
*       PRINT OUT THE CARD IMAGE, TOGETHER WITH
*       LEVEL + BAND.
*       RESET EMITTER AND GO TO N4.
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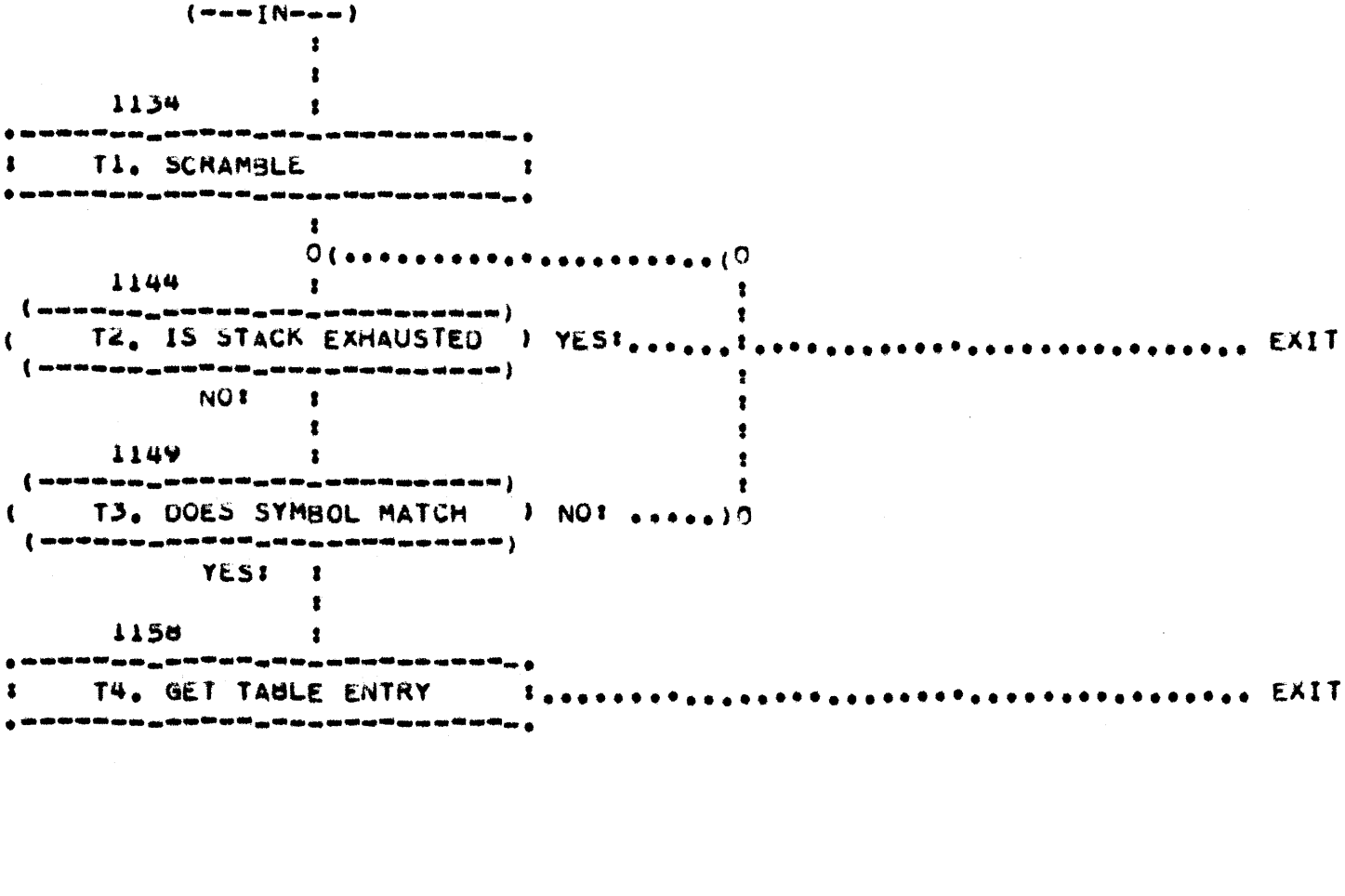


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*    T.  SYMBOL TABLE SEARCH.
*        THIS SUBROUTINE IS USED TO LOOK UP IDENTIFIER
*        SPECIAL CHARACTERS, CONSTANTS, AND STATEMENT
*        NUMBERS (LABELS) IN THE BIG TABLE.  IF NOT
*        IN THE TABLE, THE ITEM IS ENTERED IN.
*    T1. SCRAMBLE
*        MULTIPLY ITEM BY 1010101010 AND THEN  ADD
*        (0 FOR CONSTANTS, LENGTH FOR IDENTIFIERS,
*        OR 99 FOR STATEMENT NUMBERS). TAKE THE
*        RESULT MOD 100, GIVING THE STACK HEAD NUMBER
*        FOR THIS SYMBOL.
*    T2. IS STACK EXHAUSTED
*        IF THISSTACK HAS BEEN ENTIRELY PROCESSED,
*        INSERT THIS ITEM INTO THE TABLE ON THIS
*        STACK.  EXIT.
*    T3. DOES SYMBOL MATCH
*        COMPARE THE CURRENT ITEM IN THE STACK
*        AGAINST THE DESIRED SYMBOL. IF THERE IS NO
*        MATCH, GO BACK TO  T2.
*    T4. GET TABLE ENTRY
*        GET THE CORRESPONDING ENTRY FOR THE SYMBOL WE
*        HAVE JUST FOUND.  EXIT.
*    CODING DETAILS:
*        AT INPUT, REGISTER A CONTAINS THE LENGTH OF
*        SYMBOL, REGISTER X CONTAINS THE CODE TO USE
*        IF NOT FOUND IN THE TABLE, RL CONTAINS THE
*        EXIT INSTRUCTION, TEMP2 CONTAINS THE SYMBOL.
*        AT EXIT, RL CONTAINS THE LOCATIONS OF THE
*        TABLE ENTRY IN ITS M ADDRESS, AND TEMP4 IS
*        THE EQUIVALENT OF THE SYMBOL.
*
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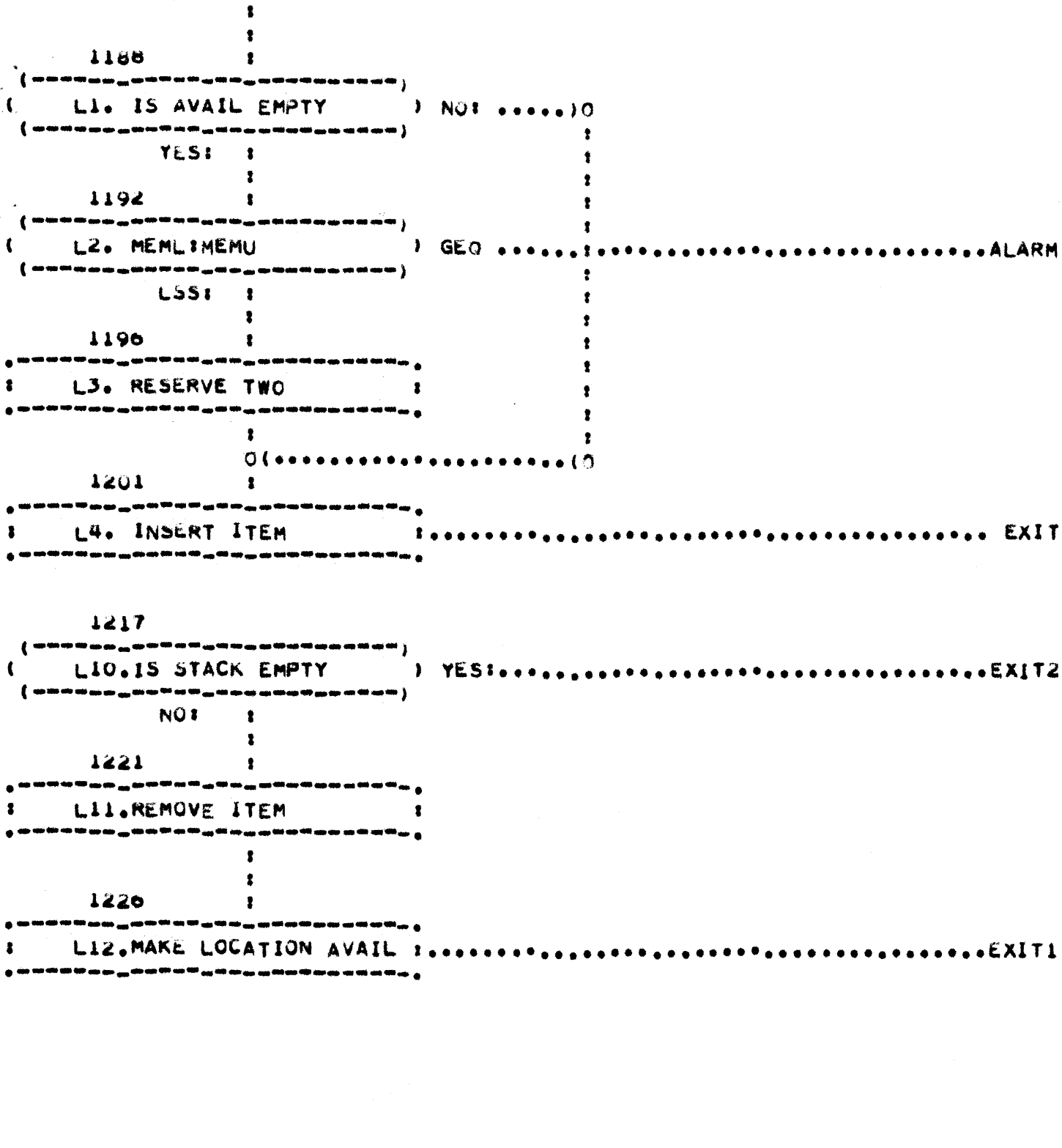


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*   L.  LINKED MEMORY SUBROUTINES.
*       THESE SUBROUTINES ARE USED IMPLICITLY IN MANY
*       PLACES OF THE PROGRAM, TO STORE AND RETRIEVE
*       INFORMATION FROM A POOLED MEMORY AREA.
*       THE FORMAT FOR POOLED MEMORY IS
*            STACK HEAD:  00 LINK 0000
*            AVAIL STACK  00 LINK 0000
*       OTHER ITEMS ARE IN TWO WORD FORMAT:
*             LINK     INFO1  LINK   1111112222
*             LINK+1       I N F O 2 1111111111
*       ZERO LINK INDICATES THE END. THE POOL IS
*       KEPT BETWEEN LOCATIONS MEML1 AND MEMU1
*       THE SYMBOL TABLE AND STACKS WORK DOWN FROM
*       MEMU1, DIMENSIONS AND EQUIVALENCE ENTRIES
*       ARE INSERTED UP FROM MEML1.
*       IN THIS SECTION, ENTRANCE L1 IS CALLED 'INS'
*       AND IT IS FOR INSERTING ITEMS, WHILE ENTRANCE
*       L10 IS FOR DELETING ITEMS FROM STACKS AND IT
*       IS CALLED 'REM'.
*   L1. IS AVAIL EMPTY
*       IF THE AVAIL STACK IS NOT EMPTY,REMOVE AN
*       ITEM AND GO TO L4.
*   L2. MEML:MEMU
*       IF THERE IS NO ROOM FOR ANOTHER ITEM, GIVE
*       THE I'M FULL ERROR ALARM.
*   L3. RESERVE TWO
*       DECREASE MEMU BY 2, WE WILL USE THESE TWO
*       LOCATIONS FOR THE NEW ITEM.
*   L4. INSERT ITEM
*       PUT THE NEW ITEM INTO THE MEMORY, FIX UP
*       LINKS PROPERLY.  EXIT.
*   CODING DETAILS FOR INS:
*       RB1 CONTAINS STACK HEAD LOCATION
*       RL  CONTAINS EXIT INSTRUCTION
*       RA  CONTAINS INFO2,RX CONTAINS INFO1
*       AT EXIT, RL IS NEW CONTENTS OF STACK HEAD,
*       RX IS INFO2.
*   L10.IS STACK EMPTY
*       IF STACK HAS NO ITEMS,GO TO EXIT2.
*   L11.REMOVE ITEM
*       REMOVE TOP ITEM OF STACK
*   L12.MAKE LOCATION AVAIL
*       PUT THE LOCATION JUST FREED ONTO THE AVAIL
*       STACK.  EXIT1.
*   CODING DETAILS FOR REM:
*       RB1 IS THE STACK HEAD LOCATION,
*       RX IS THE EMPTY EXIT (EXIT2),
*       RL IS THE ORDINARY EXIT1.
*       OUTPUT: RB1 IS THE LOCATION, RL IS INFO1.
*       INFO2 IS STILL IN MEMORY.
*
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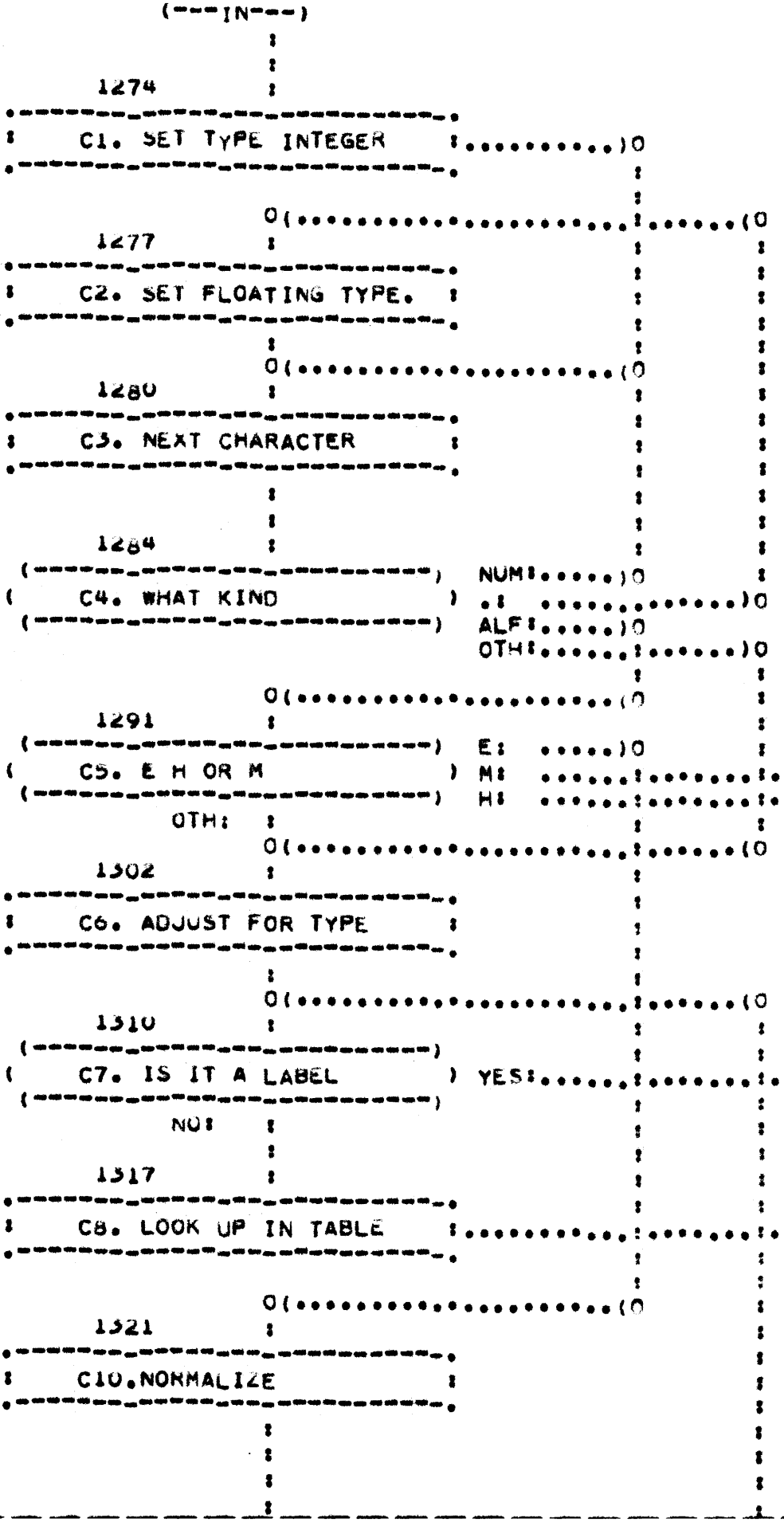


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*   C.  CONSTANT SCANNER
*   C1. SET TYPE INTEGER
*       INITIALIZE  N  TO THE NUMBER JUST SCANNED.
*       SET TYPE INTEGER. GO TO C3.
*   C2. SET FLOATING TYPE.
*       SET  N TO FLOATING POINT TYPE.
*   C3. NEXT CHARACTER
*       GET THE NEXT NON-BLANK CHARACTER FROM THE
*       CARD (ROUTINE N).
*   C4. WHAT KIND
*       IF CHARACTER IS NUMERIC,SET N TO 10N+CHAR.
*       GO TO C3.
*       IF A DECIMAL POINT, GO TO C2.
*       IF ALPHABETIC, GO TO C5.
*       IF SPECIAL CHARACTER,PUT IT BACK ON THE CARD,
*       AND GO TO C6.
*   C5. E H OR M
*       IN A STATEMENT LABEL CONTEXT WE GO IMMEDIATEL
*       TO C6.  OTHERWISE WE GO TO C10 FOR AN E,
*       TO  C20 FOR AN M,
*       TO C30 FOR AN H,
*       OTHERWISE IT IS THE END OF THE CONSTANT
*       (PROBABLY SYNTACTICALLY INCORRECT) AND WE GO
*       TO STEP C6.
*   C6. ADJUST FOR TYPE
*       IF FLOATING POINT TYPE OCCURRED, CONVERT N TO
*       FLOATING POINT FORMAT, ELSE SET N TO 1000
*       TIMES N.
*   C7. IS IT A LABEL
*       IF LABEL CONTEXT,ENTER SPECIAL ROUTINE FOR
*       THIS CASE,DEPENDING ON THE SETTING OF THE
*       LABEL SWITCH. THE LABEL SWITCH IS AUTOMAT-
*            ICALLY SET OFF EVERY TIME GEN IS
*       ENTERED; GEN WILL SET IT WHENEVER A LABEL MAY
*       BE EXPECTED.
*   C8. LOOK UP IN TABLE
*       ACTIVATE ROUTINE T FOR THIS CONSTANT, THEN GO
*       TO S10 TO SEND A CONSTANT CODE TO GEN.
*   C10.NORMALIZE
*       INSERT A DECIMAL POINT IF NONE PRECEDED,
*       E.G. .2E5.
*   C11.NEXT CHARACTER
*       ACTIVATE ROUTINE N FOR THE NEXT CHARACTER.
*   C12.WHAT KIND
*       IF BLANK, RETURN TO C11.
*       IF NUMERIC,PUT BACK ON CARD,RECORD + SIGN.
*       TO C13.
*       IF PLUS OR MINUS, RECORD THE SIGN. TO C13.
*       OTHERWISE GIVE THE BAD CONSTANT ALARM.
*   C13.NEXT NUMBERS
*       CONTINUE ACTIVATING ROUTINE N UNTIL A NON-BLA
*       NK, NON-NUMERIC CHARACTER APPEARS.
*   C14.ADJUST EXPONENT
*       ADD THE EXPONENT TO THE FLOATING POINT
*       CONSTANT. IF OVERFLOW OR UNDERFLOW OCCURS,
*       GIVE THE BAD CONSTANT ALARM.
*       OTHERWISE RETURN TO C7.
*
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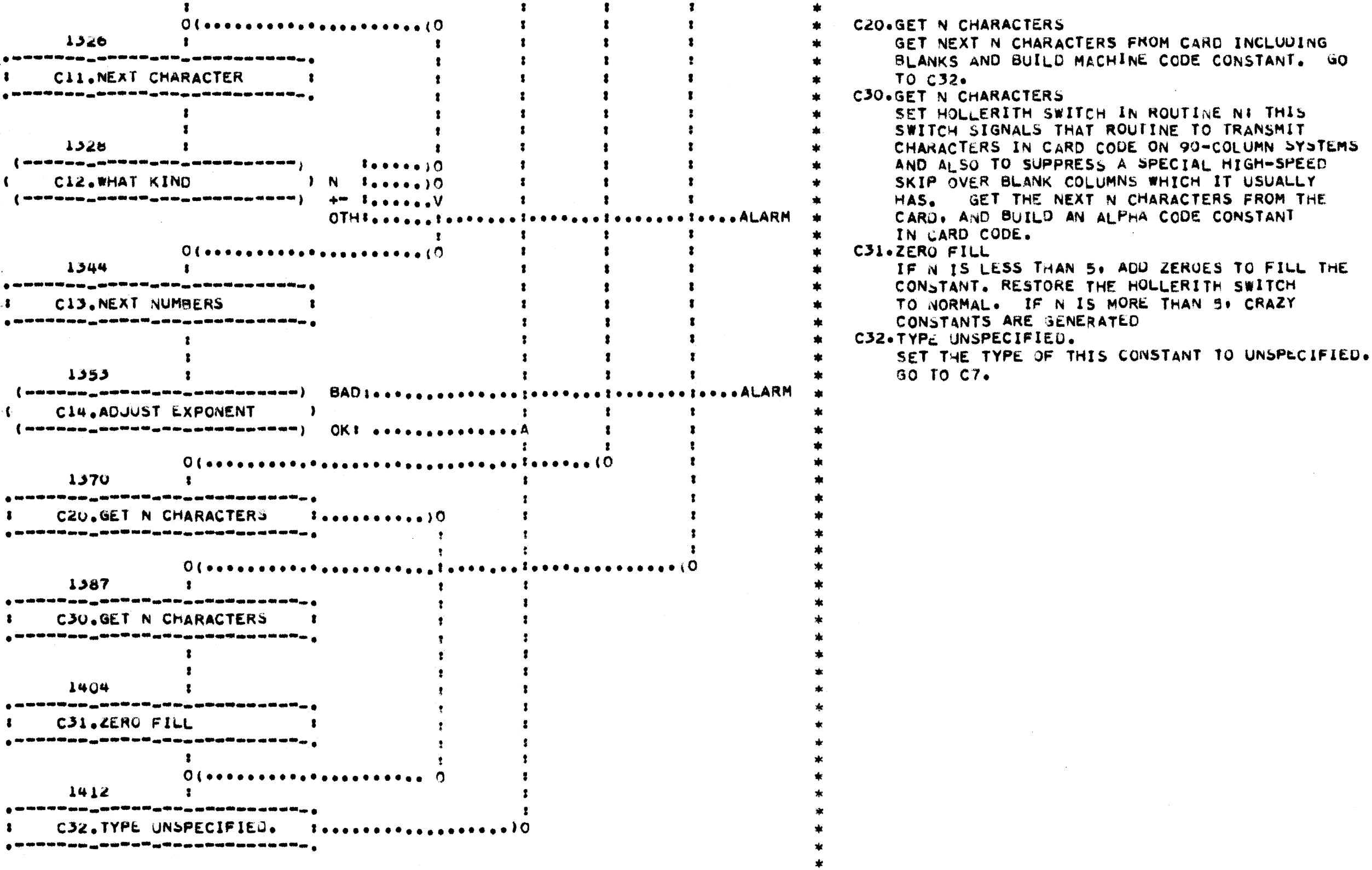
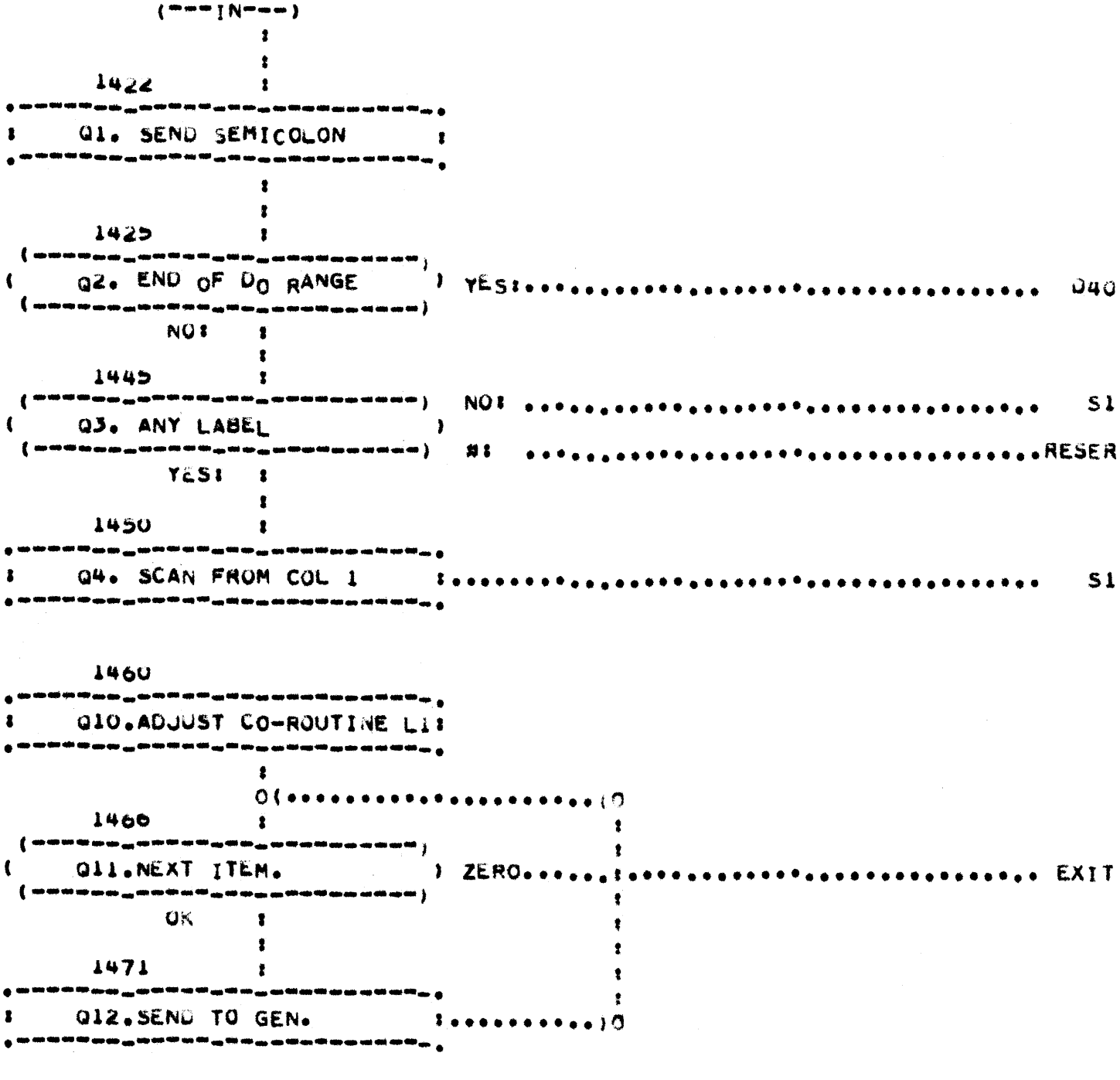


C20.GET N CHARACTERS
GET NEXT N CHARACTERS FROM CARD INCLUDING BLANKS AND BUILD MACHINE CODE CONSTANT. GO TO C32.

C30.GET N CHARACTERS
SET HOLLERITH SWITCH IN ROUTINE N; THIS SWITCH SIGNALS THAT ROUTINE TO TRANSMIT CHARACTERS IN CARD CODE ON 90-COLUMN SYSTEMS AND ALSO TO SUPPRESS A SPECIAL HIGH-SPEED SKIP OVER BLANK COLUMNS WHICH IT USUALLY HAS. GET THE NEXT N CHARACTERS FROM THE CARD, AND BUILD AN ALPHA CODE CONSTANT IN CARD CODE.

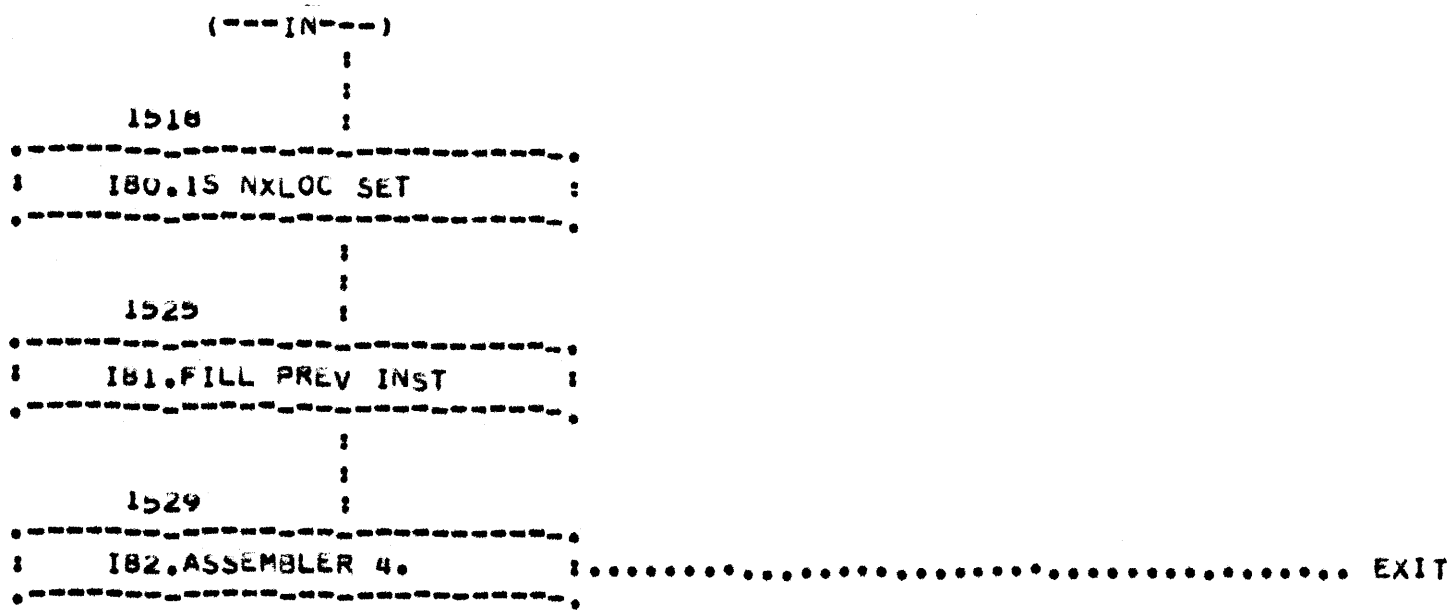
C31.ZERO FILL
IF N IS LESS THAN 5, ADD ZEROES TO FILL THE CONSTANT. RESTORE THE HOLLERITH SWITCH TO NORMAL. IF N IS MORE THAN 5, CRAZY CONSTANTS ARE GENERATED

C32.TYPE UNSPECIFIED.
SET THE TYPE OF THIS CONSTANT TO UNSPECIFIED. GO TO C7.




```
*    Q.  SPECIAL SCANNING ROUTINES
*        ENTRANCE TO Q1 OCCURS WHEN THE END OF CARD
*        ( WHICH IS DETECTED BY AN APOSTROPHE INSERTED
*        BY ROUTINE N) IS SENSED.  ENTRANCE Q10 IS
*        USED TO DIVERT NORMAL CONTROL OF SCAN, IN
*        ORDER TO EMIT A STRING OF INSERTED ITEMS
*        BEFORE RESUMING ORDINARY SCANNING.
*    Q1. SEND SEMICOLON
*        SEND SEMICOLON TO GEN ROUTINE, INDICATING
*        END OF THE STATEMENT.
*    Q2. END OF DO RANGE
*        IF THE CARD JUST COMPLETED IS THE END OF A
*        DO RANGE, GO TO D40.
*    Q3. ANY LABEL
*        IF COLS 1-5 OF THE NEXT CARD ARE BLANK,TO S1.
*        IF COL 1 IS NUMB SIGN GO TO SPECIAL RESERVED
*        WORD ENTERING PROCEDURE.
*    Q4. SCAN FROM COL 1
*        SET TO SCAN THIS CARD AT COLUMN 1 RATHER THAN
*        COLUMN 7,AND SET THE LABEL SWTICH (C7) TO
*        JUMP TO THE CHECKING ROUTINE MENTIONED IN THE
*        COMMENT JUST BEFORE STEP D40.  THEN
*        RETURN TO S1.
*    Q10.ADJUST CO-ROUTINE LINKS.
*        STORE CURRENT STARTING PLACE FOR SCAN CO-RTNE
*        IN EXIT OF THIS DIVRT SUBROUTINE. WE WILL
*        COME BACK TO THIS AFTER ALL SPECIAL ITEMS
*        HAVE BEEN INSERT IN THE PSEUDOCODE.
*    Q11.NEXT ITEM.
*        LOOK AT THE NEXT ITEM TAKEN FROM THE INSER-
*        TION TABLE. IF IT IS ZERO, WE ARE DONE
*        INSERTING AND SO WE EXIT TO RESTART THE SCAN
*                CO-ROUTINE.
*    Q12.SEND TO GEN.
*        SEND ITEM TO GEN,THEN RETURN TO Q11.
*    CODING DETAILS:  DIVT2 IS USED TO RE-INSERT THE
*        PREVIOUSLY SCANNED ITEM AT THE END OF THE
*        OTHER INSERTS. DIVT1 IS USED TO RESET GEN
*        TO ENTER AT G1. DIVRT IS THE NORMAL ENTRY.
*        REGISTER A CONTAINS THE STARTING T-TABLE
*        ENTRY. THIS ROUTINE IS ENTERED FROM GEN.
*
*
*
```

```
*    I.  ASSEMBLER STRUCTURE
*    TABLE OF CONTENTS
*        THIS SECTION IS A COMPLEX OF SUBROUTINES FOR
*        ASSEMBLING THE MACHINE LANGUAGE INSTRUCTIONS.
*        THE NAMES OF THESE VARIOUS LEVELS AND THEIR
*        FUNCTIONS ARE
*        I1.  ASM1   MACRO ASSEMBLER ... ASSEMBLES
*                      1 TO 5 INSTRUCTIONS AND/OR
*                      PSEUDO-INSTRUCTIONS.
*        I25. ASM2   ASSEMBLES ENCODED INSTRUCTIONS,
*                    FIXING UP THE ADDRESSES OF OPERAND
*        I30. ASM25  HALF ASMBLER,LIKE ASM2 EXCEPT IT
*                 DEALS WITH ONE ADDRESS  M,C  ONLY.
*        I35. ASM28 SPECIAL ASSEMBLER FOR ADDRESSES OF
*                   SIMPLE VARIABLES AND CONSTANTS.
*        I50. ASIGN  FINDS ADDRESSES OF OPERANDS
*        I60. LS#    FINDS ADDRESSES OF STATEMENT LABEL
*        I70. CASIN  FINDS ADDRESSES OF CONSTANTS.
*        I80. ASM3      ASSEMBLES INSTRUCTIONS AND
*                     FIXES UP REFERENCES TO'NEXT INST.'
*        I90. ASM4     PROCESSES ASSEMBLED INSTRUCTIONS
*                   AND LOCATIONS, IN OR OUT OF SEQUENCE,
*                   AND PERHAPS LISTS THEM.
*        I95. ASM5   PUT ONE ITEM ON OUTPUT CARD.
*
```

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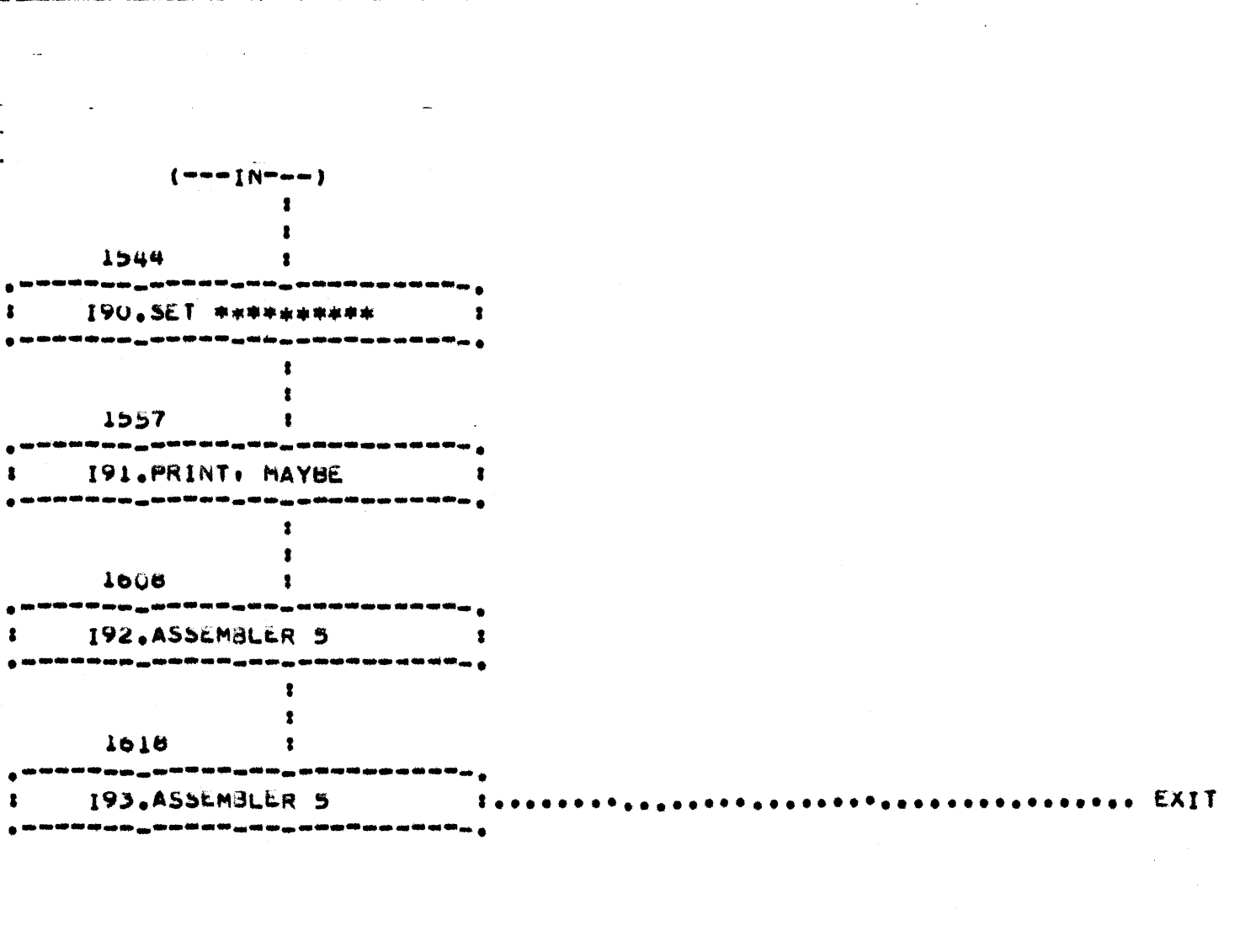
*    I.  I80. ASSEMBLER 3
*        THIS SUBROUTINE ASSMELBLS ABSOLUTE INSTRUC-
*        TIONS AND FIXES UP REFERENCES TO 'NEXT'.
*        A ONE-CYCLE DELAY IS KEPT, AN INSTRUCTION IS
*        NO PUT OUT UNTIL THE NEXT INSTRUCTION COMES
*        ALONG.
*    I80.IS NXLOC SET
*        IF NO PARTICULAR LOCATION FOR THE CURRENT
*        INSTRUCTION HAS BEEN CHOSEN, CHOOSE THE NEXT
*        LOCATION IN THE INTERLACE SEQUENCE.
*    I81.FILL PREV INST
*        FILL BLANK ADDRESSES IN PREVIOUS INSTRUCTION,
*        IF ANY, WITH THE LOCATION OF THIS ONE.
*    I82.ASSEMBLER 4.
*        ACTIVATE ROUTINE I91 TO OUTPUT THE PRECEDING
*        INSTRUCTION.  EXIT.
*    CODING DETAILS: RX IS ORRQSUOOFF  WHERE RK ARE
*        RELOCATION DIGITS FOR M AND C, S IS SIGN, AND
*        FF ARE 0 OR 1 FOR NON-BLANK OR BLANK ADDRESS,
*        RESPECTIVELY.  RA IS THE INSTRUCTION, RL IS
*        THE EXIT. ASM31-ASM37 ARE SPECIAL ENTRANCES
*        FOR THE MOST COMMON CASES IN SETTING RX.
*
```

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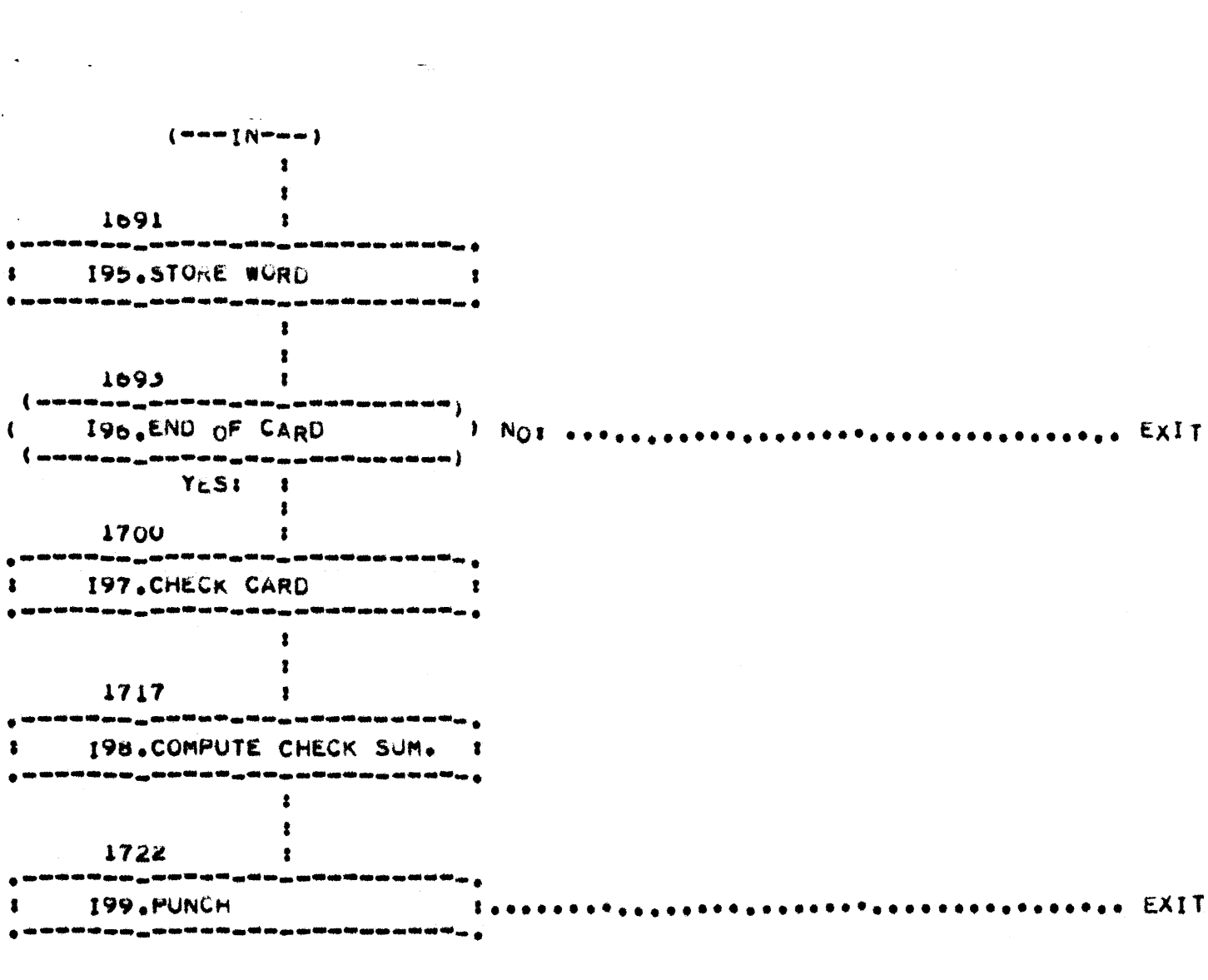
*   I.  I90. ASSEMBLER 4.
*       THIS SUBROUTINE PROCESSES ASSEMBLED INSTRUC-
*       TIONS AND LOCATIONS. ENTRY I90 IS USED FOR
*       OUT-OF-SEQUENCE LINES, I91 FOR THE PROGRAM
*       SEQUENCE.
*   I90.SET **********
*       SAVE COMMENT RESERVED FOR NEXT INSTRUCTION IN
*       PROGRAM SEQUENCE, AND INSERT THE COMMENT
*       **********.
*   I91.PRINT, MAYBE
*       IF LIST MODE IS ON, PRINT THE ASSEMBLED LINE
*       AND THE COMMENT.
*   I92.ASSEMBLER 5
*       PUT THE CONTROL WORD INTO THE OUTPUT
*       (ROUTINE I95)
*       AND ALSO STORE THE COMMENT FOR THE NEXT
*       INSTRUCTION LINE.
*   I93.ASSEMBLER 5
*       PUT THE INSTRUCTION WORD INTO THE OUTPUT
*       (ROUTINE I95).  EXIT.
*   CODING DETAILS:
*       ASM43,ASM44 PUT REGISTER A AS OUT-OF-SEQUENCE
*       LINE INTO NEXT LOCATION OF UNIQUE STORAGE
*       ASM42 PUTS TEMP2 AS OUT-OF-SEQUENCE INTO
*       LOC SPECIFIED BY 7 ADDRESS OF RA, RELOCATION
*       DIGIT FOR M BEING SPECIFIED IN REGISTER L.
*       ASM41,ASM4 HAVE CONTROL WORD IN REGISTER A,
*       INSTRUCTION WORD IN REGISTER X.
*
```

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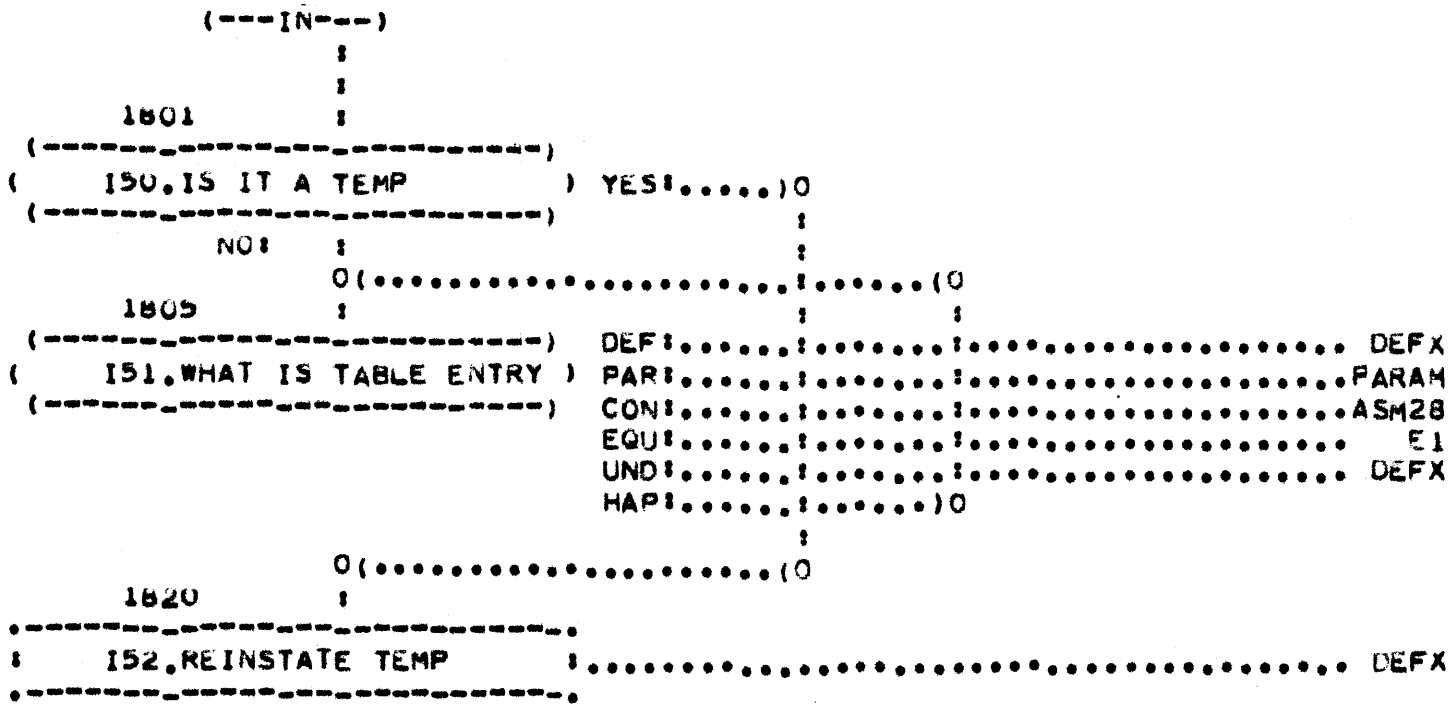
*   I.  I95. ASSEMBLER
*       THIS SUBROUTINE IS THE SOLE COMMUNICATION
*       BETWEEN THE COMPILER AND THE OUTPUT CARDS.
*   I95.STORE WORD
*       PUT THE OUTPUT WORD IN THE PUNCH INTERLACE.
*   I96.END OF CARD
*       IF THE CARD IS NOT FULL YET, EXIT.
*   I97.CHECK CARD
*       UNLESS NO CARDS MODE IS IN EFFECT, UNLOAD
*       THE BUFFER. THE THE 2ND READ STATEION IS NON-
*       BLANK, SUM CHECK THE IMAGE AVAILABLE THERE.
*       GIVE 1112 HALT IF THIS FAILS, AND DUMP HSR
*       BUFFER.
*   I98.COMPUTE CHECK SUM.
*       COMPUTE SUM OF NUMERIC PORTIONS OF FIRST
*       SEVEN WORDS, AND PLACE IN WORD 8 OF CARD.
*   I99.PUNCH
*       PUNCH CARD, INCREASE SEQUENCE NUMBER,  EXIT.
*
*
*
```

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*    I.  I50.  ASIGN SUBROUTINE
*        THIS SUBROUTINE FINDS,OR MAKES,THE MEMORY
*        ASSIGNMENT FOR SIMPLE VARIABLES, ARRAYS, OR
*        TEMP STORAGES. IT IS NOT A TRUE SUBROUTINE,
*        FOR IF THE ITEM TURNS OUT TO BE A CONSTANT
*        OR HAPPY ARRY, IT JUMPS INTO THE MIDDLE OF
*        ASM28 ROUTINE.
*    I50.IS IT A TEMP
*        IF THE ITEM TO BE ASSIGNED IS A TEMP STORAGE,
*        GO TO I52.
*    I51.WHAT IS TABLE ENTRY
*        IF THE TABLE ENTRY INDICATES THIS ITEM IS
*        DEFINED IN UNIQUE OR COMMON,GOTO DEFX.
*        IF THE ITEM IS A PARAMETER,GO TO THE PARAMETE
*        EXIT. IF THE ITEM IS A CONSTANT, GO TO STEP
*        I38 IN ASM28,OR IF DOING A FUNCTION CALL GO
*        TO CASIN,STEP I70.
*        IF THE ITEM IS UNDEFINED AND EQUIVALENCED TO
*        OTHER ITEMS,GO TO E1.
*        IF THE ITEM IS UNDEFINED,NOT EQUIVALENCED,
*        ASSIGN IT IN UNIQUE STORAGE AND GO TO DEFX.
*        FINALLY IF THE ITEM IS A HAPPY ARRAY,ASSUME
*        WE HAVE BEEN CALLED BY ASM28;ADJUST OP CODE
*        FOR INDEXING IF NECESSARY,THEN CONVERT TO A
*        SIMPLE VARIABLE AND RECYCLE AT I51.
*    I52.REINSTATE TEMP
*        UNLESS PROCESSING A DO STATEMENT, THE TEMP
*        STORAGE LOCATION IS PUT BACK ON THE LIST OF
*        POTENTIAL TEMP STORAGES FOR FURTHER USE.
*        GO TO DEFX
*    CODING DETAILS:   RA IS THE OPERAND STACK ENTRY,
*        RL IS THE EXIT FOR A PARAMETER, RX IS THE
*        EXIT FOR A DEFINED NON-PARAMETER.
*
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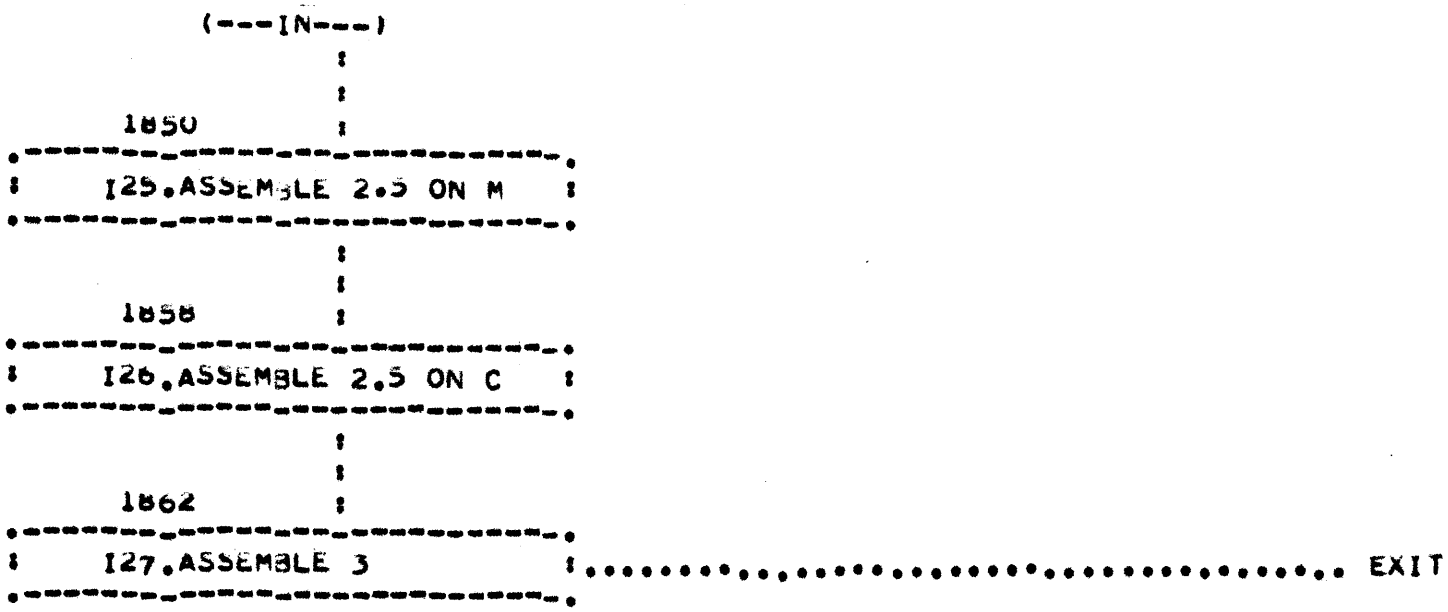


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*    I.  I25. ASSEMBLER 2.
*        THIS SUBROUTINE ASSEMBLES MACHINE LANGUAGE
*        INSTRUCTIONS OF AN ALMOST SYMBOLIC NATURE:
*        THE OP-CODE IS THE TRUE OP BEFORE INDEXING,
*        AND THE ADDRESSES ARE EITHER ABSOLUTE,REFER
*        TO NEXT INSTRUCTION,OR REFER TO OPERANDS.
*        IN PARTICULAR,AN ARRAY OPERAND IS ALLOWED,
*        AND THIS MAY CAUSE MANY INSTRUCTIONS TO BE
*        GENERATED. IF THE OPERAND IS NOT A LABEL,
*        HOWEVER, THE ASSUMPTION IS MADE THAT IT GOES
*        IN M ADDRESS AND THAT C ADDRESS REFERS TO NXT
*    I25.ASSEMBLE 2.5 ON M
*        SEND THE M ADDRESS TO ASM2.5 FOR ASSEMBLY.
*        (IF IT IS AN OPERAND,WE WILL NEVER COME BACK
*        FROM ASM2.5,SEE THAT ROUTINE.)
*    I26.ASSEMBLE 2.5 ON C
*        SEND C ADDRESS TO ASM2.5 FOR ASSEMBLY.
*    I27.ASSEMBLE 3
*        SEND THE COMPILED INSTRUCTION TO ASM3 FOR
*        OUTPUT AND FINAL TOUCHES.  EXIT.
*    CODING DETAILS: ADDRESS 9999 MEANS NEXT. ADDRESS
*        9911 MEANS OPERAND STACK + 11. FOR EXAMPLE,
*        9901 IS THE TOP OF THE OPERAND STACK.  ADDRES
*        SES LESS THAN 9901 ARE ABSOLUTE.
*        AT INPUT RA IS A CODED INSTRUCTION,RL IS EXIT
*        LINE.
*
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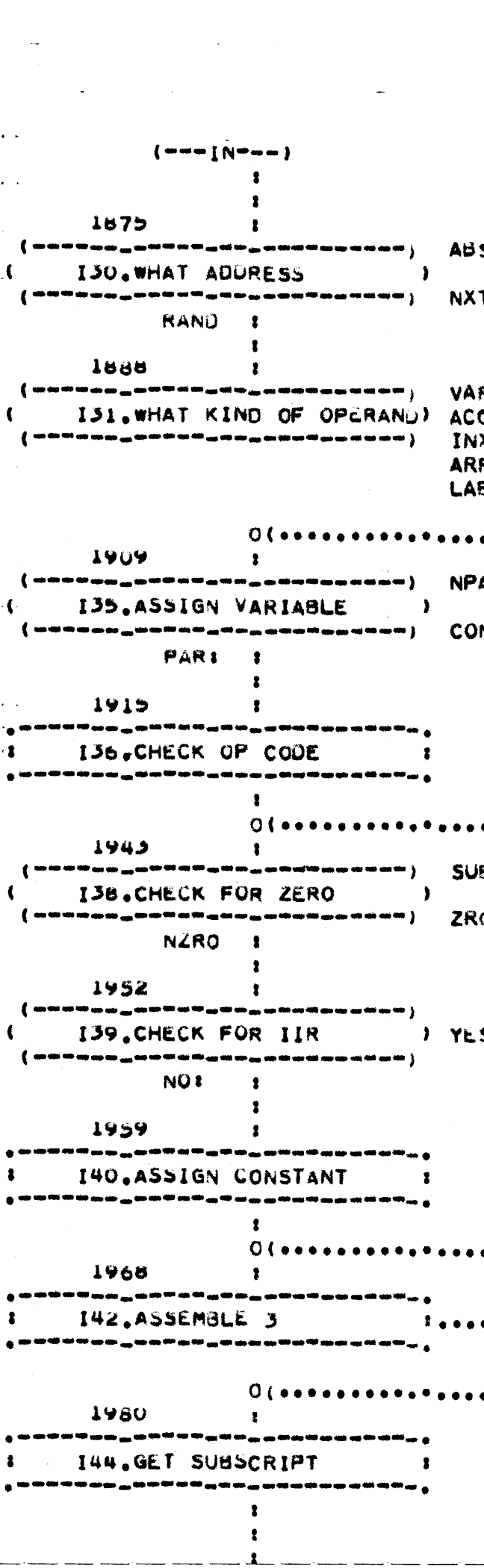


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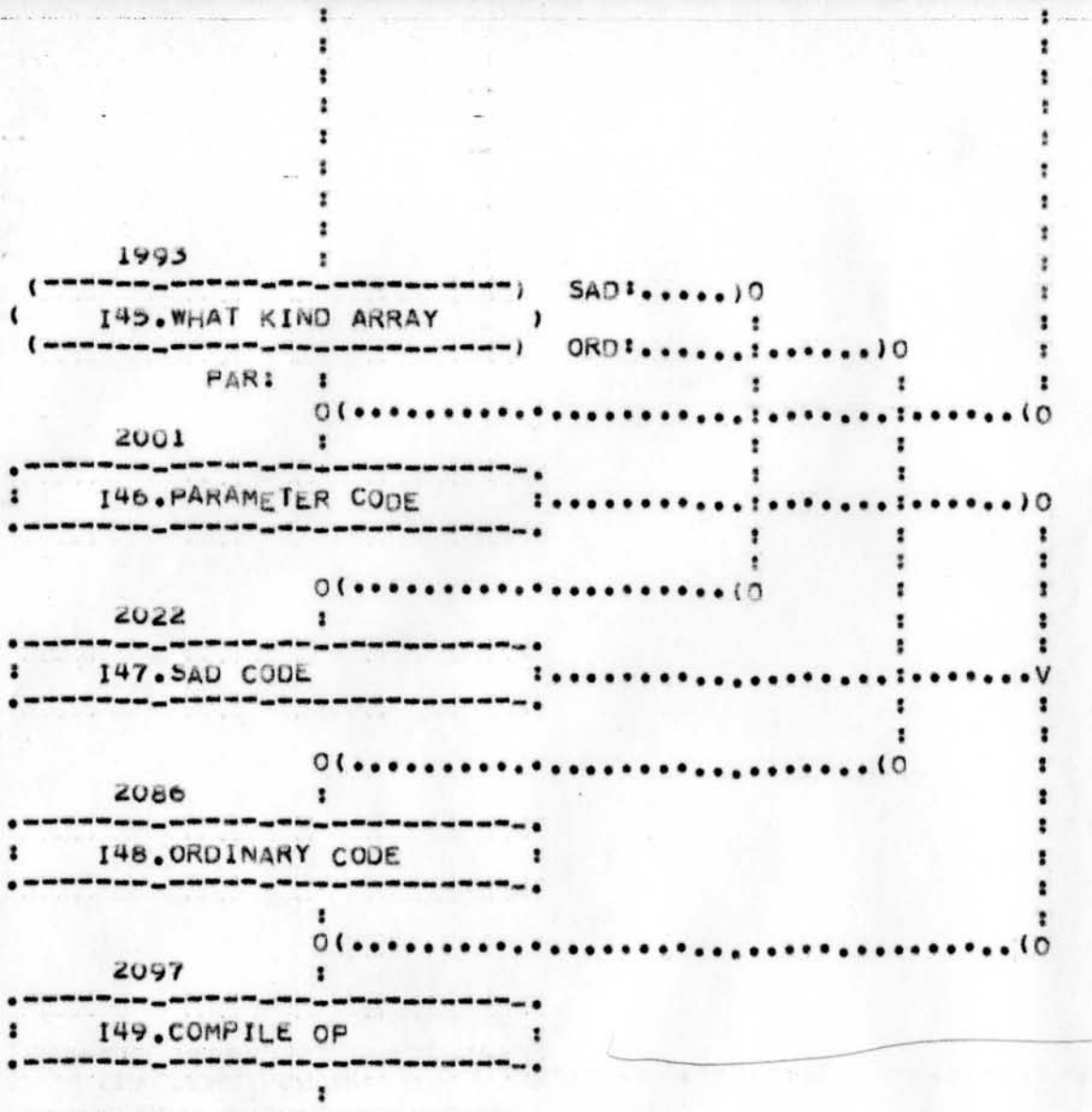
*   I.  I30. ASSEMBLERS 2.5 AND 2.8
*       ASM2.5 DOES HALF THE JOB OF ASM2. G.V.
*       ASM2.8 IS USED FOR SIMPLE VARIABLES, TEMP
*       STORAGES, AND SUBSCRIPTS.
*   I30.WHAT ADDRESS
*       IF THE ADDRESS TO BE ASSEMBLED IS ABSOLUTE,
*       SET CORRESPONDING R-DIGIT ZERO AND EXIT.
*       IF THE ADDRESS REFERS TO NEXT INSTRUCTION,
*       TRANSMIT THIS INFORMATION AND TEMPORARILY SET
*       THE ADDRESS ZERO. EXIT.
*                 OTHERWISE THE ADDRESS IS AN OPERAND
*       AND FURTHER TESTS ARE NECESSARY.
*   I31.WHAT KIND OF OPERAND
*       FETCH THE OPERAND SPECIFIED AND CHECK TO SEE
*       WHAT KIND IT IS.
*       FOR A SIMPLE VARIABLE OR TEMP STORAGE, GO TO
*       ASM28,STEP I35,AFTER WHICH WE EXIT FROM ASM2.
*       FOR AN ACCUMULATOR SYMBOL THIS IS A BAD MESS.
*       FOR AN INDEX VARIABLE,ASSUME WE WERE CALLED 8
*       BY ASSEMBLER 1 FOR A STORE OPERATION. TRANS-
*       FER BACK TO ASM1 EMITTING THE INSTRUCTIONS
*       TO LOAD RB1.
*       FOR AN ARRAY VARIABLE GO TO STEP I44.
*       FOR A LABEL,GO TO THE LABEL ASSIGN ROUTINE
*       (I60) AND THEN  EXIT.
*   I35.ASSIGN VARIABLE
*       GO TO ROUTINE I50 TO GET THE ASSIGNMENT FOR
*       THIS SIMPLE VARIABLE.
*       IF IT IS NOT A PARAMETER,GO TO STEP I42
*       IF IT IS A CONSTANT,WE GET TO STEP I38.
*                 OTHERWISE IT'S A PARAMETER.
*   I36.CHECK OP CODE
*       FOR A SIMPLE VARIABLE PARAMETER, WE CHOOSE
*       ONE OF THREE SUBROUTINES IN THE OBJECT CODE,
*       DEPENDING WHETHER THE OP IS TO BE LDL, LDA,
*       OR STL.  FOR A STA WE DO ATL, STL. FOR OTHER
*       OPERATIONS, WE DO LDL, OP RL.
*   I38.CHECK FOR ZERO
*       IF THE CONSTANT IS ZERO,AND IF THIS IS A
*       ZERO SUBSCRIPT ON A PARAMETRIC ARRAY GO TO
*       STEP I46. OTHERWISE FOR A ZERO CONSTANT, ADD
*       ONE TO THE OP CODE AND SET 7 AND C TO NXT.
*       GO TO ASM3 AND THEN EXIT FOR ASM2.
*   I39.CHECK FOR IIR
*       SEE IF THE OP IS LDA AND IF IT CAN BE CHANGED
*       INTO IIR; IF SO, DO THIS AND EXIT.
*       FROM ASM2 VIA ASM3.
*   I40.ASSIGN CONSTANT
*       USE THE CASIN ROUTINE (I70), DISPLAY THE
*       COMMENT 'CONST'.
*   I42.ASSEMBLE 3
*       GIVE APPROPRIATE COMMENT, THEN  EXIT FROM
*       ASM2 VIA ASM3.
*   I44.GET SUBSCRIPT
*       IN ASM2.5 WE HAVE AN ARRAY OPERAND.
*       IF THE SUBSCRIPT IS NOT ALREADY IN REGISTER
*       A, COMPILE CODE TO STORE A IN TEMP IF NEC-
*       ESSARY, AND THEN TO LOAD A WITH THE SUBSCRIPT
```

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*
*       (USING ASM2.8, STEP I35).
*   I45.WHAT KIND ARRAY
*       (REFER TO STEP A24 WHERE THE VARIOUS CASES OF
*       ARRAY WERE DEFINED.) HAPPY ARRAYS DO NOT
*       COME THROUGH THIS PART,BUT WE MUST BRANCH
*       3 WAYS FOR THE OTHER TYPES OF ARRAYS:
*       SAD, GO TO I47.
*       ORDINARY, GO TO I48.
*            PARAMETRIC,GO TO NEXT STEP.
*   I46.PARAMETER CODE
*       IF CORE MODE IS ON, COMPILE
*           ADD 1F,LDX RA,LDA PAR,ADD RX RA.
*       ELSE COMPILE ADD PAR (OR LDA PAR IF SUBSCRIPT
*       IS ZERO), ADD NXT RA.  GO TO I49.
*   I47.SAD CODE
*       IF CORE MODE IS ON, COMPILE ADD 1F,
*       LDX RA, IIR ORELATIVE, ADD RX RA.
*       ELSE COMPILE ADD FUDGE, ADD NXT RA.
*       GO TO I49.
*   I48.ORDINARY CODE
*       COMPILE ADD NXT RA.
*   I49.COMPILE OP
*       NOW COMPILE THE ORIGINAL OP-CODE DESIRED FOR
*       THIS ARRAY OPERAND, PLUS 4 IF INDEXING IS
*       SPECIFIED. PUT NAME OF ARRAY AS COMMENT.
*   CODING DETAILS WILL BE OMITTED SINCE ASM2.5
*   AND ASM2.8 ARE ONLY FOR INTERNAL USE BY ASM2.
*
*
*
*
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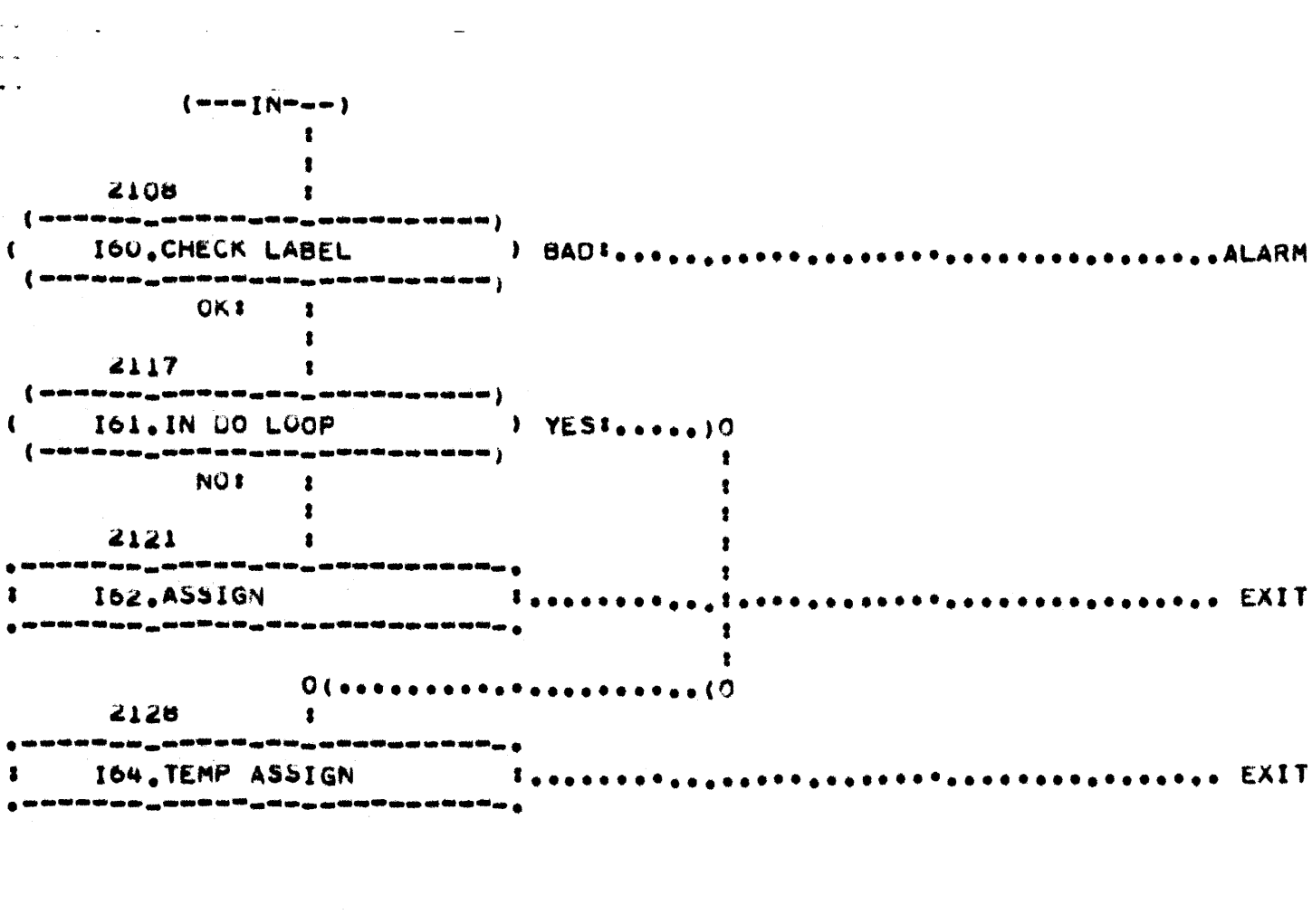


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*    I.  I60. LSW  FOR ASSIGNING STATEMENT LABELS.
*        THIS ROUTINE HANDLES THE LOGIC FOR LABEL
*        ADDRESSES. THE PROBLEMS SOLVED ARE THOSE
*        OF FORWARD REFERENCES AND OF POTENTIAL GO TO
*        OUT OF DO LOOPS.
*    I60.CHECK LABEL
*        CHECK THAT THE OPERAND WHICH IS SUPPOSED TO
*        BE A LABEL IS ACTUALLY A STATEMENT NUMBER.
*        IF NOT, GIVE THE BAD LABEL ALARM.
*    I61.IN DO LOOP
*        IF WE ARE IN A DO LOOP GO TO STEP I64 UNLESS
*        WE WANT THE ABSOLUTE LOCATION OF THE LABEL
*    I62.ASSIGN
*        IF THE LABEL IS UNDEFINED,PICK LOCATION,
*        DEFINE IT, AND EXIT. IF THE LABEL IS TEMPO-
*        RARILY UNDEFINED (SEE BELOW),DO STEP I62 ON
*        THE AUXILIARY WORD. IF THE LABEL IS ALREADY
*        DEFINED, SIMPLY EXIT.
*    I64.TEMP ASSIGN
*        IN DO LOOP (AS OPPOSED TO DONT LOOP) WE MAKE
*        A TEMPO-A-Y ASS&GNMENT FOR THE LOCATION TO GO
*        TO,WHICH STORES R81 BEFORE GOING TO THE
*        ACTUAL LOCATION. THE EXTRA INFORMATION IS
*        KEPT IN LLIST, IN THE FORM
*        SYMBOL TABLE ENTRY LLLL: 51AAAAXXXX
*                                 AAAA:   02TTTT
*                                 AAAA+1: XSSSSSLLLL
*        WHERE XSSSSS IS THE OLD SYMBOL TABLE ENTRY,
*        TTTT IS THE TEMPORARY ASSIGNMENT.
*        IN THIS STEP,WE CREATE THE LLIST ENTRY IF
*        NONE HAS BEEN MADE YET FOR THIS LABEL. OTHER-
*        WISE WE USE THE TEMPORARY ADDRESS. ALSO IF
*        THE  LABEL  HAD NO PERMANENT ADDRESS AND THE
*        LABEL HAS NOW OCCURRED IN COLS 1-5, WE SET
*        THE PERMANENT ADDRESS EQUAL TO THE TEMPORARY
*        ADDRESS.    EXIT.
*    CODING DETAILS:
*        ENTRANCE LSW IS USED FOR THE BRANCH ON DO
*        LOOP. ENTRANCE LSWOF IS USED FOR GETTING
*        ABSOLUTE LOCATIONS AS WITH A FORMAT OR
*        ASSIGN STTATEMENT.  RL IS THE EXIT LINE.
*        OUTPUT IS 02AAAA0000 IN REGISTER A.
*
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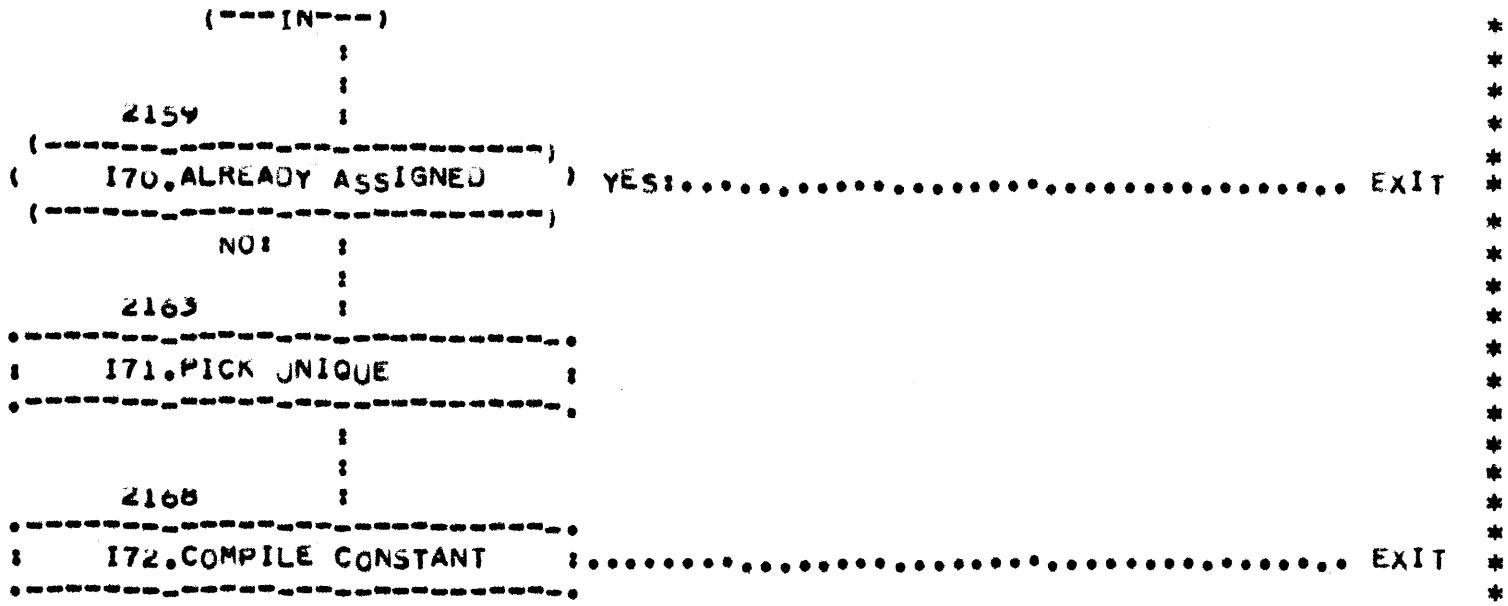


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*   I.  I70. CASIN  ASSIGNING CONSTANTS.
*   I70.ALREADY ASSIGNED
*       IF THE CONSTANT HAS ALREADY BEEN ASSIGNED,
*       OUTPUT THE ASSIGNMENT. EXIT.
*   I71.PICK UNIQUE
*       PICK THE NEXT LOCATION IN UNIQUE STORAGE FOR
*       THIS CONSTANT
*   I72.COMPILE CONSTANT
*       OUTPUT THE CONSTANT OUT-OF-SEQUENCE USING ASS
*       EMBLER 4(I90).  EXIT.
*   CODING DETAILS:RX IS EXIT LINE, RB1 IS SYMBOL
*       TABLE REFERENCE. OUTPUT IS 01AAAA0000 IN RL.
*
*
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*
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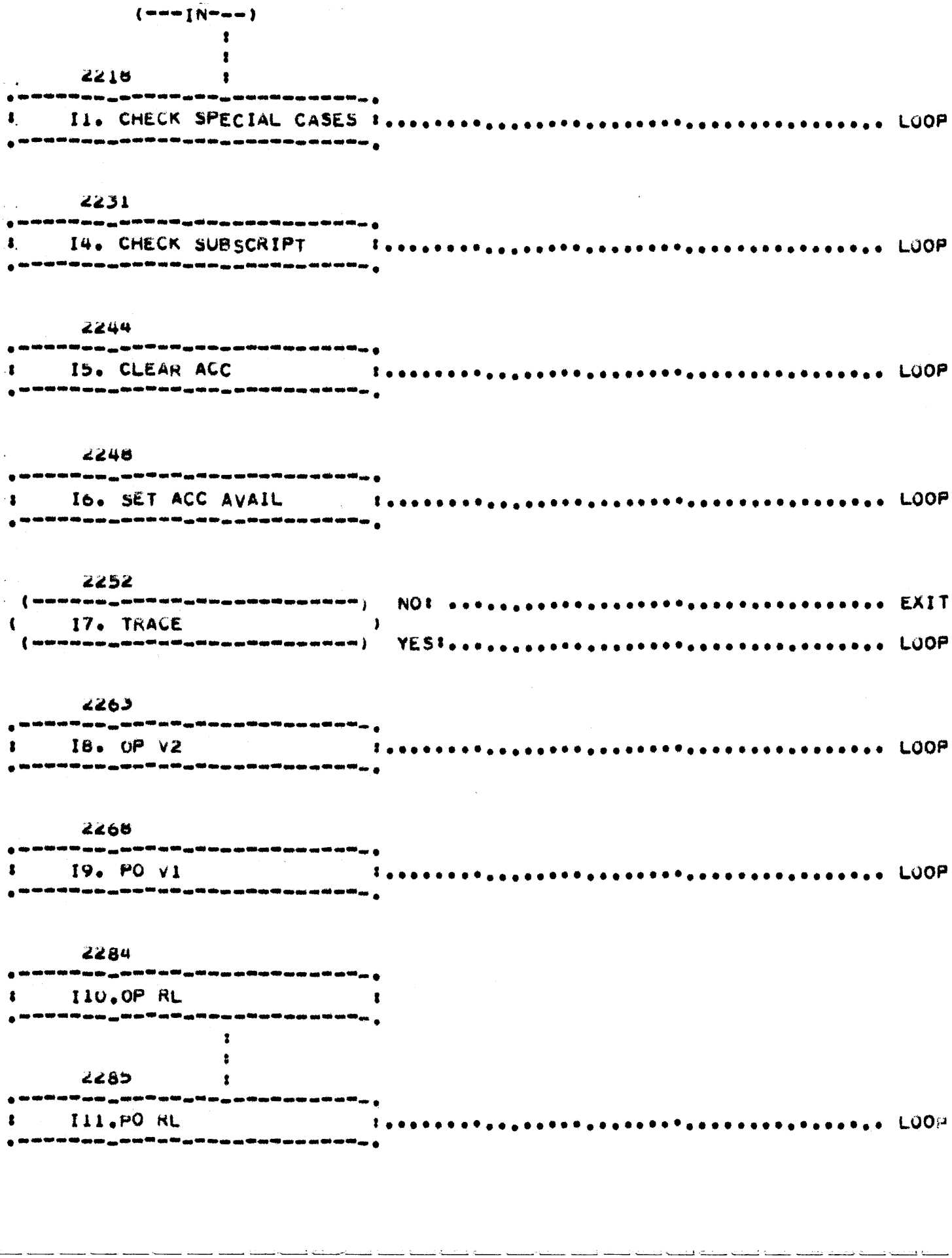


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*   I.  I1.  ASSEMBLR 1
*       THIS IS A MACRO-ASSEMBLR
*       WHICH IS GIVEN A LIST OF TWO-DIGIT INSTRUC-
*       TION NUMBERS.  THESE NUMBERS ARE EITHER
*       REFERENCES TO A LIST OF STANDARD INSTRUCTIONS
*       WHICH ARE PROCESSED BY ASSEMBLER 2, OR THEY A
*       ARE REFERENCES TO PSEUDO-INSTRUCTIONS NUMBER
*       I2 THRU I23.  THE PSEUDO-INSTRUCTIONS ARE
*       GIVEN HER IN THIS SECTION.  THE PURPOSE OF
*       ASM1 IS TO STEP THROUGH ALL 2-DIGIT
*       CODES, AS AN INTERPRETIVE ROUTINE.
*       'LOOP' REPRESENTS THE PLACE TO RETURN TO
*       STEP TO THE NEXT 2-DIGIT CODE.
*   I1. CHECK SPECIAL CASES
*       I1,I2,AND I3 ARE USED TO PROVIDE SLIGHTLY
*       BETTER CODE FOR CERTAIN BINARY OPERATORS
*       OR FOR IF-STATEMENTS WITH LABELS EQUAL, BY
*       CHANGING THE ORDER OF OPERATION.  LOOP.
*   I4. CHECK SUBSCRIPT
*       WHEN A BINARY OPERATION BETWEEN TWO ARRAY
*       VARIABLES IS USED, A TEST IS MADE HERE TO
*       SEE WHETHER EITHER SUBSCRIPT IS ALREADY IN
*       THE ACCUMULATOR, FOR EFFICIENCY.    LOOP.
*   I5. CLEAR ACC
*       IF THE ACCUMULATOR IN THE OBJECT PROGRAM
*       IS IN USE, COMPILE THE INSTRUCTION
*       'STA TEMP.'   LOOP.
*   I6. SET ACC AVAIL
*       THE ACCUMULATOR IS SET AVAILABLE, SINCE THE
*       PREVIOUSLY COMPUTED RESULT IS TO BE USED
*       NEXT.   LOOP.
*   I7. TRACE
*       IF TRACE MODE IS NOT ON, EXIT FROM ASM1.
*       OTHERWISE PREPARE THE INSTRUCTION LDX NAME
*       PREPARATORY TO TRACING.   LOOP.
*   I8. OP V2
*       EITHER OP V2 NXT  OR
*         LDL V2,OP RL IS COMPILED,
*       'WE ARE WORKING ON THE BINARY OPERATION
*           V1 OP V2)  THEN LOOP.
*   I9. PO V1
*       NOTE: V1 OP V2   EQUALS  V2 PO V1
*       EITHER  PO V1 NXT  OR
*       LDL V1, PO RL IS COMPILED.   LOOP.
*   I10.OP RL
*   I11.PO RL
*       THIS PSEUDO OP IS USED TO SELECT ONE OF TWO
*       ALTERNATIVES, WHICH ARE GIVEN AS PARAMETERS
*       TO ASM1, DEPENDING ON WHICH OPERAND IS IN
*       RL AND WHICH IS IN RA.   LOOP.
*   I12.OP RL NXT
*       COMPILE OP RL NXT.   LOOP.
*   I13.LIRJ NXT SUB
*       THIS COMPILES THE LINKAGE TO SUBROUTINES,
*       INCLUDING THE CONTROL INFORMATION TO BRING A
*       NEW SUBROUTINE IF THE SUBROUTINE HAS NOT
*
*
*
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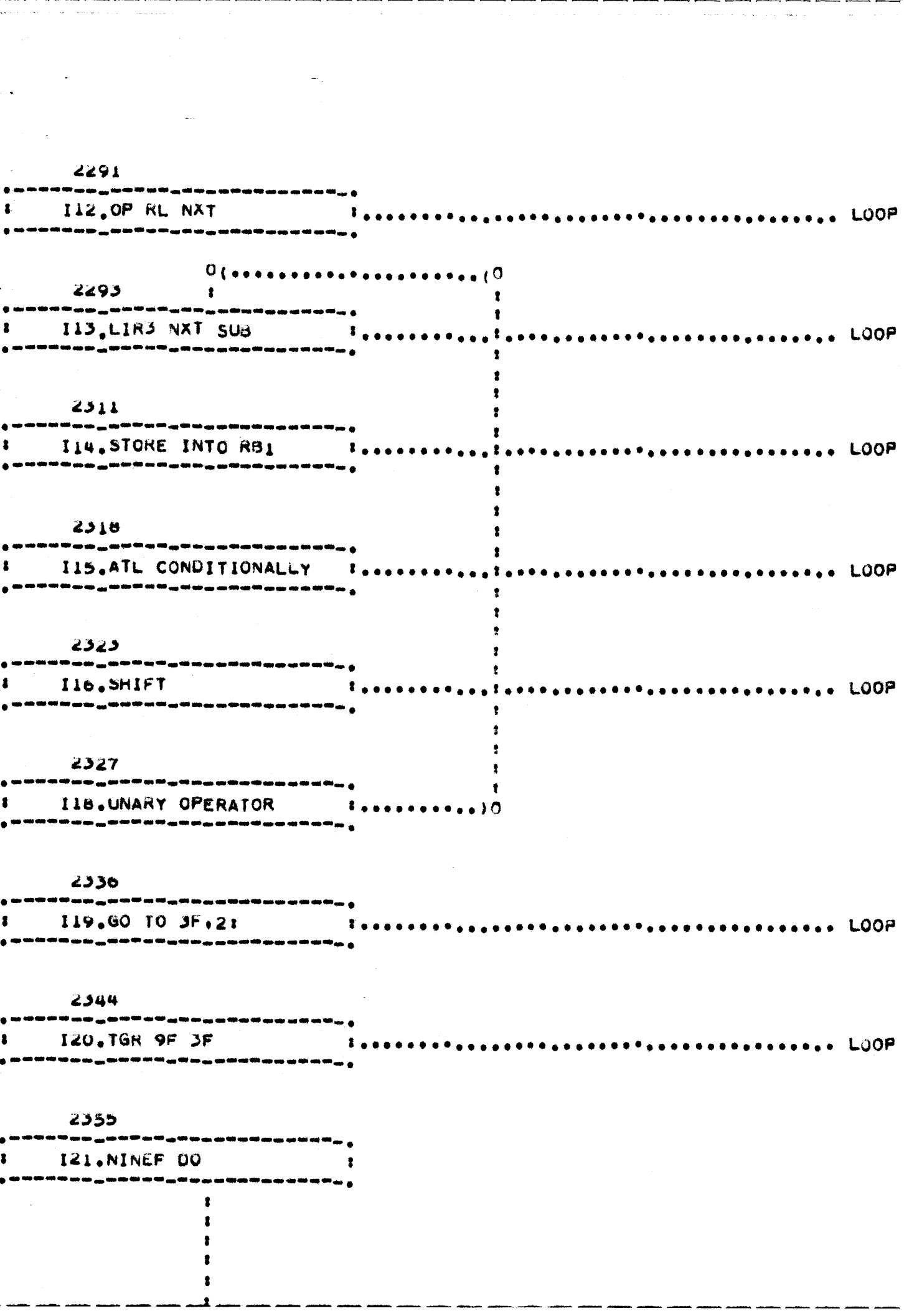


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*       BEEN USED BEFORE.  LOOP.
*   I14.STORE INTO RB1
*       COMPILE  LIR1 0000 NXT, WITH THE DO VARIABLE
*       AS COMMENT.  LOOP.
*   I15.ATL CONDITIONALLY
*       COMPILE  ATL 0000 NXT  UNLESS THE PRECEDING
*       INSTRUCTION IN SEQUENCE WAS AN LIR3 (IN WHICH
*       CASE THE ANSWER IS ALREADY IN RL).  LOOP.
*   I16.SHIFT
*       I16 AND I17 ARE USED FOR SHIFT COMMANDS
*       WHEN COMPILING CODE TO MULTIPLY BY POWERS
*       OF 10.  LOOP.
*   I18.UNARY OPERATOR
*       DEPENDING ON THE UNARY OPERATOR, THE
*       SUBROUTINE REFERENCE IS COMPILED USING I13.
*   I19.GO TO 3F,2:
*       USED FOR MAKING FORWARD REFERENCES AT
*       THE BEGINNING OF DO LOOPS AND IN INPUT-
*       OUTPUT LISTS.  LOOP.
*   I20.TGR 9F 3F
*       THIS IS FOR THE TRANSFER INSTRUCTION FOR
*       EXITING FROM DO LOOPS.  LOOP.
*   I21.NINEF DO
*       THIS IS SIMPLY USED TO MARK THIS AS A DO
*       RATHER THAN A DONE LOOP.
*   I22.BUF      IF
*       USED AT BEGINNING OF FUNCTION OR SUBROUTINE.
*        LOOP.
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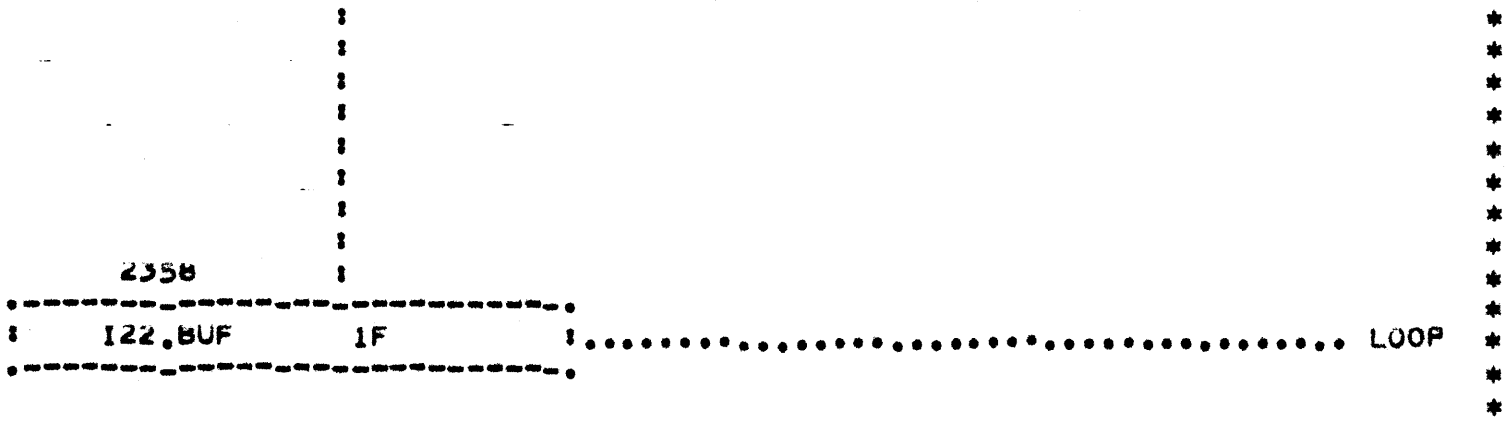
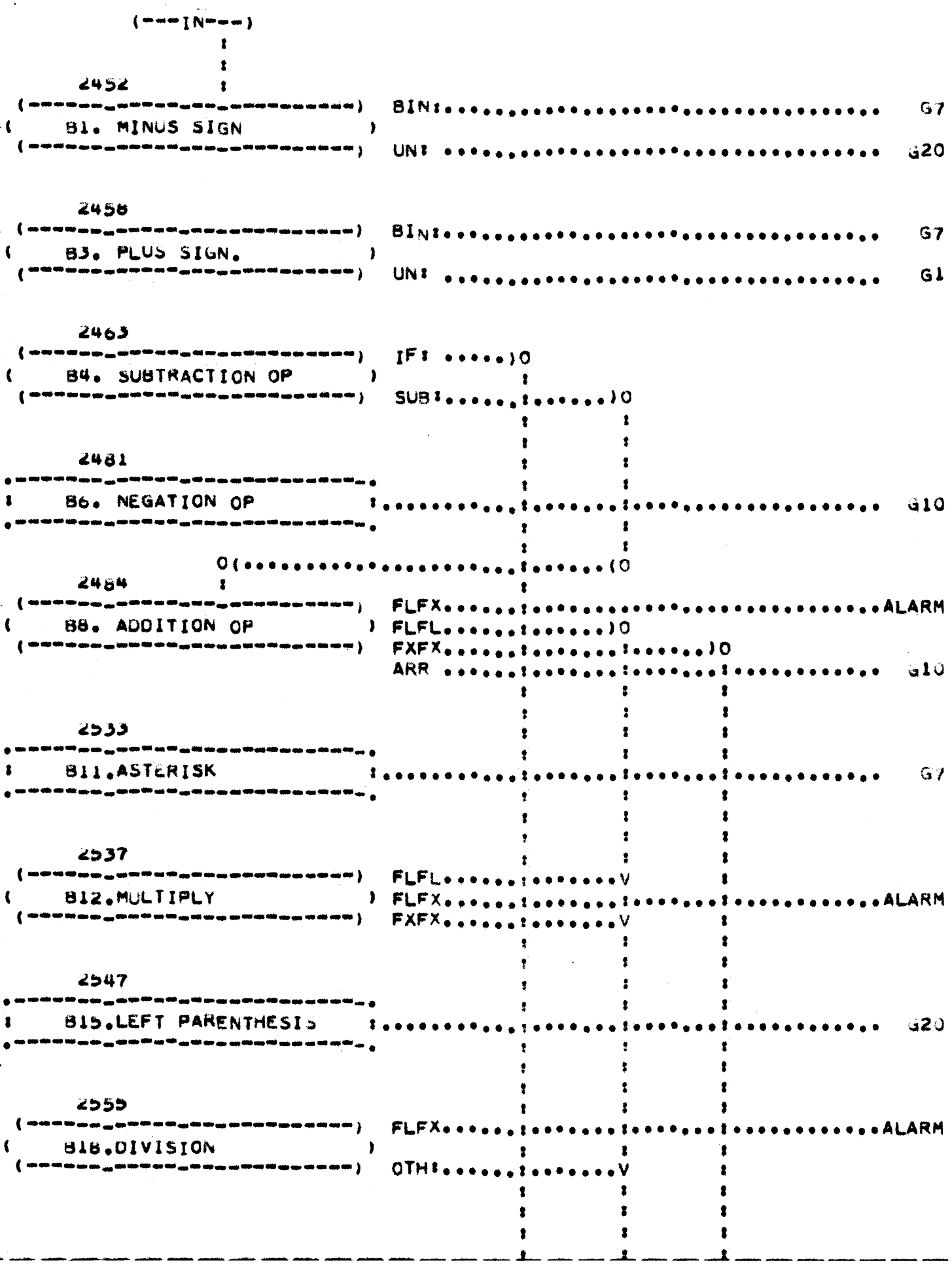

2358
I22,BUF
1F
LOOP

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*  B.  ARITHMETIC OPERATORS
*      THIS SECTION CONTAINS THE GENERATORS FOR
*      ARITHMETIC OPERATORS, ENTERED FROM STEP G6
*      OR FROM STEP G10.  AN ODD NUMBERED STEP HERE
*      INDICATES AN ENTRY FROM STEP G6 (WHEN SYMBOL
*      IS FIRST SENSED) AND AN EVEN NUMBERED STEP
*      IN THIS SECTION INDICATES AN ENTRY FROM
*      G10 ( OFF THE OPERATOR STACK ).
*  B1. MINUS SIGN
*      CHECK IF THE PRECEDING ITEM WAS AN OPERAND OR
*      RIGHT PARENTHESIS. IF SO, A BINARY MINUS
*      OPERATOR IS SUBSTITUTED AND WE GO TO STEP G7.
*      IF NOT, A UNARY MINUS OPERATOR IS SUBSTITUTED
*      AND WE GO TO STEP G20.
*  B3. PLUS SIGN.
*      CHECK AS IN STEP B1 FOR UNARY OR BINARY.
*      ON BINARY PLUS,CHANGE TO THE BINARY ADD
*      OPERATOR AND GO TO STEP G7.
*      A UNARY PLUS IS IGNORED. GO TO G1.
*  B4. SUBTRACTION OP
*      CHECK IF THE OPERATOR IN OHOLD IS A RIGHT
*      PARENTHESIS AND IF THE TOP OF THE OPERATOR
*      STACK IS LEFT PARENTHESIS AFTER AN IF. IN
*      THIS CASE AND IF THE SIGNS OF THE TOP TWO
*      OPERANDS ARE EQUAL, SUBTRACTION IS NOT
*      CARRIED OUT. THE IF OPERATOR IS REMOVED
*      FROM THE STACK AND WE GO TO STEP  B27.
*      OTHERWISE NEGATE THE TOP OPERAND AND
*      CHANGE TO BINARY PLUS. STEP B8.
*  B6. NEGATION OP
*      CHANGE SIGN OF TOP OPERAND. EXIT TO G10.
*  B8. ADDITION OP
*      CHECK TYPES OF OPERANDS. IF THEY ARE MIXED
*      GIVE AN ERROR ALARM.
*      IF BOTH ARE FLOATING POINT,GO TO B90.
*      IF FIXED POINT,CHECK IF WE ARE ADDING A
*      CONSTANT IN AN ARRAY SUBSCRIPT. IF NOT,
*      GO TO B89. HOWEVER IF WE ARE ADDING  0 + V
*      THE ADDITION IS SUPPRESSED.
*      IN THE ARRAY SUBSCRIPT CASE, RECORD IF THE
*      CONSTANT IS GREATER THAN +1. MULTIPLY THE
*      CONSTANT BY THE APPROPRIATE DIMENSION
*      AND ADD THIS TO THE BASE. EXIT TO G10.
*  B11.ASTERISK
*      CHECK FOR SECOND ASTERISK AND CHANGE TO A
*      MULTIPLY OR POWER OPERATOR; GO TO G7.
*  B12.MULTIPLY
*      IF FLOAT-FLOAT, GO TO B90.
*      IF MIXED TYPE, GIVE ERROR ALARM.
*      IF FIX-FIX, SET 0*V EQUAL TO 0. IN OTHER
*      CASES, WE MAY CHECK FOR POSSIBILITY OF
*      ADD RA  AND/OR  SHIFT COMMNDS TO IMPLEMENT
*      MULTIPLICATION, ELSE GO TO B90.
*  B15.LEFT PARENTHESIS
*      PUT A LEFT PARENTHESIS OPERATOR ON THE STACK,
*      STEP G20. WHEN IT COMES OFF THE STACK IT WILL
*      NECESSARILY BE FORCED OFF BY ITS MATCHING
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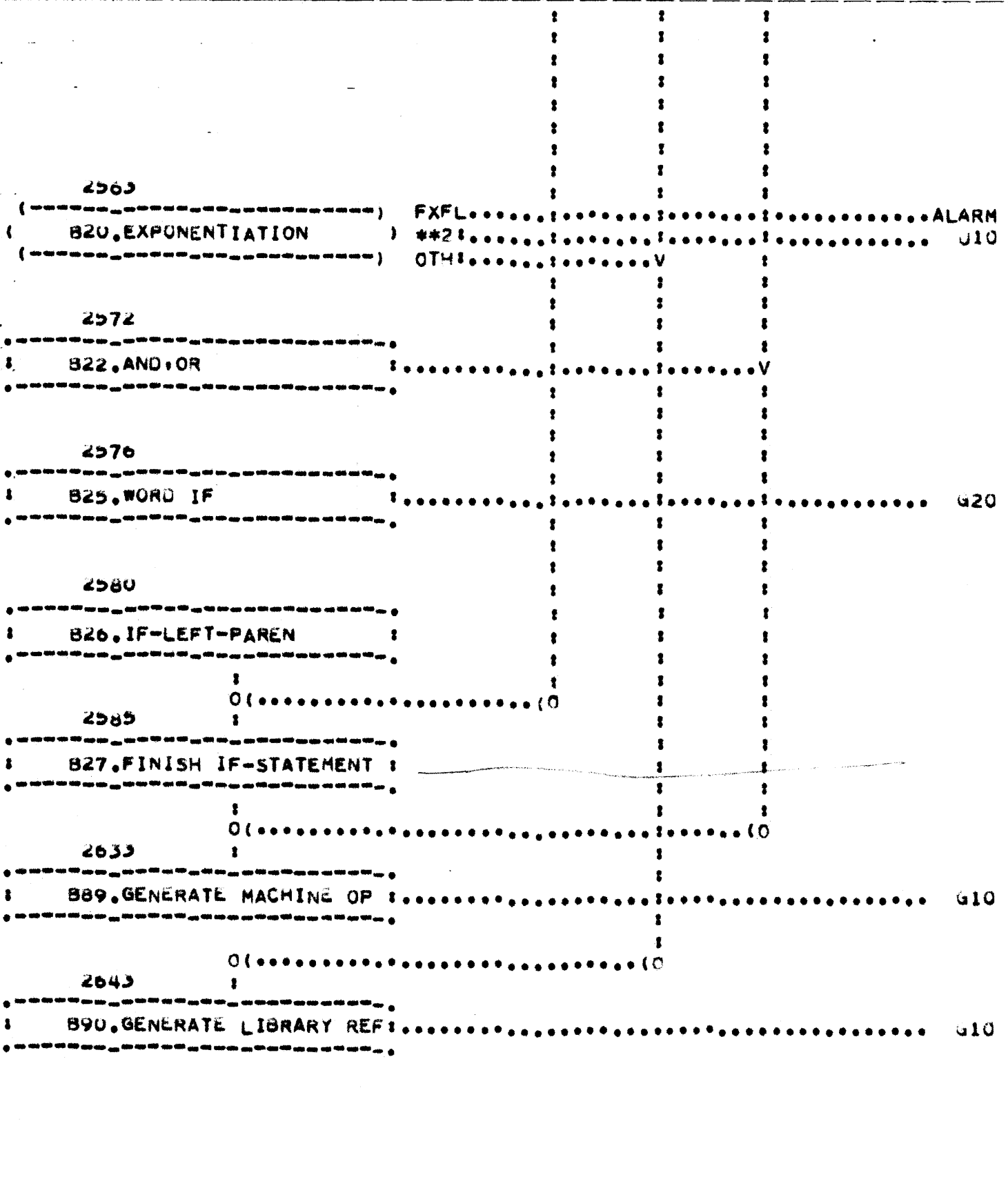
2563
FXFL
**2
OTH
ALARM
U10
B20.EXPONENTIATION
2572
B22.AND,OR
2576
B25.WORD IF
G20
2580
B26.IF-LEFT-PAREN
2585
B27.FINISH IF-STATEMENT
2633
B89.GENERATE MACHINE OP
G10
2643
B90.GENERATE LIBRARY REF
G10

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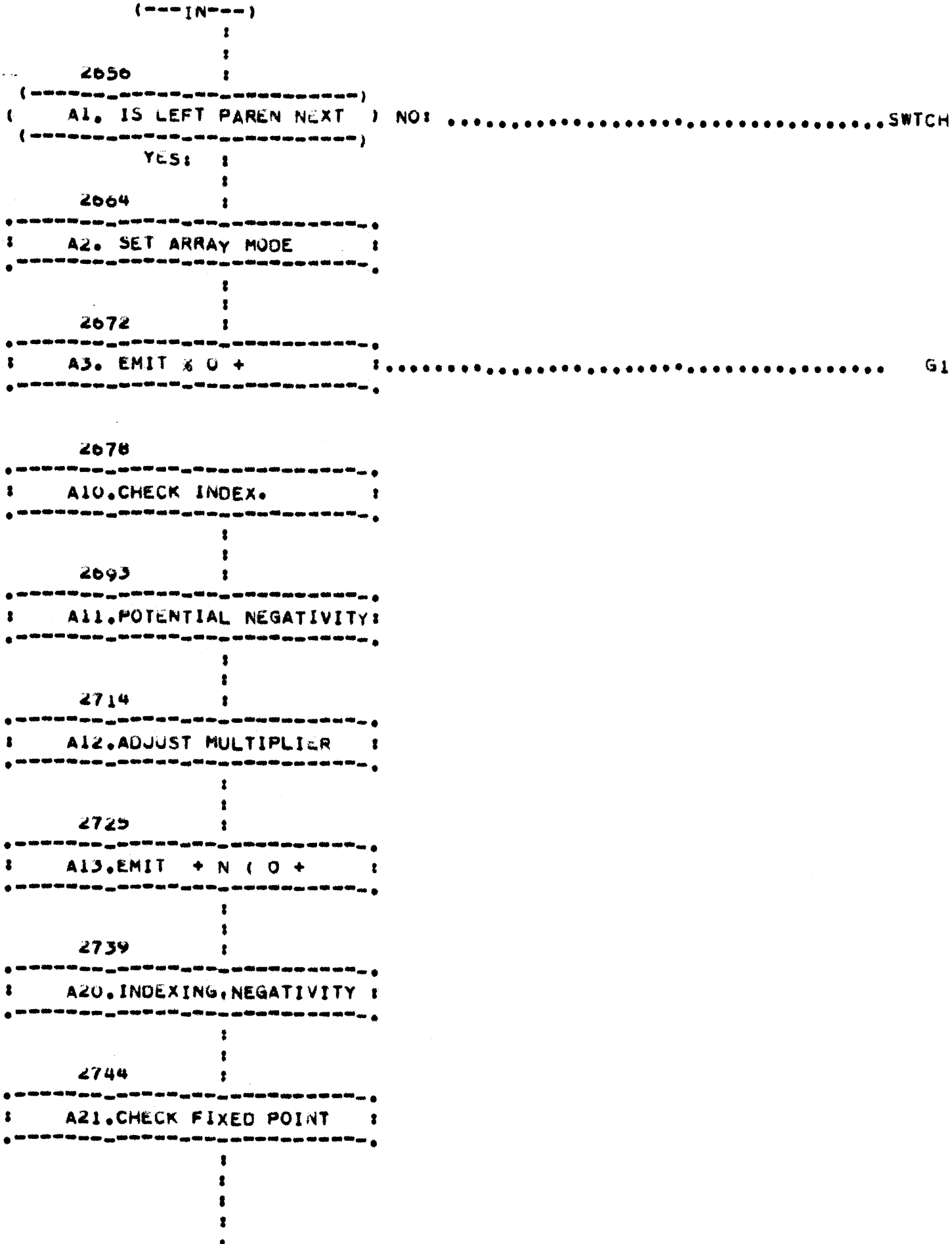


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*   A.  PROCESSING OF ARRAY SUBSCRIPTS
*       WHEN A DIMENSIONED VARIABLE IS SENT FROM THE
*       SCANNER, ENTRY IS MADE TO A1.  A COMMA
*       BETWEEN SUBSCRIPTS CAUSES ENTRY TO A10.
*   A1. IS LEFT PAREN NEXT
*       SCAN NEXT ITEM. IF IT IS NOT A LEFT
*       PARENTHESIS,GO TO THE UNDIMENSIONED ARRAY
*        SWITCH. THIS SWITCH IS NORMALLY SET TO THE
*       'MISSING LEFT PARENTHESIS' ALARM WHICH
*       INSERTS A LEFT PARENTHESIS INTO THE
*       STATEMENT AND RETURNS HERE.
*   A2. SET ARRAY MODE
*       THE MODE STACK RECEIVES FOUR NEW ENTRIES:
*       2 0000  ARRAY MODE (A10 FOR COMMA,
*                           MISSING RIGHT PAREN FOR $)
*       2 9999  BASE CALCULATION
*       2 9998  CURRENT PRODUCT OF DIMENSIONS
*       2 9997  REFERENCE TO DIMENSION LIST
*   A3. EMIT % 0 +
*       FOR CONVENIENCE, THE CHARACTER ( 0 + ARE
*       INSERTED. THIS LEFT PARENTHESIS IS A SPECIAL
*       ONE WHICH SENDS CONTROL TO STEP A20 WHEN
*       THE MATCHING RIGHT PARENTHESIS COMES ALONG.
*       EXIT TO G1.
*   A10.CHECK INDEX.
*       IF THIS IS THE FIRST SUBSCRIPT AND ITS
*       CURRENT VALUE IS RB1 CODE, INDEXING IS SET
*       UP AND THE SUBSCRIPT IS REPLACED BY ZERO.
*       THIS OCCURS ONLY IF THE FIRST SUBSCRIPT IS
*       DOVAR & CONSTANT, WHERE THE CONSTANT IS
*       GREATER THAN -30, AND IF WE ARE NOT CALLING
*       A FUNCTION.
*       THE IMPORTANT ASSUMPTION IS MADE HARE THAT
*       NEITHER UNIQUE NOR COMMON STORAGE WILL BE
*       ASSIGNED TO CORE LOCATIONS B000 - B029.
*       WITH THIS CONVENTION, THE NUMBER OF SAD
*       ARRAYS(SEE SECTION A24) IS GREATLY REDUCED.
*   A11.POTENTIAL NEGATIVITY
*       IF ANY CONSTANTS GREATER THAN 1 OCCURRED
*       DURING THE LAST SUBSCRIPT ALONG WITH
*       ANYTHING OTHER THAN DOVAR, THIS ARRAY IS
*       MARKED AS HAVING A POTENTIALLY NEGATIVE
*       SUBSCRIPT.
*   A12.ADJUST MULTIPLIER
*       IF THERE ARE NO MORE DIMENSIONS, THE EXTRA
*       SUBSCRIPT ALARM IS GIVEN, ELSE IT IS
*       MULTIPLIED TO GIVE THE CURRENT PRODUCT OF
*       DIMENSIONS.
*   A13.EMIT  + N ( 0 +
*       FOR CONVENIENCE, THE COMMA IS TRANSFORMED
*       INTO THE CHARACTERS +N(0+    THIS LEFT
*       PARENTHESIS IS LIKE A MULTIPLICATION SYMBOL,
*       ONLY THE CHECK AT STEP A11 IS MADE FIRST.
*   A20.INDEXING,NEGATIVITY
*       WE HAVE NOW SCANNED THE ENTIRE SUBSCRIPT
*       OF THE ARRAY. STEPS A10 AND A11 ARE PERFORMED
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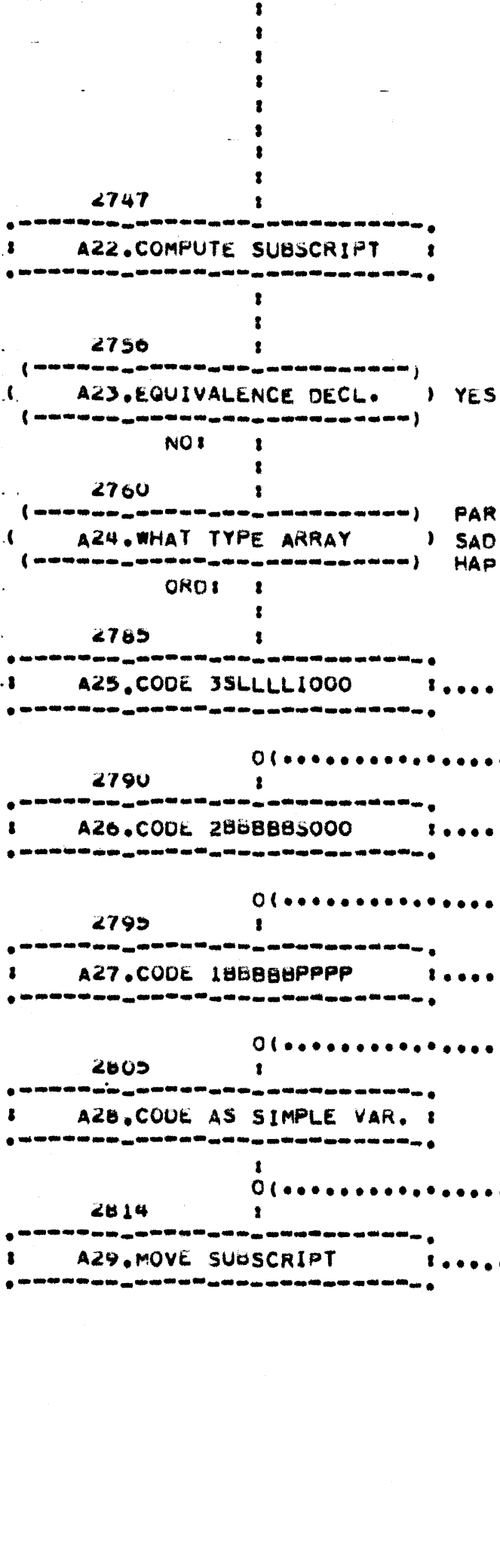


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*       THEY ARE REDUNDANT UNLESS THE ARRAY IS
*       SINGLY SUBSCRIPTED.
*    A21.CHECK FIXED POINT
*       IF SUBSCRIPT IS FLOATING, GIVE ERROR ALARM.
*    A22.COMPUTE SUBSCRIPT
*       ITSELF, PRODUCE CODE TO LOAD IT WITH TRUE
*       SIGN INTO THE ACCUMULATOR.
*    A23.EQUIVALENCE DECL.
*       IF WE ARE IN AN EQUIVALENCE DECLARATION,
*       EXIT TO THE EQUIVALENCE ROUTINE E30.
*    A24.WHAT TYPE ARRAY
*       THERE ARE FOUR KINDS OF ARRAYS, AND WE DECIDE
*       NOW WHAT KIND THIS IS.
*       IF THE ARRAY IS PARAMETRIC, GO TO A27.
*       CONSTANTS IN THE SUBSCRIPT ARE ADDED TO THE
*       BASE. IF THE BASE HAS THEREBY BECOME NEGATIVE
*       OR TOO LARGE OR IF THE SUBSCRIPT IS
*       POTENTIALLY NEGATIVE, THIS IS CALLED A SAD
*       ARRAY, AND WE GO TO A26.
*       EXAMPLE: A(J+2), WHERE J MAY BE NEGATIVE
*       IF THE SUBSCRIPT IS NOW ZERO, THIS INDICATES
*       THAT IT WAS ALL CONSTANT EXCEPT PERHAPS FOR
*       INDEX REGISTER MODIFICATION, SO GO TO A28.
*                  ELSE IT IS AN ORDINARY ARRAY.
*    A25.CODE 3SLLLLI000
*       FOR AN ORDINARY ARRAY, THE CODE 3SLLLLI000
*       IS SET UP,WHERE  S  IS THE STORAGE TYPE,
*       LLLL IS THE BASE LOCATION, AND  I  IS 0 OR 4
*       FOR INDEXING.  TO A29.
*    A26.CODE 2BBBBBS000
*       FOR A SAD ARRAY,THE CODE 2BBBBBS000 IS SET
*       UP, WHERE  S  IS THE STORAGE TYPE, BBBB IS
*       THE BASE LOCATION PLUS 50000, PLUS 40000 IF
*       INDEXING.  TO A29.
*    A27.CODE 1BBBBBPPPP
*       FOR A PARAMETRIC ARRAY THE CODE 1BBBBBPPPP
*       IS SET UP, WHERE BBBBB IS THE BASE LOCATION
*       PLUS 50000, PLUS 40000 IF INDEXING, AND
*       PPPP IS THE LOCATION OF THE PARAMETER. TO A29
*    A28.CODE AS SIMPLE VAR.
*       THIS ARRAY IS CHANGED TO LOOK ALMOST LIKE
*       A SIMPLE VARIABLE.
*    A29.MOVE SUBSCRIPT
*       THE STATUS OF THINGS IS CHANGED TO:
*       SAD:        PAR:        HAP:        ORD:
*             OPERAND STACK ENTRY:
*        3TAAAA0000 3TAAAA0000 0TAAAA0000 3TAAAA0000
*             LOCATIONS AAAA AND AAAA+1:
*        000000CCCC 000000CCCC 090100CCCC 000000CCCC
*        2BBBBBS000 1BBBBBPPPP 090100000C 3SLLLLI000
*             LOCATIONS CCCC AND CCCC+1:
*        SUBSCRIPT  SUBSCRIPT  0SLLLL**** SUBSCRIPT
*        ZZZZZNNNNN ZZZZZNNNNN ZZZZZNNNNN ZZZZZNNNNN
*       WHERE ZZZZZNNNNN IS THE ARRAY NAME, AND
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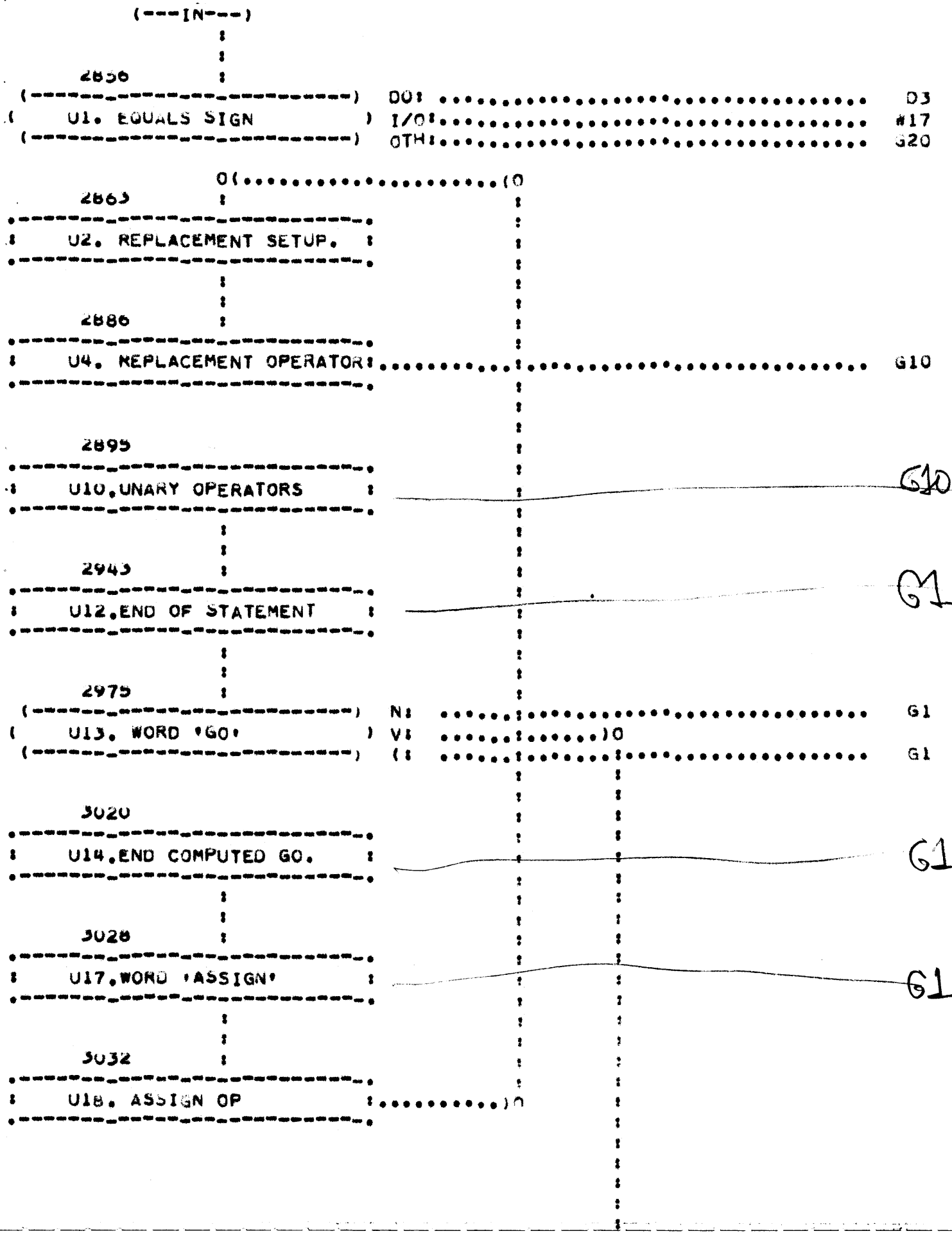
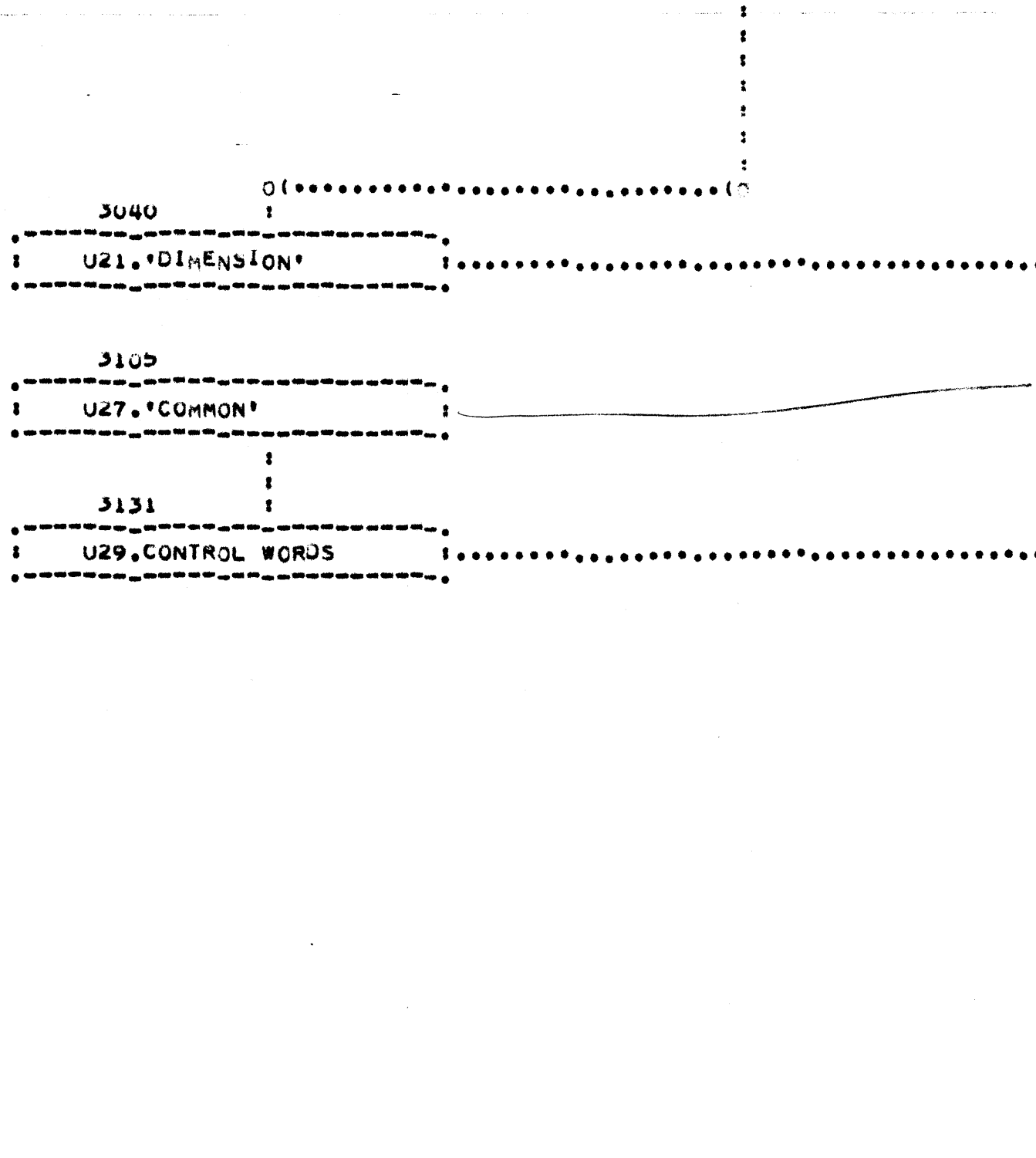
T INDICATES THE TYPE. EXIT TO G1.



* U. UNARY OPERATORS AND SPECIAL GENERATORS
* COMPARE WITH THE INTRODUCTORY REMARKS OF
* SECTION B. ODD-NUMBERED STEPS INDICATE ENTRY
* FROM G6. EVEN NUMBERED, FROM G10.
* U1. EQUALS SIGN
* THIS IS A SWITCH WHICH IS SET IN SEVERAL
* PLACES. IF THIS EQUALS SIGN OCCURS IN A DO
* STATEMENT, GO TO D3. IF IT IS IN AN INPUT-
* OUTPUT STATEMENT, GO TO #17. OTHERWISE THIS
* IS A PLAIN OLD EQUALS SIGN, AND WE PUT A
* REPLACEMENT OPERATOR ON THE STACK. G20.
* U2. REPLACEMENT SETUP.
* IN A MULTIPLE ASSIGNMENT STATEMENT WE ENTER
* AT STEP U2 THE FIRST REPLACEMENT OPERATOR,
* STEP U4 SUCCEEDING TIMES. CHECK TYPES, AND
* IF DIFFERENCE IS PRESENT PUT OUT THE CODE TO
* FIX OR FLOAT. IF THE TYPES ARE THE SAME,
* DECIDE WHETHER TO PUT THE RIGHT-HAND SIDE IN
* REGISTER A OR NOT. REGISTER L IS SELECTED IF
* THERE IS A MULTIPLE ASSIGNMENT STATEMENT, OR
* IF THE LEFT-HAND PART IS NOT A SIMPLE VARIABL
* OR IF TRACE MODE IS ON.
* THE CODING TO PUT THE RIGHT-HAND SIDE, WITH
* TRUE SIGN, INTO THE SELECTED RIGISTER, IS
* ACCOMPLISHED BY SELECTING A
* TABLE ENTRY AND ACTIVATING ASM1(ROUTINE I).
* U4. REPLACEMENT OPERATOR
* PUT OUT CODING TO STORE A OR L IN THE
* APPROPRIATE LOCATION AND POSSIBLY TO
* CAUSE TRACING, USING ASSEMBLER 1(ROUTINE I).
* REMOVE OPERAND FROM STACK. EXIT TO G10.
* U10. UNARY OPERATORS
* IN THE CASE OF FIX, EXP, SIN, COS, TAN, ATAN, LN,
* SQRT, CHECK THAT THE ARGUMENT IS FLOATING
* POINT. SQUARING, THE 'NOT' OPERATOR, AND
* FLOAT PLUS THE ONES MENTIONED EARLIER ARE
* THAN CALLED FROM THE LIBRARY SUBROUTINES,
* USING A TABLE ENTRY AND ACTIVATING ASSEMBLER
* 1. THERE ARE TWO CASES, DEPENDING WHETHER THE
* ARGUMENT IS NEGATED OR NOT. IN THE CASE OF
* ABS, A SPECIAL TABLE ENTRY FOR AN OPEN
* SUBROUTINE IS USED.
* U12. END OF STATEMENT
* AT THE END OF MOST STATEMENTS WE CHECK THAT
* THE OPERATOR AND OPERAND STACKS ARE EMPTY,
* ELSE GIVE THE ERROR 'MISSING RIGHT PARENTHE-
* SIS' OR 'MISSING OPERAND' OR 'EXTRA OPERAND'.
* U13. WORD 'GO'
* SET LABEL CONTEXT ON, AND SCAN THE NEXT ITEM
* (ROUTINE S). THE WORD TO IS IGNORED BY
* FORTRAN. IF THE NEXT ITEM IS A LABEL, PUT IT
* IN A BLANK ADDRESS OF THE PRECEDING
* INSTRUCTION OR ELSE CREATE A JMP INSTRUCTION,
* THEN GO TO G1.
* IF THE NEXT ITEM IS A VARIABLE, COMPILE CODE
* TO STORE RB1 IF WE ARE IN A DO LOOP, THEN

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*       CODE TO JUMP TO THE VARIABLE ITSELF.  U21
*       FINALLY IF IT IS A LEFT PARENTHESIS,
*       WE SET UP GO MODE, COMPILE EACH LABEL
*       OUT OF SEQUENCE, THEN WHEN THE RIGHT
*       PARENTHESIS COMES ALONG WE RETURN TO G1 TO
*       PROCESS THE EXPRESSION.
*   U14.END COMPUTED GO.
*       COMPILE CODE TO GET THE EXPRESSION WITH
*       TRUE SIGN IS REGISTER A, THEN
*       ADD NXT RA,  JMP TO THE TABLE.
*   U17.WORD 'ASSIGN'
*       SET LABEL CONTEXT,AND PLACE THE ASSIGN
*       OPERATOR ON THE STACK. THE WORD 'TO'
*       IS IGNORED BY FORTRAN.
*   U18. ASSIGN OP
*       CREATE A CONSTANT FOR THE ABSOLUTE LOCATION
*       OF THE LABEL (USE I62), THEN INTERCHANGE
*       OERANDS AND TREAT ANALOGOUS TO REPLACEMENT
*       AT STEP U2.
*   U21.'DIMENSION'
*       WHEN A DIMENSION DECLARATION APPEARS THE REST
*       OF THE COMPILER IS RIGGED UP TO HANDLE THIS
*       STATEMENT PROPERLY BY SITTING UP DIMENSION
*       MODE. WHEN A NAME COMES ALONG, A SECOND MODE
*       IS SET UP, AND THIS MODE CREATES THE
*       TABLE ENTRIES FOR AN ARRAY VARIABLE.
*       AT THE END, EXIT TO G1.  NO STORAGE
*       ASSIGNMENTS ARE MADE YET, THEY ARE MADE
*       WHEN THE ARRAY IS FIRST REFERENCED.
*   U27.'COMMON'
*       SET UP COMMON MODE, MARK EACH IDENTIFIER
*       THAT COMES ALONG AS COMMON AND ALLOCATE
*       THE STORAGE FOR IT.
*   U29.CONTROL WORDS
*       THE WORDS NO,TRACE,LIST,CORE,CARDS REALLY
*       NEVER GET PAST THE SCANNER, THEY ARE
*       DETECTED AT STEP S10. THEY MERELY SET
*       INTERNAL SWITCHES INSIDE THE COMPILER.
*       AND RUN OFF TO G1.
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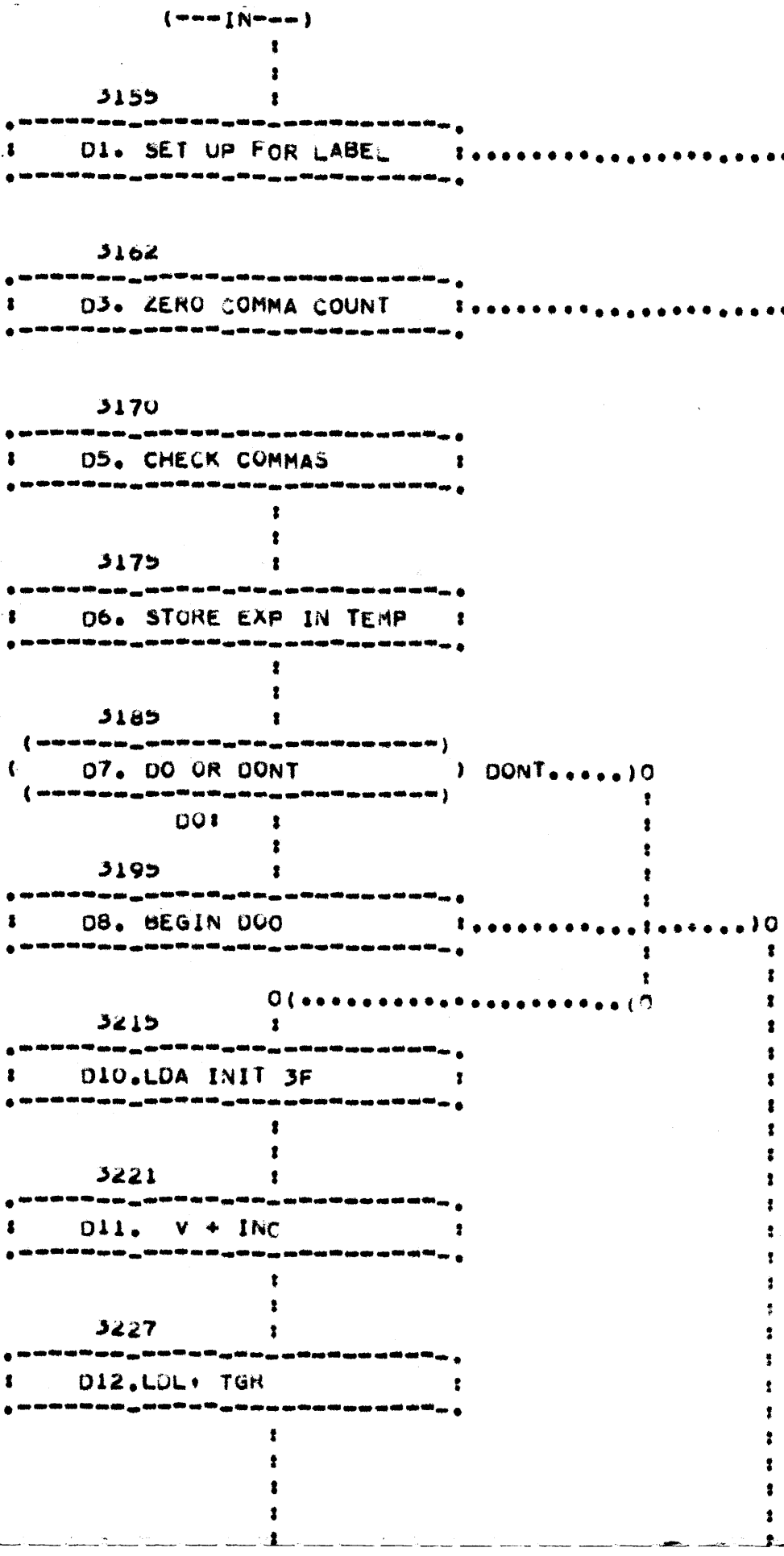


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*   D.  DO LOOP CONTROL
*       WHEN THE WORD DO OR THROUGH IS SENSED, ENTRY
*       IS MADE TO STEP D1.
*   D1. SET UP FOR LABEL
*       DO MODE IS SET UP. A SWITCH IS SET SO THAT
*       WHEN THE NEXT EQUAL SIGN OCCURS,CONTROL GOES
*       TO STEP D3. SEMI-LABEL CONTEXT IS SET UP
*       SO THAT THE LABEL FOLLOWING COMES IN AS A
*       CONSTANT,YET STEP C5 GOES IMMEDIATELY TO C6
*       IN THE CONSTANT SCANNER. GO TO G1.
*   D3. ZERO COMMA COUNT
*       THE FACT THAT A COMMA MAY HAVE OCCURRED
*       BEFORE THE CONTROLLED VARIABLE IS FORGOTTEN.
*       AT THE END OF THIS STATEMENT,CONTROL WILL
*       PASS TO STEP D5. GO TO G1.
*   D5. CHECK COMMAS
*       IF LESS THAN TWO COMMAS HAVE OCCURRED,
*       INSERT  ',1'  IN THE PSEUDOCODE.
*   D6. STORE EXP IN TEMP
*       COMPILE CODE TO STORE REGISTER A IF THERE IS
*       A COMPUTED RESULT THERE. SET A SWITCH SO THAT
*       THE TEMP STORAGES USED TO HOLD COMPUTED
*       RESULTS ARE MADE PERMANENT STORAGES
*       (SEE STEP I52).
*   D7. DO OR DONT
*       THIS IS A DONT LOOP UNLESS:
*       A) THE WORD THROUGH WAS NOT USED
*       B) NO DO IS IN PROGRESS
*       C) BOTH THE STARTING VALUE AND INCREMENT
*       ARE CONSTANTS.
*       IN CASE OF A DONT LOOP,GO TO STEP D10.
*   D8. BEGIN DOO
*       SET THINGS UP FOR PUTTING VARIABLE IN AN
*       INDEX REGISTER. SET SWITCH FOR SPECIAL
*       HANDLING OF LABELS. COMPILE LIR1 N 3F,
*       2 IIR1 M,  LDL V, TGR 9F.  GO TO STEP D20.
*   D10.LDA INIT 3F
*       COMPILE LDA WITH INITIAL VALUE.
*   D11.  V + INC
*       ARTIFICIALLY INSERT  +V  INTO THE PROGRAM,
*       THUS RUNNING THROUGH THE ORDINARY ADD
*       GENERATOR TO CREATE CODE TO PUT THE SUM OF
*       V + INC IN REGISTER A.
*   D12.LDL, TGR
*       COMPILE  3 LDL FIN, TGR 9F, STA V
*   D20.LABEL IN TABLE
*       PUT THE LABEL NUMBER,TOGETHER WITH THE PER-
*       TINENT ADDRESSES FOR LINKING UP CONTROL
*       (9F,28) INTO THE DO STACK. EXIT TO D12.
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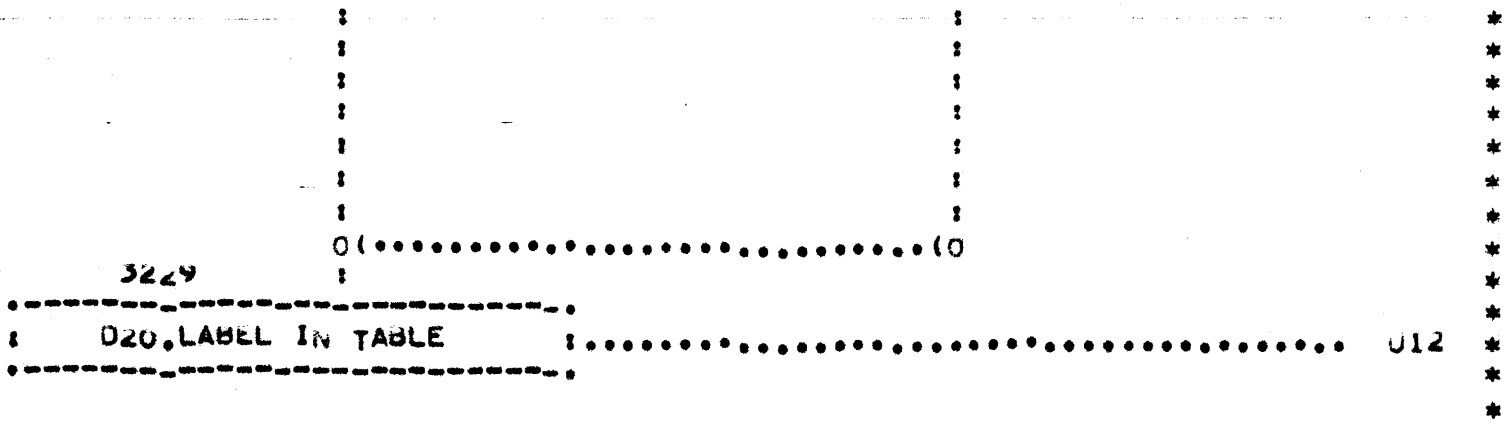
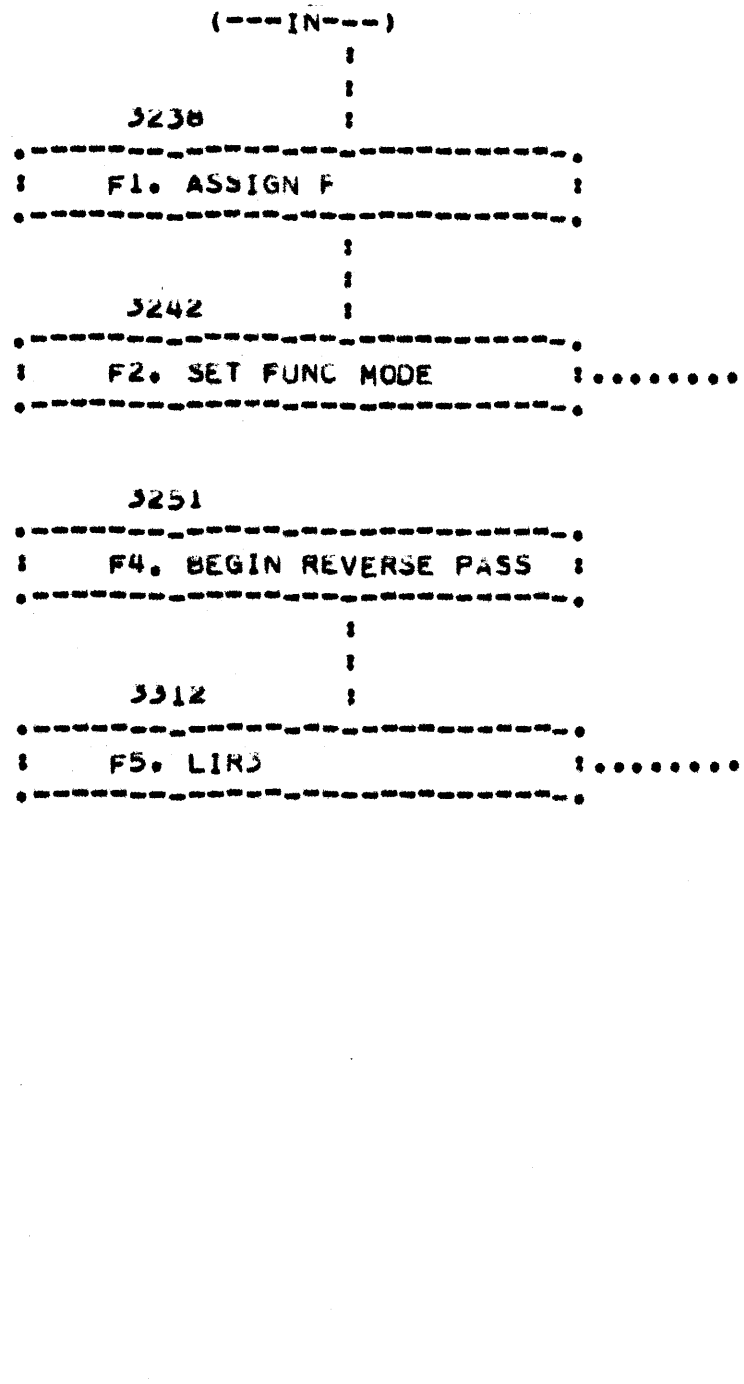

3229
D20,LABEL IN TABLE
U12

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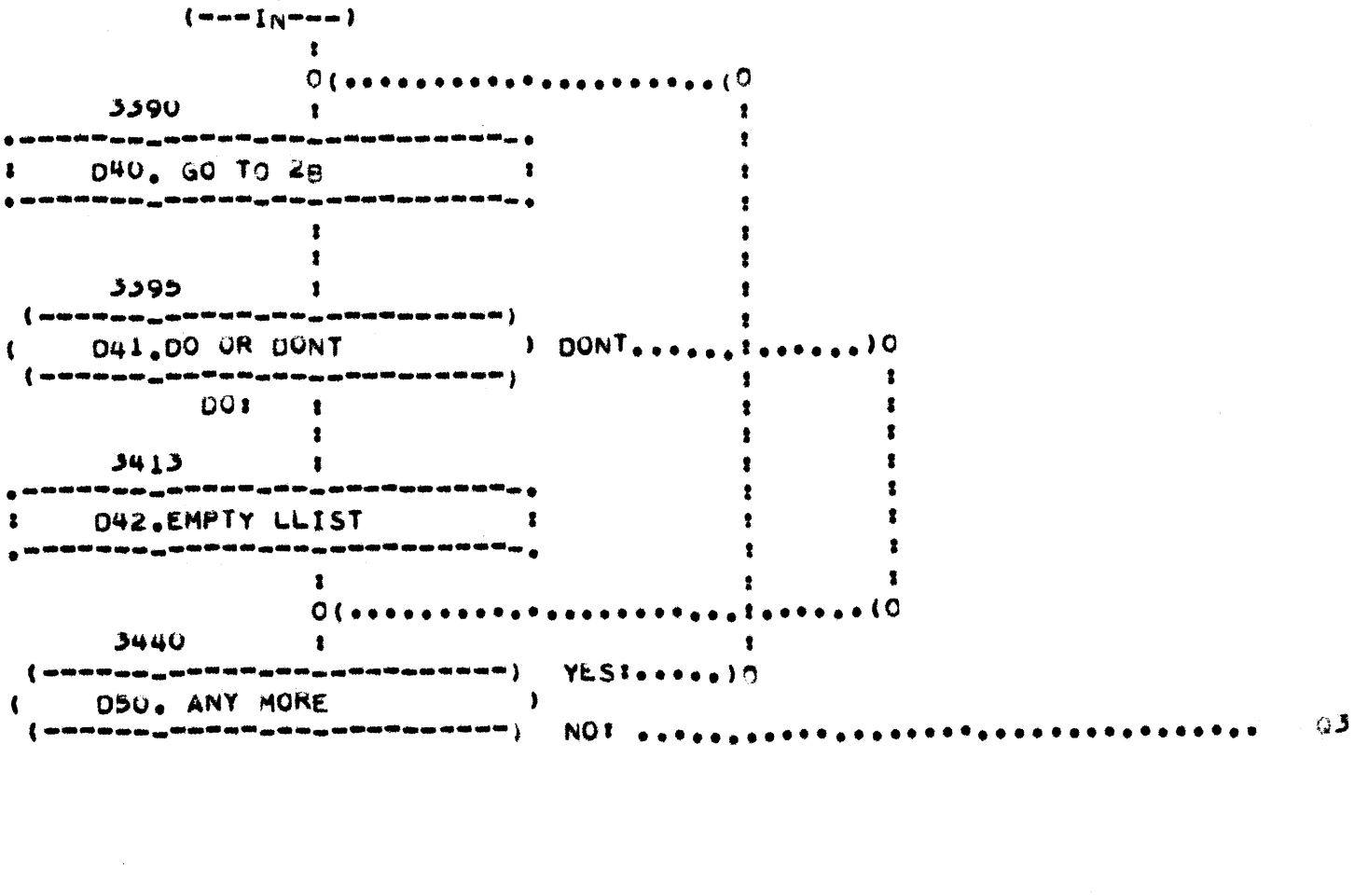
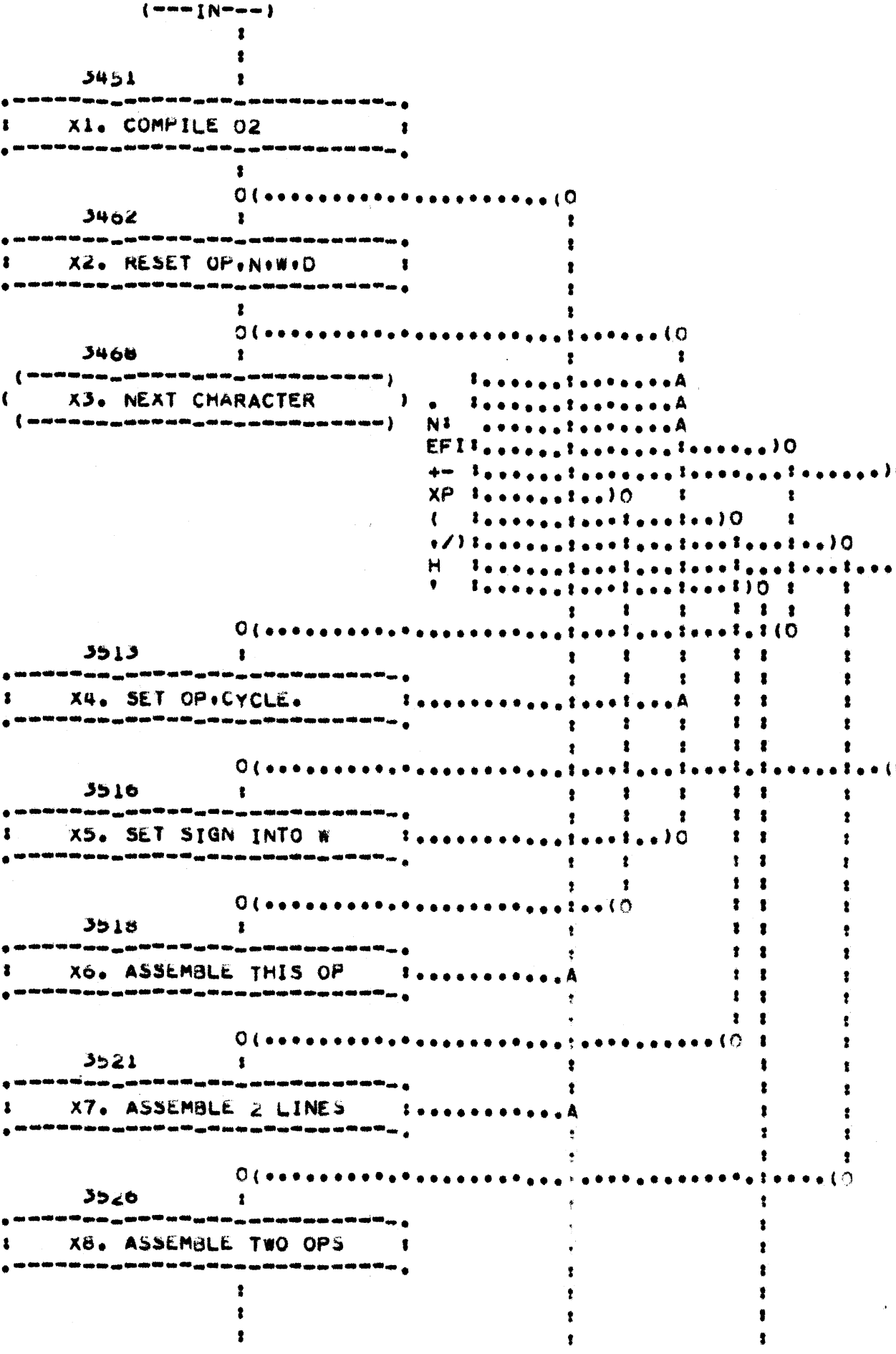
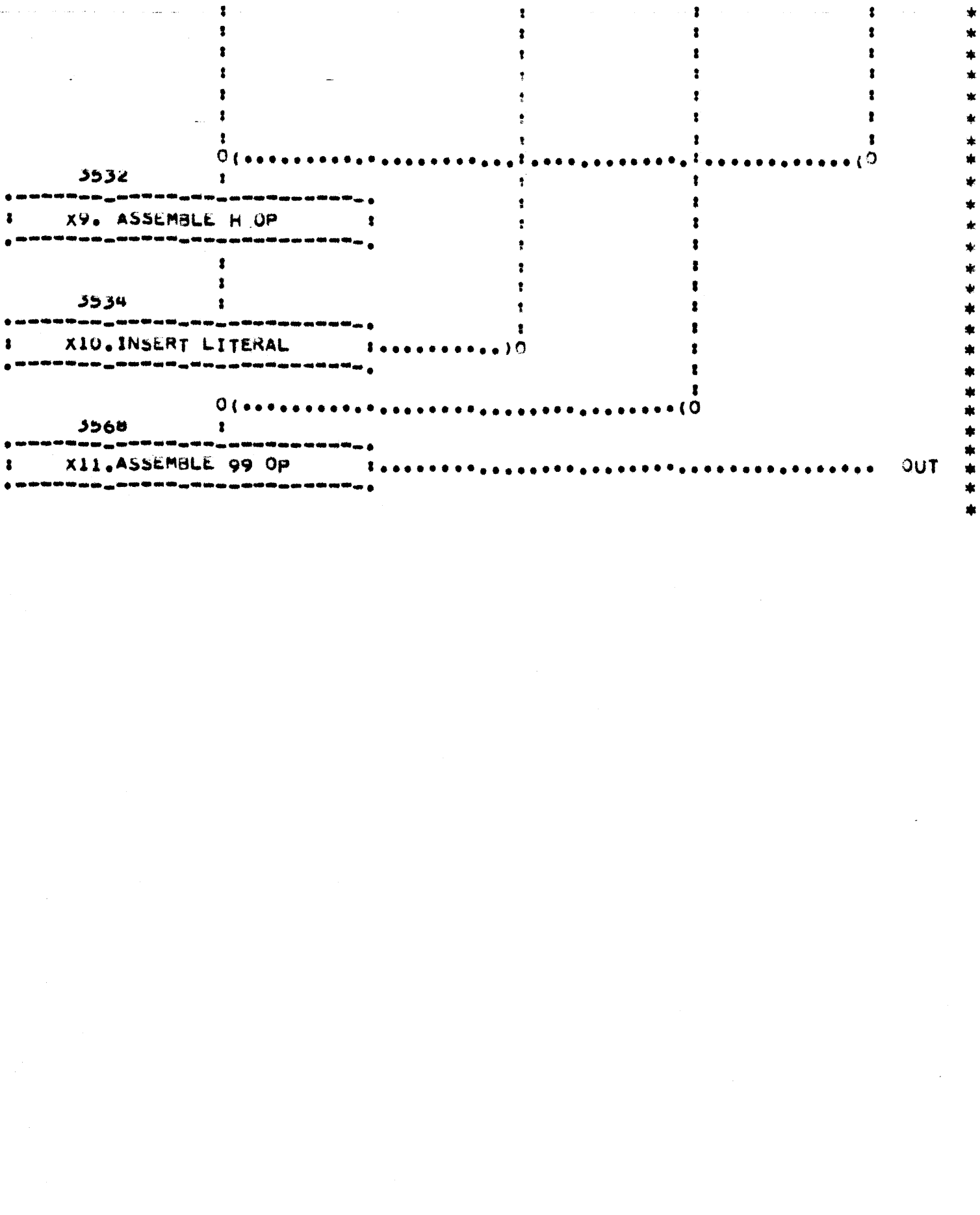
*    F.  FUNCTION CALLS
*        TRANSFER IS MADE TO STEP F1 IF WE HAVE AN
*        UNDIMENSIONED IDENTIFIER FOLLOWED BY A LEFT
*        PARENTHESIS,NOT OCCURRING IN A DIMENSION DEC.
*    F1. ASSIGN F
*        IF THIS IS A NEW FUNCTION DEFINE IT. IF IT IS
*        A CONSTANT OR SIMPLE VARIABLE,TREAT AS
*        IMPLIED MULTIPLICATION.
*    F2. SET FUNC MODE
*        SET UP FUNCTION MODE,AND ALSO PUT A SPECIAL
*        LEFT PARENTHESIS OPERATOR ON THE STACK.
*        AS WE PASS OVER THE LIST OF PARAMETERS,
*        CODE IS COMPILED TO COMPUTE THEM  AND STORE
*        THEM IN TEMP, IF THE PARAMETER IS A CONSTANT
*        OR INDEX REGISTER. AS THE RIGHT PARENTHESIS
*        CLOSING THE FUNCTION CALL OCCURS, TRANSFER
*        WILL GO TO STEP F4. GO NOW TO STEP G1.
*    F4. BEGIN REVERSE PASS
*        BEGIN NOW A RIGHT-TO-LEFT PASS OVER THE
*        PARAMETERS. RESERVE THE UNIQUE STORAGE FOR
*        THEM, THEN PROCESS EACH PARAMETER IN TURN.
*        THE TYPES OF CODE PRODUCED ARE:
*        FOR SIMPLE VARIABLE PARAMETER-PARAMETER
*              IIR HHHH, ERS PARAM, STA LIST
*              AND LIST IS MARKED AS TEMP STORAGE.
*        FOR A LABEL (I-O SUBROUTINES ONLY), CODE
*                    00 LLLL 0000 (OUT OF SEQUENCE).
*        FOR AN ARRAY,  IIR A0, STA LIST.
*        FOR A SIMPLE VARIABLE OR TEMP STORAGE,
*                    00 LLLL 0000 (OUT-OF-SEQUENCE).
*    F5. LIR3
*        AFTER ALL PARAMETERS HAVE BEEN PROCESSED,
*        COMPILE THE INSTRUCTION
*                LIR3 U(I)FUNCT, AND THE
*        NEXT INSTRUCTION GOES TO LOCATION U(I).
*        THE PARAMETERS HAVE BEEN LISTED IN U(I+1),
*        U(I+2), ETC.
*        IF THIS CALL IS NOT IN A CALL STATEMENT, TREA
*        THE RESULT AS A COMPUTED QUANTITY IN
*        REGISTER A.  GO TO G1.
*        NOTE: IF A CALL STATEMENT IS GIVEN WITH
*        NO PARAMETERS, NO REFERENCE TO UNIQUE
*        STORAGE IS MADE.
*
```



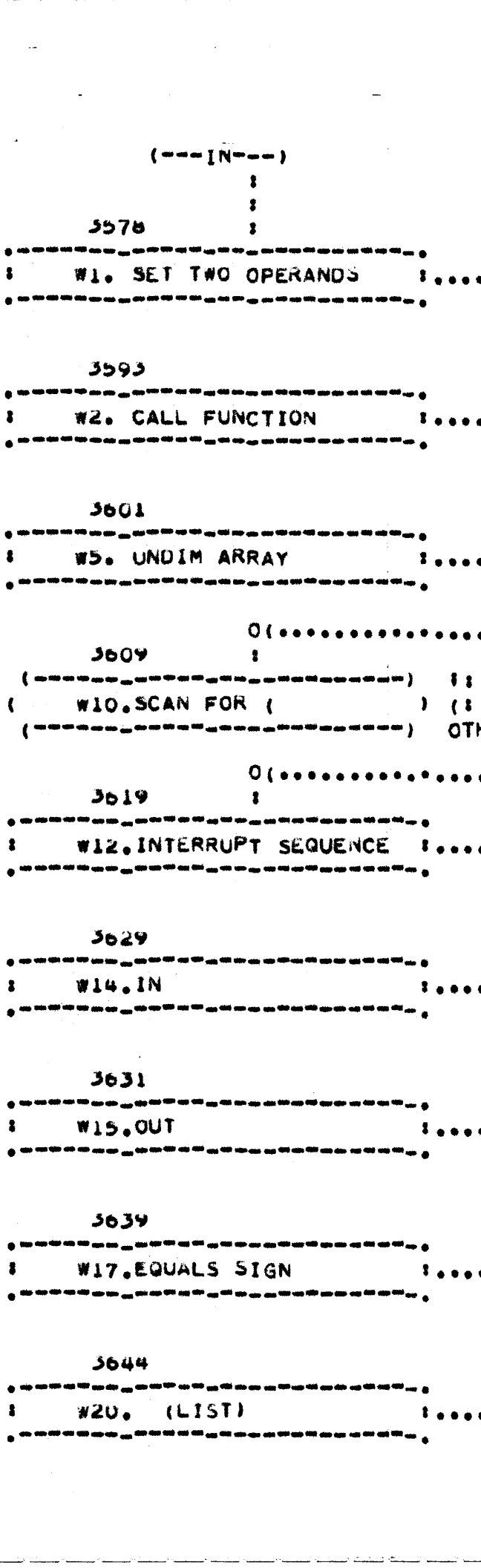

```
*    0.  D40. CLOSE OF DO RANGE.
*        AS EACH STATEMENT LABEL IS SCANNED IT IS
*        CHECKED AGAINST THE TOP OF THE DO STACK
*        TO SEE WHETHER THIS STATEMENT IS THE END OF
*        THE DO RANGE. IF IT IS, THE NEXT APOSTROPHE
*        OPERATOR (END OF STATEMENT) SENDS CONTROL
*        TO STEP D40.
*    D40. GO TO 28
*        EFFECTIVELY COMPILE GO TO THE INCREMENTATION
*        PHASE AT THE BEGINNING OF THE DO LOOP CODING,
*        AND SET THE NEXT INSTRUCTION LOCATION TO BE
*        9F, THE ADDRESS FOR EXHAUSTION OF THE DO.
*    D41.DO OR DONT
*        IF THE LOOP JUST ENDED WAS A DONT LOOP,
*        SKIP TO STEP D50.
*    D42.EMPTY LLIST
*        TURN OFF THE VARIOUS INDICATORS WHICH ARE
*        SET DIFFERENTLY WHILE WE ARE IN A DO LOOP.
*        THEN FOR ALL LABELS WHICH WERE GIVEN
*        TEMPORARY ASSIGNMENTS, WE HAVE AN LLIST
*        ENTRY AND WE NOW OUTPUT THE INSTRUCTIONS
*                T      IIR1 0
*                       STA  V      P
*        WHERE V IS THE DO VARAIBLE, T IS THE TEM-
*        PORARY ASSIGNMENT, P IS THE PERMANENT
*        ASSIGNMENT. THE TEMP ASSIGNMENT IS THEN
*        FORGOTTEN.
*    D50. ANY MORE
*        IF ANOTHER DO LOOP ENDS ON THIS
*        STATEMENT,RETURN TO STEP D40. ELSE
*        GO TO Q3.
*
```



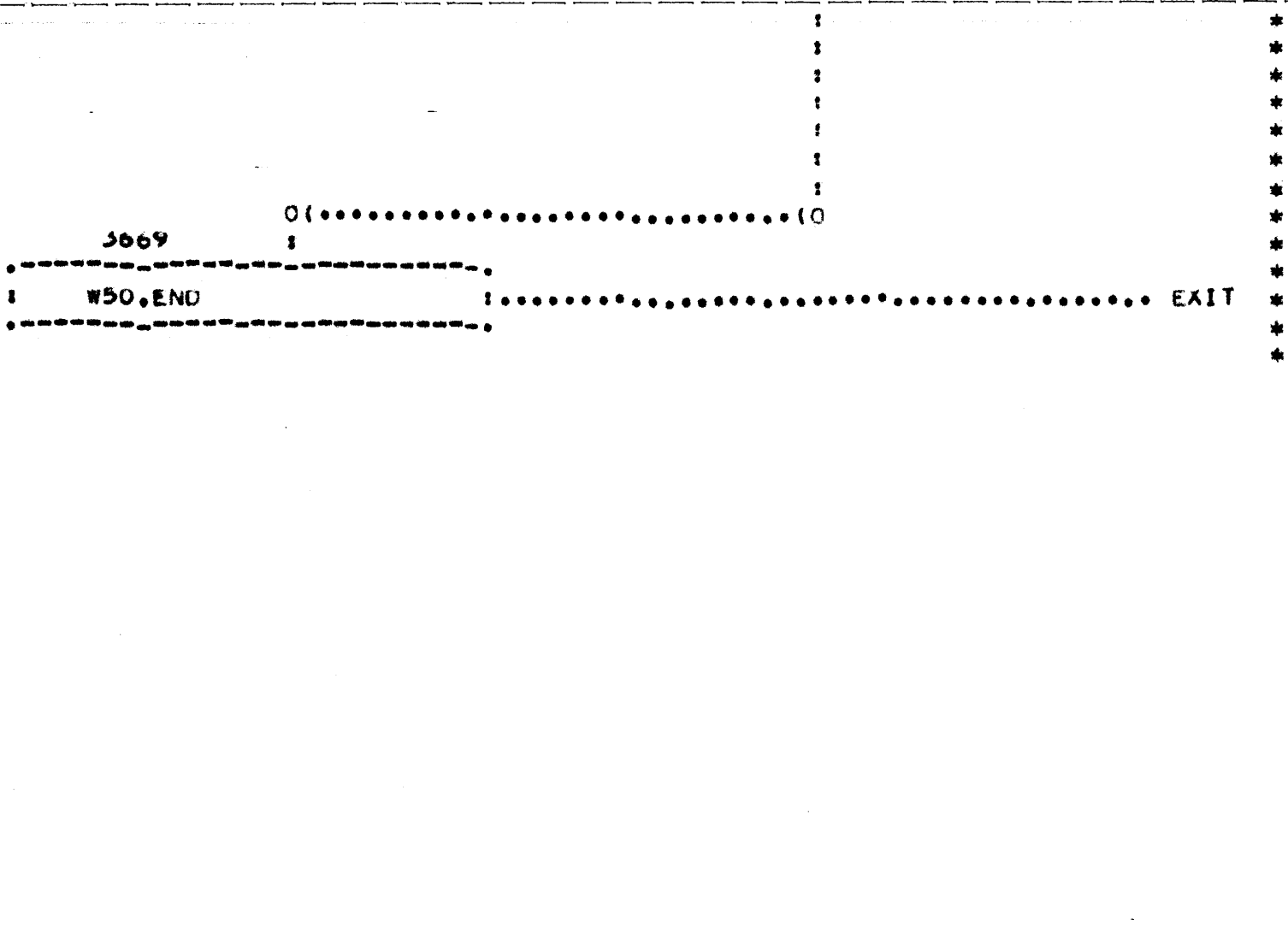

```
*    X.  PROCESSING FORMAT STRING
*    X1. COMPILE 02
*        THE INSTRUCTION 02 MMMM CCCC IS COMPILED
*        WHERE MMMM IS THE STARTING LOCATION OF THE
*        FORMAT CODE. WITH THIS TRICK, A FORMAT LABEL
*        IS LIKE ANY STATEMENT LABEL.
*        NOW WE TRANSLATE THE FORMAT INTO A SPECIAL
*        PSEUDOCODE. THIS CODE GENERATES INSTRUCTIONS
*        OF THE FORM OP NNN WWW DD, CORRESPONDING
*        TO FORMAT SPECIFICATION 'NNN E WWW.DD'.
*        OPCODES 0-10 CORRESPOND RESPECTIVELY TO
*        ()PIEFXAHM/
*    X2. RESET OP,N,W,D
*        CLEAR OP, N, W, AND D TO ZERO
*    X3. NEXT CHARACTER
*        GET THE NEXT CHARACTER FROM THE FORMAT LIST.
*        IF IT IS BLANK, DO X3 AGAIN.
*        IF IT IS A DECIMAL POINT, CYCLE N,W,D LEFT 1
*        AND RETURN TO X3
*        IF IT IS NUMERIC, SET D TO 10*D PLUS CHAR  X3
*        IF IT IS ALPHABETIC OR SPECIAL CHARACTER,
*        LOOK IT UP IN A TABLE TO SEE WHAT TO DO.
*        AN E F I A OR M MEANS GO TO X4.
*        A PLUS OR MINUS MEANS GO TO X5.
*        AN X OR P MEANS GO TO X6.
*        A LEFT PARENTHESIS MEANS GO TO X7.
*        COMMA SLASH AND RIGHT PARENTHESIS GO TO X8.
*        THE LETTER H MEANS GO TO X9.
*        AN APOSTROPHE MEANS WE GO TO X11.
*    X4. SET OP,CYCLE.
*        SET OP TO THE APPROPRIATE NUMBER, AND CYCLE
*        N,W, AND D LEFT 1. RETURN TO X3.
*    X5. SET SIGN INTO W
*        SET W TO 0 OR 1 (PLUS OR MINUS),RETURN TO X3.
*    X6. ASSEMBLE THIS OP
*        MOVE D TO N, THEN ASSEMBLE
*        OPNNNWWWDD INTO THE FORMAT CODE.RETURN TO X2.
*    X7. ASSEMBLE 2 LINES
*        MOVE D TO N AND ASSEMBLE, THEN INSERT A WORD
*        OF ZEROES INTO THE FORMAT CODE. THIS WORD
*        IS USED AS A SCRATCH PAD BY THE FORMAT
*        PROCESSING PACKAGE. RETURN TO X2.
*    X8. ASSEMBLE TWO OPS
*        IF DECIMAL POINT HAS NOT APPEARED, CYCLE
*        N,W,D LEFT 1. IF PREVIOUS OP IS WAITING
*        ASSEMBLE IT, AND CLEAR W. IF CURRENT IS NOT
*        A COMMA, ASSEMBLE IT TOO.
*        NOTE THAT ON  N/  THE COUNT N COMES OUT IN W.
*    X9. ASSEMBLE H OP
*        MOVE D TO N AND ASSEMBLE.
*    X10.INSERT LITERAL
*        OUTPUT 5 CHARACTERS OF THE LITERAL AT A TIME
*        UNTIL THE H LITERAL IS COMPLETED.
*        THE ROUTINE FOR H LITERALS IN THE CONSTANT
*        CONDENSER IS USED, WITH ZERO FILL AT THE
*        RIGHT. RETURN TO X2.
*    X11.ASSEMBLE 99 OP
*
*
*
```

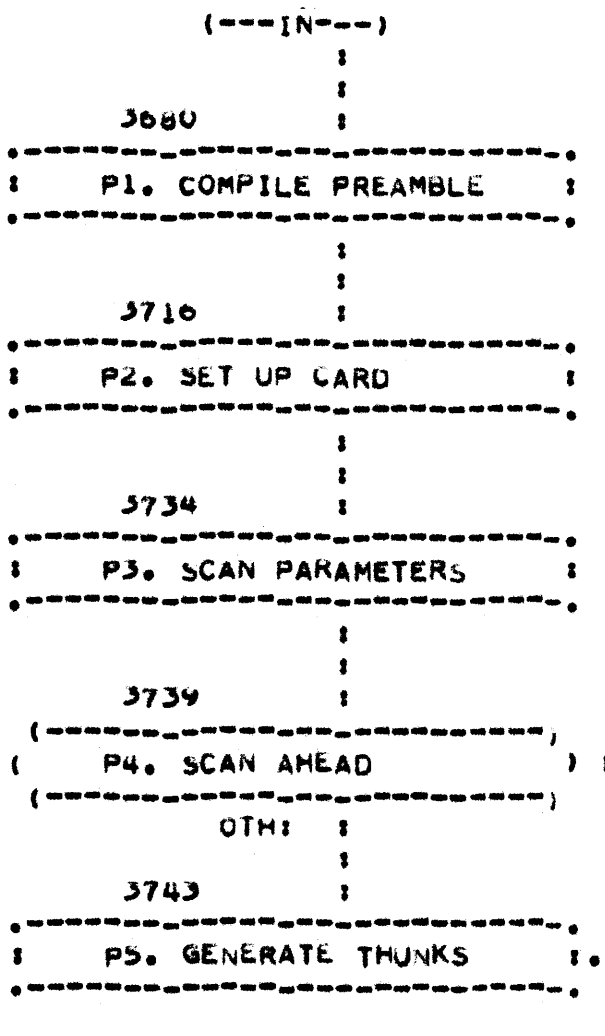


THE APOSTROPHE SIGNALS THE END OF THE STATEMENT. ASSEMBLE A TERMINATION LINE AND GO OUT.

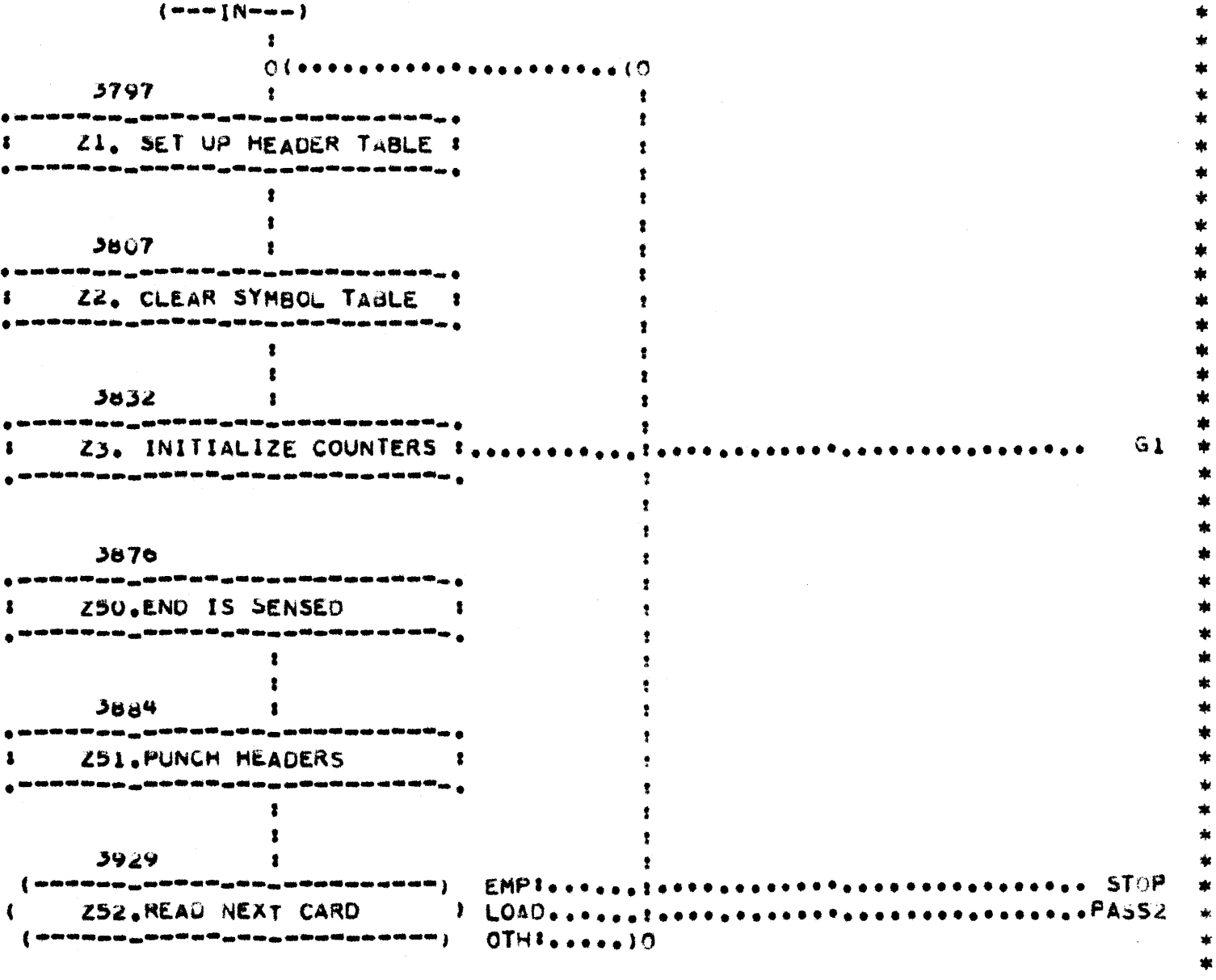



```
*   W.  INPUT-OUTPUT (READ,PUNCH,PRINT)
*       THIS SECTION IS WITHOUT DOUBT THE CLIMAX OF
*       THE COMPILER. AT LEAST 95% OF THE CODING OF
*       THIS COMPILER PROGRAM CAN BE ACTIVE WHILE
*       PROCESSING A SINGLE I/O LIST.
*   W1. SET TWO OPERANDS
*       SET UP TWO OPERANDS, ONE FOR THE EDITING
*       SUBROUTINE AND ONE FOR THE DRIVER SUBROUTINE
*       (I-O DEVICE).  SET UP TO EXPECT A LABEL.
*       GO TO G1. WE WILL RETURN TO STEP W2 WHEN
*       THE COMMA IS SENSED.
*   W2. CALL FUNCTION
*       USE THE FUNCTION CALL ROUTINE (ROUTINE F) TO
*       CREATE INITIAL ENTRY TO THE I/O SUBROUTINE.
*       THEN SET UP I/O MODE.  IF AN UNDIMENSIONED
*       ARRAY VARIABLE OCCURS WE WILL GO TO STEP
*       W5. ON A COMMA WE GO TO STEP W10.
*       AT THE END OF THE STATEMENT, WE GO TO STEP
*       W50.NOW WE GO TO THE COMMA ROUTINE,STEP W10.
*   W5. UNDIM ARRAY
*       AN UNDIMENSIONED ARAY A IS CONVERTED INTO
*       (A(*I*), *I* IS 1,N)
*       USING ROUTINE Q10    WHERE *I* IS A DUMMY
*       VARIABLE AND N IS THE PRODUCT OF THE ARRAY
*       DIMENSIONS.
*   W10.SCAN FOR (
*       SCAN NEXT ITEM (CD-ROUTINE S). IF IT IS THE
*       END OF THE STATEMENT,GO TO STEP W50. IF IT IS
*       A LEFT PARENTHESIS, GO TO STEP W12.
*       OTHERWISE INSERT AN  IN  OR  OUT  OPERATOR
*       ON THE STACK THEN GO TO G2.  IN IS STEP W14,
*       OUT IS STEP W15.
*   W12.INTERRUPT SEQUENCE
*       CREATEA BREAK IN THE INSTRUCTION SEQUENCE,
*       FOR WHICH CODE WILL BE INSERTED LATER. PUT A
*       SPECIAL LEFT PARENTHESIS ON THE STACK.  THIS
*       SPECIAL LEFT PARENTHESIS IS STEP W20.
*       GO TO STEP  W10 AGAIN.
*   W14.IN
*       COMPILE LIR3    SUB, STL V. GO TO G10.
*   W15.OUT
*       COMPILE LDA V, LIR3    SUB. GO TO G10.
*       SUB IS ONE OF THREE ENTRIES, DEPENDING ON
*       THE TYPE (FLOAT,FIX,UNSPECIFIED) OF V.
*   W17.EQUALS SIGN
*       AN EQUALS SIGN HAS APPEARED, SO WE PULL THE
*       SPURIOUS IN OR OUT OPERATOR OFF THE STACK.
*       WE NOW COURAGEOUSLY JUMP INTO THE MIDDLE
*       OF THE THROUGH ROUTINE, STEP D1.
*   W20.  (LIST)
*       THE RIGHT PARENTHESIS MATCHING A LEFT HAS BEE
*       ENCOUNTERED. IF AN IMPLIED DO LOOP OCCURRED
*       INSIDE, WE USE PARTS OF ROUTINE D TO CREATE
*       CODING FOR THE DONT LOOP CONTROL.  FINALLY
*       THE INTERRUPTIONS FROM STEP W12 ARE ALL
*       LINKED TOGETHER PROPERLY.  GO TO G1.
*
*
*
*
```


3669
W50.END
W50.END
COMPILE LIR3 SUB. THE ENDING SUBROUTINE.
AND THEN EXIT.
EXIT




```
*   P.  FUNCTION AND SUBROUTINE DECLARATIONS
*   P1. COMPILE PREAMBLE
*       COMPILE IIR1 0000, BUF    1F, LIR1 0000,
*       (AND LDA 0001, ATL  IF FUNCTION)
*   P2. SET UP CARD
*       SET UP THE NAME OF THE FUNCTION INTO THE
*       OUTPUT CARDS, INITIALIZE OTHER THINGS LIKE
*       THE MEANING OF RETURN.  A MAIN PROGRAM
*       IS DISTINGUISED FROM A SUBPROGRAM
*       ONLY BY DEFAULT.
*   P3. SCAN PARAMETERS
*       SCAN UNTIL THE END OF THE STATEMENT,
*       COLLECTING ALL PARAMETERS ON THE OPERAND
*       STACK. WE GET TO STEP P4 AT THE END
*       OF THE STATEMENT.
*   P4. SCAN AHEAD
*       IF THE NEXT ITEM SCANNED IS ANOTHER END OF
*       STATEMENT OR DIMENSION, GO TO G2.
*   P5. GENERATE THUNKS
*       ELSE WE ASSUME ALL DIMENSIONED PARAMETERS
*       HAVE BEEN NAMED, AND WE COMPILE CODE TO TRANS
*       FER FROM THE PARAMETER LIST TO UNIQUE STORAGE
*       TEN INSTRUCTIONS FOR NON-DIMENSIONED
*       PARAMETERS AND TWO FOR DIMENSIONED ONES.
*       THEN OFF TO G2.
*
*
*
```

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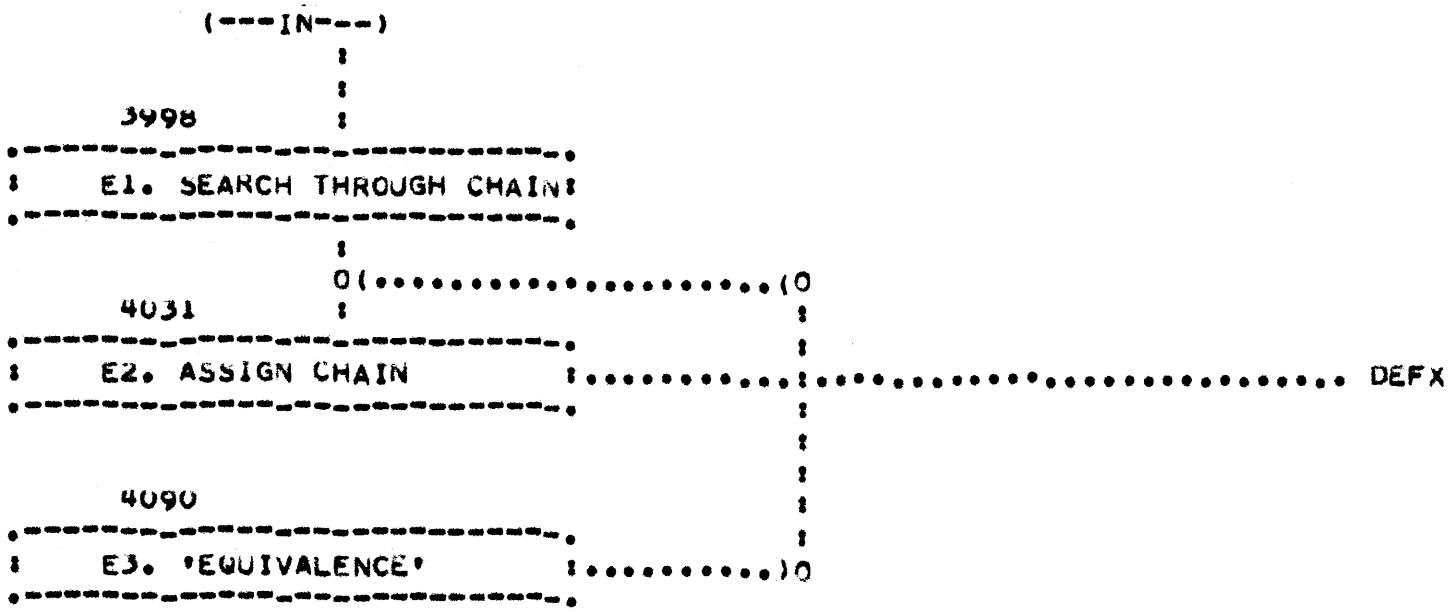
*  Z.  INITIALIZATION AND TERMINATION
*      Z1 IS ENTERED AT THE BEGINNING OF EACH
*      PROGRAM AND SUBPROGRAM.
*  Z1. SET UP HEADER TABLE
*      THE HEADER CARD INFORMATION IS KEPT IN A 50-
*      POSITION CIRCULAR TABLE. IF MORE THAN 50
*      TOTAL ITEMS ARE PUT IN, A FLAG IS SET
*      SO THAT LOAD-AND-GO OPERATION IS DISALLOWED.
*  Z2. CLEAR SYMBOL TABLE
*      ALL SYMBOLS EXCEPT RESERVED WORDS ARE
*      REMOVED FROM THE SYMBOL TABLE.
*  Z3. INITIALIZE COUNTERS
*      VARIOUS THINGS ARE RESET, E.G. SUBROUTINE
*      PACKAGE REQUESTS, STORAGE ALLOCATION REQUESTS
*      COUNTERS ARE SET UP TO INDICATE A MAIN
*      PROGRAM. THESE WILL BE EFFECTIVE UNLESS
*      A FUNCTION OR SUBROUTINE DECLARATION FOLLOWS.
*      START COMPILING BY TROTTING FORTH TO G1.
*  Z50.END IS SENSED
*      AN END CARD MEANS WE SIMULATE A RETURN
*      STATEMENT (I.E. GO TO EXIT).
*  Z51.PUNCH HEADERS
*      PUNCH AND PRINT HEADER INFORMATION.
*  Z52.READ NEXT CARD
*      IF NO MORE INPUT CARDS ARE IN THE BUFFER,
*      PUNCH OUT SEVERAL BLANK CARDS AND STOP.
*      IF THE NEXT CARD IS THE BEGINNING OF PASS2,
*      TRANSFER TO THE SECOND PASS UNLESS AN ERROR
*      OCCURRED IN THE PRECEDING PROGRAMS.
*      OTHERWISE WE GO TO Z1 TO PROCESS ANOTHER
*
*
*
```

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*    E.  EQUIVALENCE DECLARATIONS.
*        IT IS ALMOST IMPOSSIBLE TO EXPLAIN HOW THE
*        PROCESSING OF EQUIVALENCE DECLARATIONS
*        WORKS IN THIS COMPILER. IT DOES SEEM TO
*        WORK, HOWEVER.  EQUIVALENCE CLASSES ARE KEPT
*        IN CIRCULARLY-LINKED CHAINS.  IT IS EASY TO
*        MERGE TWO CHAINS INTO ONE. WHEN AN ITEM
*        OF A CHAIN IS FIRST REFERENCED AFTER AN
*        EQUIVALENCE DECLARATION, WE GO TO E1. FORMATS
*        OF THE CHAIN ENTRIES APPEAR IN THE TABLE
*        OF FORMATS.
*    E1. SEARCH THROUGH CHAIN
*        TRAVERSE THE CHAIN ONCE TO SEE HOW MUCH
*        UNIQUE STORAGE IS TO BE RESERVED.
*    E2. ASSIGN CHAIN
*        TRAVERSE THE CHAIN AGAIN, ASSIGNING EVERY
*        VARIABLE IN THE CHAIN RELATIVE TO THE OTHERS.
*        GO TO DEFX.
*    E3. 'EQUIVALENCE'
*        ON THE EQUIVALENCE DECLARATION, VARIOUS
*        MODES ARE SET UP.  AT THE END OF EACH
*        EQUIVALENCE, A CHECK IS MADE TO SEE IF
*        ANY OF THE ITEMS WAS PREVIOUSLY DEFINED.
*        IF SO, THE ENTIRE CHAIN IS THEN DEFINED,
*        AS IN STEP  E2.
*
```

10000	0645	4284	4285	4286	4287	4289	4290	4291	4292	4297	4299	4301
	4303	4311	0646	0646	4271							
20000	0647	4318	4319	4320	4321	4322	4323	4324	4325	4326	4365	4366
	4367	4368	4369	4370	4371	4372	4373	4414	4415	4416	4417	4418
	4419	4420	4421	4422	0648	0648	0649	0649	0650	0650	0651	0651
	0652	0652	0653	0653	0654	0654	0655	0655	0656	0656	0657	0657
	0658	0658	0659	0659	0660	0660	4297	4298	4299	4300	4301	4302
	4303	4304	4314	4316								
30000	0661	4328	4329	4330	4331	4332	4333	4334	4335	4336	4337	4338
	4339	4340	4341	4342	4343	4344	4345	4346	4347	4348	4349	4350
	4351	4352	4353	4354	4355	4356	4357	4358	4359	4360	4361	4362
	4363	4364	4377	4378	4379	4380	4381	4382	4383	4384	4385	4386
	4387	4388	4389	4390	4391	4392	4393	4394	4395	4396	4397	4398
	4399	4400	4401	4402	4403	4404	4405	4406	4407	4408	4409	4410
	4411	4412	4413	4278								
50000	0212	1637	1638	1639	1640	1641	1645	1691	1692	1693	1694	1695
	1699	1633	1679	1729	3860	3970	4513	4590	4600			
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	0585	0586	0587	0588	0589	0590	0591	0593	0594	0595	0597	0598
	0599	0601	0602	0603	0605	0606	0607	0609	0610	0611	0613	0614
	0615	0617	0618	0619	0620	0621	0622	0623	0625	0626	0627	0628
	0629	0631	0632	0633	0635	0572	0572	0584	0592	0596	0600	0604
	0608	0612	0616	0624	0630	0634	0636	0924				
90000	0213	4633	4634	4635	4636	4637	4642	4643	4644	4645	4652	4653
	4654	4655	4656	4557	4569							
-SASM	1659	1657	1658									
-ASSM	1683	1733	1681	1731								
-ADD	2498	2497	2513									
-AL1	4315	4312										
-AL2	4310	4307										
-ALRM	4270	4314	4316									
-AR2	2843	2840										
-ASSM	1685	1735	1682	1683	1732	1733						
-ASM5	1676	1725	1672	1675	1722	1726						
-ASN1	1831	1828										
-ASN2	4007	3993										
-ASN3	4022	4017	4020	4021								
-ASN4	1802	1801										
-BM	2416	2414										
-CHFL	2744	2743										

-COR	3145	3142		
-CRD2	1088	1085		
-CRD3	1093	1087	1089	
-CRD	0963	0961		
-DO2	3174	3173		
-EEE	2889	2887	2888	
-EQ1	4127	4126	4134	
-EQU8	4198	4194		
-EQV1	4052	4046		
-EQV2	4055	4052		
-EQV3	4044	4039	4043	4073
-EQV4	4061	4059		
-EQ	4094	4092		
-ERUT	1358	1356		
-FB	3758	3755		
-FIL1	1765	1759	1764	
-FIL2	1750	1768	1776	
-FNC1	3335	3333		
-FUNC	3333	3332		
-GET	2969	2967		
-GOD1	4467	4465		
-GOD	4464	4462	4466	
-GOT1	1784	1783	1785	
-GOTO	1782	1780		
-HF1	1880	1877		
-HF2	1882	1880		
-HOT	3539	3535		
-I18	2332	2329		
-IF1	2594	2591		
-IF2	2597	2596		

-IF3	2607	2602									
-INP1	0861	0875	0901	0837							
-INRA	2867	2866									
-ISIS	4504	4503	4505								
-KIND	1250	1248									
-L1	2456	2453									
-L2	2462	2459									
-LIS	3140	3137									
-MAG	2755	2753									
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-MUL	4215	4214									
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-OP2	0706	0697									
-OP3	0732	0730	0736	2459	2547	2562	2579	2858	2938	3049	5061
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-PAR4	3306	3303									
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-PN	2708	2695									
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-POT2	3951	3949									
-POT	3944	3942									
-PR1	1603	1600									
-PR2	1563	1585	1602	1604							
-PRG	3150	3147									
-RE	2884	2879	2883								
-SAC	2432	2431									
-SCRM	1147	1145									
-SEND	0817	0813									
-TRC	3135	3132									

A0000	0111	2465	2486	2488	249[illegible]	2538	2539	2541	2543	2556	2557	2559
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ABSF	0071	2942										
ACC	0492	1996	2049	2056	2062	2236	2249	2434	2436	2439	2505	2508
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ADDNX	2011	2010	2030	2086	3877							
AEQU	4174	2758										
ALARM	3974	1149	1338	1898	1900	2490	2598	2626	2630	2723	2745	2936
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ALF	0565	4279	4306									
ANSL	2435	2415	2490	2531	3630	3632	4222					
ANSR	2502	2500	2545									
ARAMD	5063	2664										
ARAS	2851	5063										
ARA*	2738	5059										
ARAS	0533	2834	2841	2848	2960	4471						
ARA+	2707	5063										
ARA%	2739	5060										
AREX1	2003	1948										
AREX2	2097	2016	2096									
AREX	1993	1947	1988	1992								
ARITH	2373	2484	2537	2555	2563	2860						
ARRAY	2652	0691										
ASGN1	1804	18[illegible]3	4030									
ASIGN	1794	1912	2761	3268								
ASM11	2174	2173	2993	3022	3221	3226	3435	3723				
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ASM28	1909	1896	1992									
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ASM31	1518	1517	1789	1870	1977							

ASM32	1506	1510	1929	1959	2316	3271	4266					
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ASM42	1544	2169	3015	3283								
ASM43	1539	3523	3563									
ASM44	1540	1539	3567									
ASM4	1556	1534	3732									
ASM5	1632	1617	1620	3924	3968	4589	4598	4604				
ASM5C	3966	3944	3945	3946	3951							
ASM5D	3969	3878	3929									
ASM5E	4594	4564										
ASM5F	4599	4571	4593									
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ASMF1	3554	3518	3521	3532								
ASMF2	3556	3553	3555	3568								
ASMFJ	3552	3529	3551									
ASMTR	2893	2869	3038	3630								
ASS1	0075	3028										
ASS2	3031	3030										
ATAN	4979	29 3										
ATANF	0068	29 3										
ATL	1929	1928	2322	2882								
AVAIL	0494	1190	1204	1221	1226	3826	4439					
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B05	5129	0765	1430	1614	4485							
B10	5130	0862	0863	0876	0877	1553	1653	3832	3921			
B5	5128	1609										
BAND	0495	1004	1058	1746	1747	1748	3681	3845	3885			
BCOMP	0105	2916										
BED	3128	3961	4067	4093	4177	4192						
BIG01	5081 3842	0706 3844	0771 3846	1824 4489	1950	2171	2356	2396	2897	3244	3453	3724
BIG02	5082	1600	2395	2574	2917	3014	3402	3659	4100	4122		
BIG03	5083	3775										
BIG04	5084	1085	2109	2259	3492	4204	4312					
BIG05	5085 4137	0868 4157	0882	0906	1364	1938	2016	2774	3279	3850	3995	4049
BIG07	5086	1958	2041									
BIG09	5087	2812										
BIG0G	5088	3716										
BIG10	5089	1549	1987	2431	2796	2979	3322	3697	3993	4046	4237	
BIG13	5090	3638	3669									
BIG20	5091	2362	2792	3582	4263							
BIG21	5092	0808	2679	2699	3290							
BIG24	5093	3783										
BIG25	5094	0618	1921	1955	1991	3763						
BIG29	5095	3032										
BIG30	5096	0684	1917	2068	2279	2406	2788	2842	3060	3765	4060	
BIG37	5097	4261										
BIG40	5098	2571	2596	3173	3297	3332	3896					
BIG50	5099	0869	0883	0884	0925	0944	2111	3130	3386	3423	3767	3848
BIG60	5100	0817	1801	2070	2113	2887	3353	3720	4007	4052		
BIG69	5101	2078										
BIG70	5102	1828	2469	3755	4039	4059	4126					

BIG71	5103	0697									
BIG77	5104	1929									
BIG87	5105	2349	2753								
BIG90	5106	1755	1768	2442	2840	2866	4092	4138	4159		
BIG99	5107	0750	1780	2743	3303						
BIN-	0048	2463									
BINAL	2402	2451	2619								
BINER	2490	2486	2488	2539	2541	2557	2559	2565			
BIN!#	0063	2859	2857	2891							
BIN&	0051	2484	2480								
BINOP	2400	2551	2575								
BIN*	0057	2537	2738								
BIN**	0061	2563									
BINSB	2399	2455	2538	2556	2581	2554	2571	3980	4257	4258	
BKOF	0869	0884	0925	0864	0867	1389					
BKON	0863	0877	0903	1410							
BKSW	0862	0876	0902	0853	0875	0901	0939	1390	1411		
BLANO	0106	2572									
BME	1900	0215	2415								
BOOLS	2942	2950	3104	3126							
BOR	0107	2573									
BR1	1234	1253	1978	2117	2141	2146	3425	3754	3769	4042	
BR2	1233	3118	3330	3341	3598	4094					
BR	1235	1227	1234	1804	1982	4193					
BU1	0950	1052	1665	1673	1714	1723					
BU	0951	0949	0950	3931							
C0000	0113 1802	1812 1811	1827 1826	1838 1838	1939 1940	2000 1999	2022	2086	3987	0114	0114	1794
C345	4925	2614									
C3#4	4927	2615									
C3#5	4928	2616									

C4#5	4926	2222	2227	2617								
CALMD	5076	3328										
CALPK	2296	2295	3585									
CALRM	1337	1335	1336	1357	1361							
CALS	3320	5076										
CAL.	3319	5076										
CASIN	2158	1942	1960	2026	2257	3781						
CHALT	0959	0949	3932									
CHI	0566	0951	0973	1025	4288	4295						
CHOLD	0553	1551	1608	2255								
CLACC	2048	1939	2244	3176	3292							
CLD	3549	3464	3548									
CMOVE	0974	1026	0948									
COL15	0497	1099	1425	1426								
COLON	2583	2477	2582									
COMMD	5064	3127										
COMON	0044	3114	3117	3847	3887							
COMPL	4986	2915										
COMS	3127	5064										
COMT	0498 4486	1509	1510	1552	1606	1607	1615	1914	1969	2099	2303	2314
COM.	3108	3127	5064									
CONO	0249	2499	2544	2581	2691	2696	2783	2946	4175			
CON2	4995	2570										
CONST	1362	1310	1311	2025	2256	3603	3780	4247				
COP	4929	2219	2276	2400								
COR10	2018	2000										
COR11	2037	2022										
CORES	2074	2018	2037									
COS	4982	2901										

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COSF	0066	2901								
CRAND	2963	2949	3747							
CRDC	0954	0960	0963	0971	1023	4487				
CRDSW	0554	0962	0951	0964	0973	1025	4488			
CREAD	0948	0943	1102							
CSUB	4924	2349								
CTP	1014	1018								
CTRC	4923	2894								
CYC1	3545	3542	3543	3544						
CYCLE	3544	3475	3513							
D1MMD	5065	3040	3235							
D1MS	3104	2619	3323	3327	5065					
D1M%	3103	3083	3099	3100	5065					
DIM	3043	3236								
DIMMD	5066	3068								
DIMS	3070	5066								
DIM%	3071	5066								
DIM$	0084	3024								
DIVBS	0499	1464	1469	1476	1477					
DIVRT	1464	1463	2628	2632	2737	3222				
DIVT1	1462	1461	2655	3174						
DIVT2	1460	2536	3293	3608						
DOCK3	2440	2437	2439	2506						
DOEOF	1426	3448	4481							
DOEON	3390	3382	3447							
DOESW	0560	1425	1422	3383	3449	4482				
DOIF	2590	2589	3168							
DOMD	5067	3160	3644							
DON	0487	3183	3229	3680	3722	3734	3737	3738	3749	3751
DONT1	0101	3223								

DONT	3215	3169	3193									
DOO	3229	3170										
DOOST	0534	3232	3377	3390	3442	4473						
DO$1	0108	3172	3171									
DO$	3170	5067										
DO$SB	3171	3170	3648									
DOTAG	0500	2984	3187	3194	3408	4490						
DOVAR	0501	0805	2311	2987	3212	3411	3439	4474				
DOWN	3312	3251										
DO↑	3168	5067										
DSAVE	0557	1461	1478	1480	2624	4475						
DUA	3293	2620	2621	3238	4076							
DUMMY	0228	3829										
E0000	0115	0765	0786	0787	0788	0789	0790	0792	1274	1277	1278	1283
	1285	1291	1302	1326	1328	1334	1335	1336	1344	1346	1347	1348
	1349	0241	0677	0753	0785	0786	0787	0796	1282	1284	1294	1301
	1323	1325	1327	1333	1343	1345						
EEE	1898	1897	2888									
ENTER	3633	3629	3632									
EQ1MD	5068	4074										
EQ1$	3125	3124	3673	5068								
EQ1↑	4079	4078	5068									
EQASN	4031	4030	4209									
EQSVB	4090	4089	4188									
EQUMD	5069	2757	4087									
EQU$	4211	5069										
EQU↑	4089	5069										
EQU%	0100	4168										
EROUT	1321	1297										
EXIT1	0507	0836	0938	1108	1122	1133	1163	1169	1216	1217	1232	1259
	1258	1273	1632	1644	1698	3691	3705	3713	4032	4067	4071	4090
	4173											
EXIT2	0508	1363	1369	1539	1544	1550	1557	1620	2110	2126	2150	3568

	3966	3969	3972	4599	4608							
EXIT3	0509 3356	1388 3365	1411	1519	1538	2051	2073	2162	2170	3006	3015	3349
EXIT4	0510 3348	1909	1933	1946	1959	1977	2074	2083	2296	2304	2307	3329
EXIT5	0511	1865	1908	2099								
EXIT6	0512	1851	1870	1895	1897	3662	3667					
EXIT7	0513	2174	2189	2190	3778	3791						
EXIT8	0514	3171	3228	3284	3292	3938	3951					
EXIT9	0515	3252	3309									
EXP	4977	2899										
EXPF	0070	2899										
EXPL	2586	2585	2589									
EXPL8	2587	2586	2975	3000	3003	3028	3586					
F0000	0116	3267	3268	3276	3279	3294	0117	3266	3267			
FARNL	1739	1524	2122	2130	2336	2339	2340	2344	2358	3326	3663	
FASIN	3329	3237	3324									
FBSB1	3774	3758	3770									
FBSUB	3778	3764	3766	3768								
FCEX	3278	1939	3268									
FCMD	5070	2686	3241									
FC$	3246	5070										
FC%	3242	5070										
FC#	0102	3247										
FGFG	4526	4545	4603									
FMSUB	3564	3538	3541									
FILNX	2354	2353	3309	3327								
FILUP	1750	1529	1781	2354	2996	3438	3665	3725				
FIXA	4985	2862	2895									
FIXF	0099	2895										
FLOTA	4984	2863	2911									

FLOTF	0098	2911										
FOR95	3149	2601	4150									
FORCE	3526	3495	3497	3498	3511							
FS	0491	3336	3337	3342	3831							
FSIGN	3516	3508	3509	3510								
FSW	3542	3463	3475	3527								
FSWOF	3543	3462										
FSWON	3551	3474	3542	3543								
FUNCT	3234	0694										
GEN	0678	0822	1422	1474	1481							
GENX	0516	0676	0682	1463								
GET	2964	2754	2873	3020	3218	3289	3631					
GOMD	5071	3001										
GO$	3020	5071										
GOSUB	3006	3015	3036									
GOTO	1777	2338	2982	3025	3373	3398	3656	3793				
GO%	3003	5071										
GO%	0073	3016										
H0000	0118	0122	0122	0123	0123	0124	0124	0125	0125	0126	0126	0127
	0135	0135	0136	0136	0137	0968	0970	0975	0976	0977	0981	0982
	0983	0986	0987	0991	0992	0993	0996	0997	0999	1007	1008	1020
	1022	1027	1028	1032	1033	1037	1038	1042	1043	1047	1048	1052
	1053	1072	1073	1077	1078	4527	4528	4529	4530	4531	4532	4533
	4534	4546	4547	4548	4549	4550	4551	4552	4553			
H10	5127	0969	1021	3979	4307							
H1	5125	1986	3321									
H5	5126	1095	1574	2290	2445	3880						
HALT	3953	3957	3975									
HCC	0961	0960	0974	1026								
HDW2	0128	0138	3958	3960								
HDW3	0129	0139	3964									
HEAD1	3693	3799	3883									
HEAD	4996	3357	3359	3795	3801	4479						

HOL	3532	3505										
HOLSB	1388	1387	3566									
HROUT	1387	1299										
HWD1	0127	0137	3933									
10000	0142	2187	2190	2192	2193	2194	2195	2196	2197	2198	2199	2200
	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212
	2213	2214	2215	2216	2217	2218	2221	2226	2231	2244	2248	2252
	2263	2268	2284	2285	2291	2293	2311	2315	2318	2327	2336	2344
	2355	2358	4259	4262	0143	0143	2180	2182	2243	2252	2253	2254
	2264	2280	2314	2335	2875	3202	3203	3299	3785			
IFMD	5072	2584										
IF$	2595	5072										
IF%	2589	5072										
IF%	0053	2580										
IMPUO	3662	3640	3654									
IN	3629	3573										
INCR1	0479	0639	4476									
INCRE	0502	1740	1994	3146	4477							
INCUQ	1790	1541	2046	2055	217	2958	3012	3771				
INDEX	2678	2712	2739									
INIT	3794	3935	4508									
INITT	3807	3805	4461									
INS2	2841	2830	2838									
INS99	1188	1148	1169									
INS	1169	0738	1821	2138	2841	3233						
INSMD	3041	3040	3107	3328	3591	3735						
INSRT	0738	0737	3616	3621								
IO1MD	5078	3591										
IO1$	3592	5078										
IO1%	3593	5078										
IO2MD	5079	3596										
IO2$	3668	3592	3611	5079								

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IO2•1	0109	3618	3613										
IO2•	3609	3597	3628	3675	5079								
IO3MD	5080	3623											
IO3S	3674	5080											
IO3•	3675	5080											
IOARA	3598	3594											
IO#	3639	3587	3652										
IOOP	3578	3615											
IO%	3642	5062											
ISMD1	3042	3041	3160										
IWORD	0503	1533	1538	1758	1759	1775	1776	2319	3828				
IX	2186	2185	2223	2228	2237	2244	2249	2261	2310	2316	2321	2328	
	2334	2343	2353	2357	2364	4269							
&5ASM	1658												
&ASSM	1682	1732											
&ADD	2514												
&AL1	4313												
&AL2	4308												
&ALRM	4317												
&AR2	2842												
&ASSM	1684	1734											
&ASM5	1673	1723											
&ASN1	1829												
&ASN2	3994												
&ASN3	4008												
&ASN4	1817												
&BM	2415												
&CHFL	2747	2744											
&COR	3143												
&CRD2	1086												
&CRD3	1090	1625	4317										

&CRD	0962		
&DO2	3175		
&EEE	2868		
&EQ1	4129		
&EQU%	4195		
&EQV1	4047		
&EQV2	4053		
&EQV3	4040		
&EQV4	4060		
&EQ	4093	4104	
&ERUT	1357		
&FB	3769		
&FIL1	1756		
&FIL2	1769		
&FNC1	2536	2535	
&FUNC	3345	3344	
&GET	2968		
&GOD1	4466		
&GOD	4463		
&GOT1	1786		
&GOTO	1781		
&HF1	1879		
&HF2	1885		
&HOT	3536		
&I18	2330		
&IF1	2592	2939	
&IF2	2600	2597	
&IF3	2603		
&INP1	0840	1107	1121
&INRA	2877	2879	2972

&ISIS	4507											
&KIND	1251											
&L1	2455											
&L2	2460											
&LIS	3138											
&MAG	2754											
&MUL1	4217											
&MUL	4257	4231										
&OP1	0697											
&OP2	0698	0972	1024									
&OP3	0731											
&OP4	0733											
&PAR1	3289	3291										
&PAR4	3304											
&PAS2	3955	3962										
&PN	2696											
&POT1	3948											
&POT2	3950											
&POT	3943											
&PR1	1601											
&PR2	1605											
&PRG	3148											
&RE	2880											
&SAC	2402	2434	2446	2964	3318							
&SCRM	1149											
&SEND	0815											
&TRC	3133											
#OFF	2856	3165	3672									
JOOOO	0144	4882	4883	4884	4885	4886	4888	4889	4890	4891	4892	4893
	4894	4895	4896	4897	4899	4900	4901	4902	4903	4904	4905	4906
	4907	4908	4909	4910	4911	4912	4913	4914	4915	4916	4917	4918

	4919	4920	4921	4922	0145	2427	2861	2864	2880	2883	2919	2922
	2931	2968	2969	4252	4253							
JMPRL	1785	1927										
K0000	0146	4775	4776	4777	4778	4779	4780	4781	4782	4783	4796	4797
	4798	4799	4800	4801	4805	4808	4811	4814	4818	4819	4820	4821
	4822	4823	4824	4825	4826	4827	4844	4845	4846	4847	4848	4849
	4850	4851	4852	4853	4854	4855	4856	4857	4858	4859	4860	0147
	0147	0148	0148	0149	0149	0150	0150	0151	0151	0152	0152	0153
	0153	0154	0154	0155	0155	0156	0156	0157	0157	0158	0158	0159
	0159	0844	0845	0846	0847	0848	0849	0850	0857	0858	0874	0900
	0978	0979	0980	0984	0985	0988	0989	0990	0994	0995	0998	1000
	1001	1002	1006	1009	1010	1030	1031	1035	1036	1040	1041	1045
	1046	1050	1051	1055	1056	1061	1068	1069	1075	1076	1080	1081
	1087	1089	1093	1094	1103	1117	4462					
KINO	1238	0753	0785	1284	1327	1345	3469					
KN200	5138	1741	3886									
KON1	0238	5134	1643	1697	3260	3308	3358	3750	3788	3824	4179	
KON2	0240	5135	1193	2523	3256	3794	4454					
KON30	5137	1246	1328	2778								
KON3	5136	2379	2382	2449	3761							
KON.5	5133	1319	3191	4249								
KON*E	3980	4212	2545									
L0000	0160	2122	2125	2126	2127	2128	2146	0101	0161	2141	2124	2145
	2157											
LABEL	5045	1436	1451									
LABL	0074	3366										
LABLX	3370	2151	3369									
LAST	0504	0678	0682	1460	3122	3757						
LBLX1	3371	2156	3370									
LC	0559	1084	1086	1088	1599	1601	1603	3939	4311	4313	4315	4468
LCARD	4442	4441										
LDCN1	4512	45 6										
LDCN2	4511	45 7										
LDCN3	4510	4638										
LDCN4	4509	4639	4642									
LDLOF	2886	2885	2890									

LDLON	2860	2853	2856									
LEFT	3521	3496	3512									
LEOFF	1311	0630	1292	3166	4483							
LESW	0537 3367	1310 4484	0681	1293	1307	1309	1359	1361	1414	2588	3155	3167
LEVEL	0505	1003	1057	1739	1745	3825						
LEXP1	3376	3366										
LEXP	3385	2587										
LIR1	2317	1512	2315	2320								
LIT10	5143	2012	2038									
LIT11	5144	1951										
LIT1	5139 2659	0774 2701	0775 4584	0795	1375	1396	1407	1506	1677	1727	1879	1972
LIT4	5140	1405										
LIT5	5141	0777	1296	2479	2482	2526	3537					
LIT8	5142	0777	1298	1892								
LIT99	5145	3388										
LITA	5146	1350	4242									
LITB	5147	1239										
LLIST	0536	2136	2143	3414	4469							
LN	4978	2904										
LNF	0069	2904										
LOOP1	2177	1904	2176									
LOOP	2175	2174	2186	2224	2229	2290						
LPREN	5044	0693	2577	2653	2977	3612	4080					
LSW	0555	2103	1905	2981	3004	3196	3369	3410	3437	4498		
LSWOF	2108	3035	3276	3409	4497							
LSWON	2109	3195										
MAGET	2748	2747	3169									
MCAL	2598	2597	3019	3592								
MDOP1	0736	0734	0735	3002								

MDOP2	0734	3241										
MDOP	0735	2665	3069	4088								
MEML1	0481	0641	3807									
MEML2	0482	0642	4428									
MEML	0531	1194	3049	3050	3077	3078	3808	4145	4153	4167	4168	4171
MEMLL	0480	0640	4432	1433	1446	4428	4430					
MEMU1	3973	38,9	3816	4432	4453	4455						
MEMU2	0484	0644	3973									
MEMU	0527	1192	1196	3810	4433							
MISUB	2621	3125	3312	4491								
MLP	2624	2578	4081									
MODE	0227	5073	3874									
MROUT	1370	13,1										
MRP	2629	2851	2945	3070	3246	4211						
MZERO	5132	1151	1241	2301								
NOOOO	0162	0844	0845	0846	0847	0848	0849	0850	0857	0874	0900	0940
	0843	0940	3804									
NO1	5077											
N78	3571											
NAME	3691	3690	3803									
NAMEC	3252	3251	3593									
NEXTC	0506	0827	0830									
NINEF	0490	2342	2347	2355	2357	3230	3657	3664				
NNUMS	0517	0853	0888	0890	0908	0917	0919	0934	0936	0939		
NOMAL	2941	21,5	2592	2920								
NOMLZ	1255	13,7	1324									
NORM	0683	0679	0694	1462	3741	3757						
NORMX	0085	0675	0215	0737	2460	2586	2850	2915	2941	2962	2982	3005
	3042	3103	3124	3169	3245	3317	3375	3661	3738	3792	3875	3981
	4089	4187	4210	5058								
NOS	2943	2951	3233	3674	5073							

NOTAG	0519	0815	3131	3133	313	3143	3148	4480				
NO↑	2939	2940	3319	5073								
NPAR1	1969	1961	1968									
NPAR2	1970	1927	1969									
NPAR	1968	1911										
NWORD	0521	0843	0841	0842	0943	3805						
NXLOC	0496 3667	1520 3682	1523 3727	1782 3857	2047	2343	2354	3024	3375	3433	3441	3660
NXTCH	0558 3468	0853	0677	0750	0784	0829	0832	1283	1326	1344	1377	1398
NXTN	0834	0831										
NXTW	0830	0828	4508									
NZONS	0518	0853	0834	0886	0915	0931	3849					
00000	0163	3369	3695	3891	3897	3918	3923	3963				
OARA*	5059	2476	5061									
OARA%	5060	2494	2665	2710								
OBIN-	5046	2456										
OBIN&	0244	2462										
OBIN#	5047	2858										
OBN**	5048	2562										
ODIM%	5049	3069										
OEQU%	5050	4088										
OFC%	5057	3240										
OGO%	5056	3052										
OMOLD	0520	0707	0713	0727	2468							
OIF%	5051	2466	2579									
OIO%	5062	3620										
OLDLC	0522	1530	1532	3854								
OLPRN	5058	2547										
ONE15	5131	2144	3683									
ONWRD	3568	3506										

OOPO	0234	5054	2938									
OPO	0072	2955										
OPX	0710	0707	2401	2440	2441	2483	2508	2892	3039	4256		
O*	5053	2534										
OTYPE	0523	2398	2430	2443	2575	2898	2907	2918	2934	2972		
OUN-	5055	2455										
OUT	3631	3575	3577									
OWDIM	5052	3740										
POOOO	0164	4762	4763	4764	4765	4766	4767	4768	4769	4770	4771	4772
	4773	4774	4785	4786	4787	4788	4789	4790	4791	4792	4793	4794
	4795	4853	4834	4835	4836	4857	4838	4859	4840	4841	4842	4843
	0165	0165	0166	0166	0167	0167	0168	0168	0169	0169	0170	0170
	0171	0171	0172	0172	0173	0173	0174	0174	0175	0175	0176	0176
	0177	0177	1554	1555	1564	1566	1572	1573	1579	1580	1589	1590
	1593	1594	1602	1604	1612	1613	3833	3834	3902	3903		
PANIC	3979	4270	2622	3975								
PAR1	0524	2218	2221	2226	2263	2268	2271	2284	2285	2288	2330	2332
	2403	2447	4262									
PAR2	0525	2173	2187	2269	2272	2281	2286	2289	2293	2308	2327	2335
PAR3	0526	4235	4260	4267								
PARMO	5075	3735										
PARS	3739	3743	5075									
PARSB	3284	3242	3247									
PAR+	3736	5075										
PASS2	3937	3935										
PAUSF	4988	2925										
PCHOF	1675	1726	3149									
PCHON	1647	1721	3150									
PCHSW	1646	1720	1645	1699	3151							
PNSUB	2693	2713	2738	2740								
POP	3518	3502	3507									
POUT	3938	3932	3937									
POZMO	5074	2948										

POZS 2930 5074

POZ+ 2940 5074

PRIME 4462 5150

PRMS 4573 4640

PRNT 1562 1583 3922 3979

PROF 1607 1561 1582 3139 4493

PRON 1560 1572 3140

PRTS# 1606 1558 3141 4494

Q0000 0178 4931 4932 4933 4934 4935 4936 4937 4938 4939 4940 4941
4942 4943 4944 4945 4946 4947 4948 4949 4950 4951 4952 4953
4954 4955 4956 4957 4958 4959 4960 4961 4962 4963 4964 4965
4966 4967 4968 4969 4970 4971 4972 4973 4974 4975 4976 2485
2501 2538 2556 2561 2564 2567 2568 2572 2573 3980 4257 4258

R0000 0179 4863 4864 4865 4866 4867 4873 0133 0183 0184 0184 0185
0185 0186 0186 0187 0187 0188 0188 0189 0190 0196 0196 0197
0197 0198 0198 0199 1637 1638 1639 1640 1641 1645 1652 1654
1663 1671 1672 1680 1681 1682 1683 1684 1685 1691 1692 1693
1694 1695 1699 1706 1707 1713 1721 1722 1730 1731 1732 1733
1734 1735 3703 3704 3705 3711 3712 3713 3865 3871 4521 4522
4540 4541 4613 4614 4615 4616 4617 4618 4624 4625 4626 4627
4628 4629

RAND 0219 0226 2930 2963 3875

RATOR 0561 4661 0710 0717 0738 2463 2491 2707 2868 2943

REM 1217 0717 2054 2961 3391 3415 3819 4461

REMRT 0717 0716 2477 3607 3639

RESCN 3757 3617 3756

RESET 3462 3454 3518 3523 3529 3539 3541

RETRN 3793 3792 3876

RRRR 4084 4111 4133 4142 4182

RWD1 0190 0189 1676 1678 1725 1728 3879 3881 4594 4598 4605 4607

RWORD 0528 1531 1536 1752 1764 1769 1771 1778 3827

$ 0242 1415 3123 3610 3742

*LOAD 3936 3934

S0000 0202 0804 0809 0811 0813 0819 0820 0821 0203 0203 0204 0803

SACC	2431	2430	3318									
SCAN1	0241	0730	0822	1431	1446	3131	3136	3141	3146	3151	4495	
SCAN9	0822	0807	0808	0812	0819	0820	0821	1436	1451	4440		
SCAN	0676 4079	0675	0692	2533	2576	2652	2976	3016	3368	3609	3685	3739
SCANX	0529	0677	0676	0679	1465	4496						
SCNXX	0530	1468	1479	1481								
SEND1	0798	0797	1320									
SEND	0797	0791	3389									
SETNS	0827	0786	0787	1302	1323	1334	1335	1336	1346	1347	1348	
SGN**	2562	2535										
SHEAD	3356	3899										
SHFT4	0944	0941										
SHFT	0532	0853	0852	0938	0942	1435	1450					
SHFTF	0946	0859	0945									
SIGN-	0049	2452										
SIGN'	0080	1415	3568									
SIGN&	0050	2458										
SIGN#	0062	2853	3159	3588	3653	3673						
SIGN$	0059	2550	2942	3027								
SIGN*	0056	2533										
SIGN/	0060	2555										
SIGN+	0058	2548										
SIGN%	0046	2547										
SIN	4983	29 0										
SINF	0065	29 0										
SQRT	4981	29 5										
SQRTF	0064	29 5										
SQUAR	2923	2571										
SRCH1	1130	0791	1129									

SRCH	1129	1366	3389									
STAN	0939	0957	0946	1437	1452							
STOPF	4989	2926										
STORE	0042	2772										
SUBDF	3349	2357	3340									
TOOOO	0205	4998	4999	5000	5001	5002	5003	5004	5005	5006	5007	5008
	5009	5010	5011	5012	5013	5014	5015	5016	5017	5018	5019	5020
	5021	5022	5023	5024	5025	5026	5027	5028	5029	5030	5031	5032
	5033	5034	5035	5036	5037	5038	5039	5040	5041	5042	5043	0206
	0242	0243	0244	0245	2536	2628	2632	2655	2726	2737	3174	3185
	3222	3293	3606	3608								
TAN	4980	2952										
TANF	0067	2952										
TARA*	0054	5061										
TARA%	0055	2656										
TAS32	2316	2315	4261									
TASM2	2185	2184	2283									
TEMP1	0538	1169	1212	1224	1230	1291	1295	1558	1581	1616	1805	1815
	1827	1835	3115	3119	3416	3430	3991	4023	4031	4042	4043	4048
	4050	4056	4139	4150	4160	4164						
TEMP2	0539	0706	0779	0783	0792	1132	1143	1256	1265	1267	1274	1280
	1285	1288	1308	1313	1325	1356	1357	1360	1362	1372	1376	1393
	1404	1438	1540	1556	1560	1563	1591	1619	1817	1823	2129	2135
	2168	2768	2775	2777	2787	2789	2807	2814	2836	3011	3281	3350
	3355	3384	3385	3565	3614	3617	3988	3997	4001	4010	4012	4026
	4037	4070	4136	4158								
TEMP3	0540	0776	0788	0789	0796	0797	0804	0812	0818	1129	1137	1270
	1282	1290	1312	1341	1352	1371	1385	1392	1399	1402	1414	1518
	1537	2859	2837	3567	3812	3820	3821	3990	4002	4005	4006	4017
	4019	4028	4035	4065	4154	4172	4562	4566				
TEMP4	0541	0798	1130	1148	1163	1343	1349	1354	1397	1403	1517	1539
	1788	1865	1973	3996	4003							
TEMP5	0542	1813	1814	1876	1883	1910	1916	1949	1954	1976	1985	1990
	3269	3273	3372	3374	3393	3399	3404	3465	3533	3536	3546	3559
	3557											
TEMP6	0543	1915	3395	3446	3466	3513	3551					
TEMP7	0544	1853	1884	1896	1908	2097	3470	3473	3547	3550	3554	3561
TEMP8	0545	1856	1869	3467	3516	3545	3548	3559	3563			
TEMP9	0546	1857	1862	3482	3494	3526	3528					

TEMPS	0535	1821	2054	3855	4473							
THETA	0562	1091	1092	4284	4285	4286	4287	4293				
THREF	0489	2337	2352	2359	3625	3726						
TMP10	0547	1850	1855	1858								
TMP11	0548	1980	1993	2005	2013	2023	2031	2082	2088	2091	2093	
TMP12	0549	1984	2098									
TMP13	0550	1993	2177	2186	3760	3787	3789					
TOB	2340	3649										
TOB10	2342	3646										
TOBSW	2339	2338	3647	3650								
TRACE	4987	2893										
TRCOF	2254	2870	3134	4501								
TRCON	2255	3139										
TRCSW	2253	2871	3136	4502								
TROFF	1822	1820	3177									
TRON	1819	3227	4499									
TRSW	0556	1818	1817	3178	3228	4500						
TW095	5148	2452	2458	3052								
TW08	0488	2341	3231	3627								
TYPE	0493	0773	0794	0807	1279	1303	1316	1320	1321	1413	3387	
UASW	0552	2620	2654	3106	3126	3239	3313	3595	4077	4492		
UN-	0047	2481										
UNIQU	0043 3759	1790 3762	1793 3774	1832 3843	1834 3892	2075 4025	2164 4029	3031	3257	3259	3452	3719
UNOP1	2446	2444	4256									
UNOP2	2445	2974										
UNOP3	2442	2881	2884									
UNOP	2441	2919	2934									
V0000	0207	1895	1897	1902	1905	1978	0208	1894				
VAR	3513	3474	3499	3500	3501	3503	3504					

WOOOO	0209 3839	4990	4991	4992	4993	4994	1825	2072	2300	2302	2305	3838
WARN	4997	3362	3797	3953								
WD	0564	4276	4309									
WDCAL	0104	3328										
WDCOM	0096	3125										
WDCOR	0082	3142										
WDDIM	0095	3040	2996									
WDDOI	3156	3155	3641									
WDDO	0045	3152										
WDEND	0088	3876										
WDEQU	0097	3981	4074									
WDFMT	0093	3452										
WDFOR	0079	4513	4429									
WDFUN	0089	3676										
WDGO	0076	2975										
WDIF	0052	2576										
WDLIS	0078	3137										
WDNO	0077	3130										
WDPCH	0103	3574										
WDPOZ	0086	2925										
WDPRG	0110	3147										
WDPRT	0092	3576										
WDRED	0091	3572										
WDRTN	0094	3792										
WDS	0563	4274	4310									
WDSTP	0087	2926										
WDSUB	0090	3678										
WDTRC	0081	3132										
WDTRU	0083	3133										
XOOOO	0210	3468	3470	3474	3476	3477	3495	3496	3497	3498	3499	3500

	3501	3502	3503	3504	3505	3506	3507	3508	3509	3510	3511	3512
	3467	3469	3473	3484	3485	3516	3544					
X05	5120	1100										
X1	5117	1761	1786	1971	2087	2742	2767	2800	2846	2909	2914	2933
	2970	3162	3316	3346	3405	4033	4064	4099				
X3	5118	3635										
X45	5123	2297	3255									
X49	5121	0895	2811									
X5	5122	1105	1119	1656								
X89	5124	3487	3492									
X9	5119	1108	1122	2189	2408	3779						
XCO	5116	2142	3426	4120								
XC	5110	1511	1546	1774	1868	1936	2134	2346	2361	2551	2795	3056
	3889	4061	4113									
XLINE	3684	3793	3859									
XM1	5114	0728										
XM	5109	1067	1230	1234	1803	1875	1907	2720	2826	3010	3113	3280
	3380	3394	3401	3422	3445	3581	3602	3687	4009	4041	4054	4069
	4130	4561										
XMC	5111	2684	2786	3163	3643	3895						
XMH	5115	1806	2014	2024	2126	2147	2154	2802	3371	3397	3418	3431
	3994	4047	4095									
XO	5108	0714	0811	1766	1852	2282	2318	2422				
XOC	5113	1208	1548	1952	2060							
XOM	5112	0819	0820	0821	1657	1703	1770	1783	2127	2128	3061	4581
Z0000	0211	4662	4663	4664	4665	4666	4667	4668	4669	4670	4671	4672
	4673	4674	4675	4676	4677	4678	4679	4680	4681	4682	4683	4684
	4685	4686	4687	4688	4689	4690	4691	4692	4693	4694	4695	4696
	4697	4698	4699	4700	4701	4702	4703	4704	4705	4706	4707	4708
	4709	4710	4711	4712	4713	4714	4715	4716	4717	4718	4719	4720
	4721	4722	4723	4724	4725	4726	4727	4728	4729	4730	4731	4732
	4733	4734	4735	4736	4737	4738	4739	4740	4741	4742	4743	4744
	4745	4746	4747	4748	4749	4750	4751	4752	4753	4754	4755	4756
	4757	4758	4759	4760	4761	1142	3814	4456				
ZLINK	4085	4118	4146	4189								
ZZONS	4609	4464	4515	4608								

SAME TO SPERRY RAND CORPORATION, ET AL. DEMAND