

Micro-ADE

for the

6502

ASSEMBLER

DISASSEMBLER

EDITOR

By Peter R. Jennings

© Copyright, 1977. All rights reserved.

Micro-Ware Ltd 27 FIRSTBROOKE ROAD, TORONTO, ONTARIO, CANADA. M4E 2L2.

```

0010:
0020:
0030:
0040:
0050:
0060:
0070:
0080:
0090:
0100:
0110: 2000      EDITOR ORG   $2000   77.06.28
0120:
0130:           PAGE ZERO SYMBOLS
0140:
    150: 2000      BLO   *   $0010  WS POINTER
    160: 2000      BHI   *   $0011
    170: 2000      OBLO  *   $0012  WS POINTER TEMP
    180: 2000      OBHI  *   $0013
    190: 2000      LTH   *   $0014  LENGTH OF INPUT BUFFER
    200: 2000      NLO   *   $0015  LINE NUMBER
    210: 2000      NHI   *   $0016
    220: 2000      CTR   *   $0017  NUMBER OF INPUT PARAMETERS
    230: 2000      LO    *   $0018  INPUT TEMP
    240: 2000      HI    *   $0019
    250: 2000      LOPAR *   $001A  COMMAND INPUT PARAMETER
    260: 2000      HIPAR *   $001D
    270: 2000      LABEL *   $0020  SYMBOL TEMP
    280: 2000      SAVID *   $0027  TEMP FOR ID
    290: 2000      PCLO  *   $003D  ADDRESS FOR DSMBLR
    300: 2000      PCHI  *   $003E
    310: 2000      SLO   *   $003F  SYMBOL TABLE POINTER
    320: 2000      SHI   *   $0040
    330: 2000      ELO   *   $0041  END OF SYMBOL TABLE
    340: 2000      EHI   *   $0042
    350: 2000      XLO   *   $0055  TABLE TEMP
    360: 2000      XHI   *   $0056
    370: 2000      CNT   *   $0054  SYMBOL TABLE COUNTER
    380: 2000      SALX  *   $0060  SAVE ADDRESS FOR CWRITE
    390: 2000      SAHX  *   $0061
    400: 2000      ID    *   $0062  TAPE ID ID FOR CWRITE & CREAD
    410: 2000      PMODE *   $0063  PAGING FLAG
    420: 2000      COUNTL * $0064  PAGING LINE COUNTER
    430: 2000      BUFFER * $0100  I/O BUFFER
0440:
0450:           KIM PAGE 17 ADDRESSES FOR CREAD/CWRITE
0460:
    470: 2000      SAL   *   $17F5  START TAPE ADDRESS
    480: 2000      SAH   *   $17F6
    490: 2000      EAL   *   $17F7  END TAPE ADDRESS
    500: 2000      EAH   *   $17F8
    510: 2000      SAVX  *   $17E9  PACKT TEMPORARY
0520:
    530:           EXTERNAL SUBROUTINES
    540:
    550:
    560: 2000      PACKT *   $2E94  PACK SUBROUTINE

```

```

0570: 2000      READ      *      $2E97  CASSETTE READ ROUTINE
0580: 2000      WRITE     *      $2E9A  CASSETTE WRITE ROUTINE
0590: 2000      NOUT      *      $2DC5  PRINT LINE NUMBER
0600: 2000      HEXAX    *      $2DC9  PRINT 2 HEX BYTES
0610: 2000      HEXSP    *      $2DEB  PRINT 2 HEX BYTES + SPACE
0620: 2000      HEXOUT   *      $2DCD  OUTPUT 2 HEX CHARS
0630: 2000      BACKSP   *      $2DE3  BACKSPACE
0640: 2000      CRLF     *      $2DE7  CARRIAGE RETURN/LF
0650: 2000      OUTSP    *      $2DEE  OUTPUT BLANK
0660: 2000      OUTCH    *      $2DF0  OUTPUT CHAR
0670: 2000      INCH     *      $2E2B  INPUT CHARACTER
0680: 2000      BUFIN    *      $2E3F  FILL INPUT BUFFER
0690: 2000      PRBUF    *      $2E84  PRINT OUTPUT BUFFER
0700: 2000      ASMBLR   *      $25F8  ASSEMBLER
0710: 2000      YSNO     *      $2794  MESSY + PROMPT
0720: 20001     MESSY    *      $27A0  PRINT MESSG(Y)
0730: 2000      DADS     *      $27C1  INC SYM SUBROUTINE
0740: 2000      DADX    *      $27C3  INC SYM + X SUB
0750: 2000      DSMBLR   *      $2C7A  DISASSEMBLER PROGRAM
0760:
0770:           ADDRESSES FOR MEMORY ALLOCATION PARAMETERS
0780:
0790: 2000      SYMF     *      $2EA7  END OF SYMBOL TABLE AREA
0800: 2000      SYMBOL   *      $2EA6  SYMBOL TABLE
0810: 2000      SOURCM   *      $2EA3  SOURCE AREA OUT OF RANGE
0820: 2000      SOURCE   *      $2EA4  SOURCE AREA START ADDRESS
0830: 2000      OBJECT   *      $2EA8  OBJECT AREA ADDRESS
0840: 2000      SOURCEF  *      $2EA5  SOURCE END ADDRESS
0850:
0860:
0870: 2000      EOF      *      $40    END OF FILE SYMBOL
0880:
ID=E2

```

```

0010:           COLD START ENTRY FOR MICRO-ADE
0020:
0030: 2000 D8           CLD           CLEAR DECIMAL
0040: 2001 20 E7 2D     JSR      CRLF
0050:
0060: 2004 A9 FF         LDAIM  $FF     RESET
0070: 2006 85 63         STA      PMODE  PAGE MODE
0080:
0090: 2008 A0 63         LDYIM  $63     PRINT:"NEW?"
0100: 200A 20 94 27     JSR      YSNO
0110: 200D D0 22         BNE     RESTRT IF "NO"
0120: 200F 20 F4 23     JSR      RESB
0130: 2012 A9 0D         LDAIM  $0D     FORMAT
0140: 2014 20 2F 24     JSR      STORE  WORKSPACE
0150: 2017 20 28 24     JSR      STORN  TO
0160: 201A F0 06         BEQ     INCCLR $0D,$00,$00,$40,...
0170: 201C A0 00         LDYIM  $00
0180: 201E A9 40         CLEAR  LDAIM  EOF
0190: 2020 91 10         STAIY  BLO
0200: 2022 20 0D 25     INCCLR JSR      INCBUF
0210: 2025 A5 11         LDA      BHI
0220: 2027 CD A5 2E     CMP     SOURCF
0230: 202A DG F2         BNE     CLEAR
0240:

```

```

0250: 202C A0 69          LDYIM $69      PRINT:
0260: 202E 20 A0 27      JSR  MESSY    "CLEAR"
0270:
0280:                      WARM START ENTRY
0290:
0300: 2031 20 E7 2D      RESTRT JSR  CRLF
0310: 2034 A2 FF          LDXIM $FF      RESET
0320: 2036 9A             TXS           STACK
0330: 2037 D8             CLD           & MODES
0340: 2038 58             CLI
0350:
0360: 2039 A9 04          LDAIM ERROR    SET UP
0370: 203B 8D FE 17      STA  $17FE    IRQ TO
0380: 203E A9 24          LDAIM ERROR /256 ERROR
0390: 2040 8D FF 17      STA  $17FF    ROUTINE
0400: 2043 A9 0C          LDAIM $0C     TURN ON
0410: 2045 8D 03 17     STA  $1703    CASSETTE PIA
0420: 2048 8D 02 17     STA  $1702
0430:
0440: 204B A9 2D          LDAIM '-'     PROMPT FOR
0450: 204D 20 F0 2D     JSR  OUTCH    COMMAND
0460: 2050 20 3F 2E     JSR  BUFIN
0470:
0480:                      ROUTINE TO DECODE 1 TO 3
0490:                      HEXADECIMAL INPUT PARAMETERS
0500:                      AND SAVE THEM IN LOPAR, HIPAR
0510:
0520: 2053 A9 00          LDAIM $00
0530: 2055 A2 06          LDXIM $06
0540: 2057 95 19      GTCLR STAAX HI    CLEAR
0550: 2059 CA             DEX           OLD
0560: 205A D0 FB          BNE  GTCLR    PARAMETERS
0570: 205C 85 17          STA  CTR
0580:
0590: 205E BD 00 01     GTA  LDAAX BUFFER
0600: 2061 C9 41          CMPIM 'A      SKIP
0610: 2063 30 03          BMI  REGETA   OVER
0620: 2065 E8             INX           COMMAND
0630: 2066 D0 F6          BNE  GTA
0640:
0650: 2068 CA             REGETA DEX
0660: 2069 A9 00      REGET LDAIM $00    RESET
0670: 206B 85 18          STA  LO      TEMPS
0680: 206D 85 19          STA  HI
0690: 206F 8D E9 17     STA  SAVX
0700:
0710: 2072 E8             NXT  INX
0720: 2073 BD 00 01     LDAAX BUFFER CHECK
0730: 2076 C9 0D          CMPIM $0D    FOR
0740: 2078 F0 23          BEQ  COMMA    DELIMITERS
0750: 207A C9 20          CMPIM '
0760: 207C F0 F4          BEQ  NXT
0770: 207E C9 2C          CMPIM ',
0780: 2080 F0 1B          BEQ  COMMA
0790:
0800: 2082 20 94 2E     JSR  PAC     PACK

```

```

0810: 2085 D0 15          BNE   ERR   FOUR
0820: 2087 A5 18          LDA   LO    DIGITS
0830: 2089 A0 04          LDYIM $04  INTO
0840: 208B 0A           ROT   ASLA  HI,LO
0850: 208C 26 19          ROL   HT
0860: 208E 88           DEY
0870: 208F D0 FA          BNE   ROT
0880: 2091 0D E9 17       ORA   SAVX
0890: 2094 85 18          STA   LO
0900: 2096 8C E9 17       STY   SAVX
0910: 2099 4C 72 20       JMP   NXT
ID=E3

0010:
0020: 209C 00           ERR   BRK           *****<9E> COMMAND SYNTAX
0030:
0040: 209D A4 17       COMMA LDY   CTR
0050: 209F 48           PHA
0060: 20A0 A5 18          LDA   LO    SAVE
0070: 20A2 99 1A 00       STAAY LOPAR LOPAR(Y)
0080: 20A5 A5 19          LDA   HI    HIPAR(Y)
0090: 20A7 99 1D 00       STAAY HIPAR
0100:
0110: 20AA 68           PLA
0120: 20AB E6 17          INC   CTR   END
0130: 20AD C9 0D          CMPIM $0D  OF
0140: 20AF D0 B8          BNE   REGET INPUT
0150:
0160: 20B1 C6 17          DEC   CTR
0170: 20B3 D0 08          BNE   NOTON IF ONLY
0180: 20B5 A5 1A          LDA   LOPAR 1 INPUT--
0190: 20B7 85 1B          STA   LOPAR +01 BOTH SAME
0200: 20B9 A5 1D          LDA   HIPAR  DUPLICATE
0210: 20BB 85 1E          STA   HIPAR +01
0220: 20BD AD 00 01       NOTON LDA  BUFFER
0230: 20C0 C9 41          CMPIM 'A
0240: 20C2 D0 2C          BNE   NOTA
0250:
0260:           ***[ADD]***
0270:
0280: 20C4 20 96 24          JSR   FMDND FIND EOF
0290: 20C7 20 E6 23          JSR   DECBUF ADJUST IT
0300: 20CA 20 E6 23          JSR   DECBUF
0310: 20CD 20 E6 23          JSR   DECBUF
0320:
0330: 20D0 A9 0D           LDAIM $0D  CHANGE EOF
0340: 20D2 A0 00           LDYIM $00  TO CR
0350: 20D4 91 10           STAY  BLO
0360:
0370: 20D6 20 E7 2D          JSR   CRLF
0380: 20D9 20 88 24       NXTAD JSR   PRNN  GET INPUT
0390: 20DC 20 28 24          JSR   STORN SAVE N
0400: 20DF 20 76 24          JSR   LINE  AND DATA
0410: 20E2 C9 40           CMPIM EOF
0420: 20E4 E0 05           BEQ   ENDAD
0430: 20E6 20 3F 24          JSR   NADJ  N=N+10
0440: 20E9 90 EE           RCC   NXTAD
0450: 20EB 20 2F 24       ENDAD JSR   STOP

```

```

0460: 20EE F0 07          BEQ  RSTRTB
0470:
0480: 20FG C9 4C          NOTA CMPIM 'L
0490: 20F2 D0 06          BNE  NOTL
0500:
0510:                    ***[LIST]***
0520:
0530: 20F4 20 67 23        LSFN JSR  LIST
0540: 20F7 4C 31 20        RSTRTB JMP  RESTRT
0550:
0560: 20FA C9 49          NOTL  CMPIM 'I
0570: 20FC D0 52          BNE  NOTI
0580:
0590:                    ***[INSERT]***
0600:
0610: 20FE 20 4F 24          JSR  FNDLN  FIND LINE N
0620: 2101 F8              SED
0630: 2102 A5 15          LDA  NLO
0640: 2104 38              SEC
0650: 2105 E9 10          SBCIM $10  N=N-10
0660: 2107 85 15          STA  NLO
0670: 2109 A5 16          LDA  NHI
0680: 210B E9 00          SBCIM $00
0690: 210D 85 16          STA  NHI
0700:
0710: 210F A9 01          AGN  LDAIM $01
0720: 2111 20 41 24        JSR  NADJA  N=N+1
0730: 2114 A5 15          LDA  NLO
0740: 2116 C5 1A          CMP  LOPAR
0750: 2118 D0 01          BNE  INSRX
0760: 211A 00              BRK  ****<1C> INSERTION OVFLW
ID=E4

0010: 211B 20 88 24        INSRX JSR  PRNN  PROMPT & INPUT
0020:
0030: 211E A5 15          LDA  NLO
0040: 2120 48              PHA
0050: 2121 A5 16          LDA  NHI
0060: 2123 48              PHA  CREATE
0070: 2124 20 B2 24        JSR  SPACE  SPACE
0080: 2127 68              PLA  FOR NEW
0090: 2128 85 16          STA  NHI  LINE
0100: 212A 68              PLA
0110: 212B 85 15          STA  NLO
0120:
0130: 212D 20 28 24        JSR  STORN  STORE
0140: 2130 20 76 24        JSR  LINE  NEW LINE
0150: 2133 C9 40          CMPIM EOF
0160: 2135 D0 D8          BNE  AGN
0170:
0180: 2137 A9 20          LDAIM '
0190: 2139 20 2F 24        JSR  STORE
0200: 213C A9 0D          LDAIM $0D
0210: 213E 20 2F 24        JSR  STORE
0220:
0230: 2141 A5 15          LDA  NLO
0240: 2143 85 1A          STA  LOPAR  DE .TE
0250: 2145 85 1B          STA  LOPAR  LAST LINE

```

```

0260: 2147 A5 16          LDA  NHI  ENTERED
0270: 2149 85 1D          STA  HIPAR
0280: 214B 85 1E          STA  HIPAR  +01
0290: 214D 4C 71 21      JMP  DELFN
0300:
0310: 2150 C9 4E          NOTI  CMPIM 'N
0320: 2152 D0 19          BNE  NOTN
0330:
0340:                    ***[NUMBER]***
0350:
0360: 2154 20 F4 23          JSR  RESB
0370: 2157 20 FB 24  NUMB JSR  LOAD  CHECK
0380: 215A 30 18            BMI  ENDN  FOR END
0390: 215C C9 40            CMPIM EOF
0400: 215E F0 14            BEQ  ENDN
0410: 2160 C9 0D            CMPIM $0D
0420: 2162 D0 F3          BNE  NUMB  STORE
0430: 2164 20 3F 24          JSR  NADJ  N,N+10,...
0440: 2167 20 28 24          JSR  STORN
0450: 216A 4C 57 21          JMP  NUMB
0460:
0470: 216D C9 44          NOTN  CMPIM 'D
0480: 216F D0 06          BNE  NOTD
0490:
0500:                    ***[DELETE]***
0510:
0520: 2171 20 A0 23  DELFN JSR  DELETE
0530: 2174 4C 31 20  ENDN  JMP  RESTRT
0540:
0550: 2177 C9 43          NOTD  CMPIM 'C
0560: 2179 D0 03          BNE  NOTC
0570:
0580:                    ***[CLEAR]***
0590:
0600: 217B 4C 00 20          JMP  EDITOR
0610:
0620: 217E C9 46          NOTC  CMPIM 'F
0630: 2180 D0 09          BNE  NOTF
0640:
0650:                    ***[FIX]***
0660:
0670: 2182 20 67 23          JSR  LIST
0680: 2185 20 A0 23          JSR  DELETE
0690: 2188 4C 1B 21          JMP  INSRX
0700:
0710: 218B C9 57          NOTF  CMPIM 'W
0720: 218D D0 0D          BNE  NOTW
0730:
0740:                    ***[WHERE]***
0750:
0760: 218F 20 4F 24          JSR  FNDLN  FIND N
0770: 2192 A5 11          WOUT LDA  BHI
0780: 2194 A6 10          LDX  BLO  PRINT ADDRESS
0790: 2196 20 EB 2D          JSR  HEXSP
0800: 2198 4C F4 20          JMP  LSFN  LIST N
ID=E5
0010:

```

```

0020: 219C C9 53      NOTW  CMPIM 'S
0030: 219E D0 5B      BNE  NOTS
0040:
0050:                ***[SAVE]***
0060:
0070: 21A0 20 A6 21      JSR  SAVEX
0080: 21A3 4C 31 20      JMP  RESTRT
0090:
0100: 21A6 A6 17      SAVEX LDX  CTR    ADDRESS
0110: 21A8 E0 02      CPXIM $02   GIVEN?
0120: 21AA F0 18      BEQ  SAVA
0130:
0140: 21AC 20 96 24     SAVEY JSR  FNDND
0150: 21AF A9 00      LDAIM $00   SET UP
0160: 21B1 85 1B      STA  LOPAR  +01  PARAMETERS
0170: 21B3 AD A4 2E     LDA  SOURCE  FROM
0180: 21B6 85 1E      STA  HIPAR  +01  WORKSPACE
0190: 21B8 A5 10      LDA  BLO    DEFINITION
0200: 21BA 69 06      ADCIM $06
0210: 21BC 85 1C      STA  LOPAR  +02
0220: 21BE A5 11      LDA  BHI
0230: 21C0 69 00      ADCIM $00
0240: 21C2 85 1F      STA  HIPAR  +02
0250:
0260: 21C4 A5 1B      SAVA  LDA  LOPAR  +01
0270: 21C6 8D F5 17     STA  SAL    SET UP
0280: 21C9 A5 1C      LDA  LOPAR  +02  SAVE
0290: 21CB 8D F7 17     STA  EAL    PARAMETERS
0300: 21CE A5 1E      LDA  HIPAR  +01
0310: 21D0 8D F6 17     STA  SAH
0320: 21D3 A5 1F      LDA  HIPAR  +02
0330: 21D5 8D F8 17     STA  EAH
0340: 21D8 A5 1E      LDA  HIPAR  +01
0350: 21DA A6 1B      LDX  LOPAR  +01  PRINT
0360: 21DC 20 EB 2D     JSR  HEXSP  ADDRESSES
0370: 21DF A5 1F      LDA  HIPAR  +02
0380: 21E1 A6 1C      LDX  LOPAR  +02
0390: 21E3 20 EB 2D     JSR  HEXSP
0400:
0410: 21E6 C6 62      DEC  ID
0420: 21E8 A5 1A      LDA  LOPAR  SAME ID
0430: 21EA F0 02      BEQ  WRITEA AS READ
0440: 21EC 85 62      STA  ID
0450:
0460: 21EE AD F5 17     WRITEA LDA  SAL
0470: 21F1 85 60      STA  SALX  CALL CWRITE
0480: 21F3 AD F6 17     LDA  SAH
0490: 21F6 85 61      STA  SAHX
0500: 21F8 4C 9A 2E     JMP  WRITE
ID=E6

0020:
0030: 21FB C9 4D      NOTS  CMPIM 'M
0040: 21FD F0 03      BEQ  MOVE
0050: 21FF 4C A4 22     JMP  NOTM
0060:
0070:                ***[MOVE]***
0080:

```



```

0090: 2202 A5 1A      MOVE  LDA  LOPAR
0100: 2204 85 18      STA  LO    FIND
0110: 2206 A5 1D      LDA  HIPAR 'TO'
0120: 2208 85 19      STA  HI    LINE
0130: 220A 20 4F 24   JSR  FNDLN
0140:
0150: 220D D0 15      BNE  ERRM
0160: 220F A5 1B      LDA  LOPAR +01
0170: 2211 85 1A      STA  LOPAR
0180: 2213 A5 1E      LDA  HIPAR +01
0190: 2215 85 1D      STA  HIPAR
0200:
0210: 2217 A5 10      REMOVA LDA  BLO  SAVE
0220: 2219 85 12      STA  OBLO 'TO'
0230: 221B A5 11      LDA  BHI  ADDRESS
0240: 221D 85 13      STA  OBHI
0250:
0260: 221F 20 4F 24   JSR  FNDLN  FIND 'FROM' LINE
0270:
0280: 2222 F0 01      BEQ  OKLN
0290: 2224 00      ERRM  BRK  *****<26> ILLEGAL LINE
0300:
0310: 2225 A5 15      OKLN  LDA  NLO
0320: 2227 C5 1A      CMP  LOPAR  CORRECT
0330: 2229 D0 28      BNE  NXTL  LINE?
0340: 222B A5 16      LDA  NHI
0350: 222D C5 1D      CMP  HIPAR
0360: 222F D0 22      BNE  NXTL
0370:
0380: 2231 20 0D 25   JSR  INCBUF  LOAD
0390: 2234 20 0D 25   JSR  INCBUF  BUFFER
0400: 2237 20 DE 24   JSR  BUFOUT
0410:
0420: 223A 8A      TXA
0430: 223B A8      TAY
0440: 223C 88      DEY
0450: 223D A5 12   LDA  OBLO
0460: 223F 85 10   STA  BLO  CREATE
0470: 2241 A5 13   LDA  OBHI  SPACE
0480: 2243 85 11   STA  BHI  FOR
0490: 2245 20 B2 24 JSR  SPACE  LINE
0500:
0510: 2248 A9 00      LDAIM $00
0520: 224A 20 2F 24   JSR  STORE  INSERT
0530: 224D 20 2F 24   JSR  STORE  LINE
0540: 2250 20 76 24   JSR  LINE
0550:
0560: 2253 A6 17      NXTL  LDX  CTR
0570: 2255 E0 02      CPXIM $02  SINGLE LINE?
0580: 2257 D0 19      BNE  DUN
0590:
0600: 2259 A9 01      LDAIM $01
0610: 225B 18      CLC
0620: 225C F8      SED
0630: 225D 65 1A      ADC  LOPAR
0640: 225F 85 1A      STA  LOPAR  RESET

```

```

0650: 2261 A5 1D          LDA  HIPAR  TO
0660: 2263 69 00          ADCIM $GG  SEARCH
0670: 2265 85 1D          STA  HIPAR  FOR
0680: 2267 D8             CLD                NEXT
0690: 2268 A5 1C          LDA  LOPAR  +02 LINE
0700: 226A C5 1A          CMP  LOPAR
0710: 226C A5 1F          LDA  HIPAR  +02
0720: 226E E5 1D          SBC  HIPAR
0730: 2270 B0 18          BCS  REMOVE
0740:
0750: 2272 A2 FB          DUN  LDXIM $FR
0760: 2274 B5 20          SHFT LDAZX HIPAR  +03 SHIFT
0770: 2276 95 1F          STAZX HIPAR  +02 COMMAND
0780: 2278 E8             INX                PARAMETERS
0790: 2279 D0 F9          BNE  SHFT          TO
0800: 227B C6 17          DEC  CTR          DELETE
0810: 227D D0 08          BNE  TWO          OLD BLOCK
0820: 227F A5 1A          LDA  LOPAR
0830: 2281 85 1B          STA  LOPAR  +01
0840: 2283 A5 1D          LDA  HIPAR
0850: 2285 85 1E          STA  HIPAR  +01
0860: 2287 4C 71 21 TWO  JMP  DELFN
0870:
0880: 228A A5 1A          REMOVE LDA  LOPAR
0890: 228C 48             PHA
0900: 228D A5 1D          LDA  HIPAR
0910: 228F 48             PHA                GET
0920: 2290 A5 18          LDA  LO          BACK
0930: 2292 85 1A          STA  LOPAR  'TO'
0940: 2294 A5 19          LDA  HI          LINE
0950: 2296 85 1D          STA  HIPAR
0950: 2298 20 4F 24          JSR  FNDLN
0970: 229B 68             PLA
0980: 229C 85 1D          STA  HIPAR
0990: 229E 68             PLA
1000: 229F 85 1A          STA  LOPAR
1010: 22A1 4C 17 22          JMP  REMOVA START OVER
1020:
ID=E7

0010:
0020: 22A4 C9 58          NOTM  CMPIM 'X
0030: 22A6 D0 10          BNE  NOTX
0040:
0050:                ***[EXECUTE]***
0060:
0070: 22A8 A5 1D          LDA  HIPAR
0080: 22AA 05 1A          ORA  LOPAR
0090: 22AC D0 03          BNE  GETADS
0100: 22AE 4C F8 25          JMP  ASMBLR ASSEMBLE
0110:
0120: 22B1 A5 1D          GETADS LDA  HIPAR
0130: 22B3 85 1B          STA  LOPAR  +01
0140: 22B5 6C 1A 00          JMI  LOPAR  EXECUTE
0150:
0160: 22B8 C9 50          NOTX  CMPIM 'P
0170: 22BA D0 0C          BNE  NOTP
0180:

```

```

0190:                                     ***[PAGE MODE]***
0200:
0210: 22BC A5 63                          LDA   PMODE
0220: 22BE 49 FF                          EORIM $FF   RESET
0230: 22C0 85 63                          STA   PMODE   MODE
0240: 22C2 A9 F0                          LDAIM $F0   AND
0250: 22C4 85 64                          STA   COUNTL   COUNTER
0260: 22C6 D0 26                          BNE   RSTRTA
0270:
0280: 22C8 C9 47      NOTP   CMPIM 'G
0290: 22CA D0 11      BNE   NOTG
0300:
0310:                                     ***[GET FILE]***
0320:
0330: 22CC A5 1A                          LDA   LOPAR
0340: 22CE 85 62                          STA   ID
0350: 22D0 20 97 2E  GETRD JSR   READ   CREAD
0360:
0370: 22D3 E6 62                          INC   ID
0380: 22D5 A5 1B                          LDA   LOPAR   +01 MORE FILES?
0390: 22D7 C5 62                          CMP   ID
0400: 22D9 B0 F5                          BCS  GETRD
0410: 22DB 90 11                          BCC  RSTRTA
0420:
0430: 22DD C9 45      NOTG   CMPIM 'E
0440: 22DF D0 10      BNE   NOTE
0450:
0460:                                     ***[END]***
0470:
0480: 22E1 20 96 24                          JSR   FNDND
0490: 22E4 A5 11                          LDA   BHI   PRINT
0500: 22E6 A6 10                          LDX  BLO   ADDRESS
0510: 22E8 20 EB 2D                          JSR  HEXSP & N
0520: 22EB 20 C5 2D                          JSR  NOUT
0530: 22EE 4C 31 20  RSTRTA JMP  RESTRT
0540:
0550: 22F1 C9 5A      NOTE   CMPIM 'Z
0560: 22F3 D0 36      BNE   NOTZ
0570:
0580:                                     ***[DISASSEMBLER]***
0590:
0600: 22F5 A6 17                          LDX  CTR
0610: 22F7 D0 06                          BNE  TWIN   (2 PARS)
0620:
0630: 22F9 A5 1A                          LDA  LOPAR
0640: 22FB 05 1D                          ORA  HIPAR
0650: 22FD F0 08                          BEQ  CONT   (0 PARS)
0660:
0670: 22FF A5 1A      TWIN   LDA  LOPAR
0680: 2301 85 3D      STA  PCLO   SET PC
0690: 2303 A5 1D      LDA  HIPAR
0700: 2305 85 3E      STA  PCHT
0710:
0720: 2307 A9 F0      CONT   LDAIM $F0
0730: 2309 85 18      STA  LO
0740: 230B 20 7A 2C  TWX   JSR  DSMBLR

```

```

0750: 230E A6 17          LDX   CTR
0760: 2310 D0 0D          BNE   CHK      END
0770: 2312 E6 18          INC   LO       OF
0780: 2314 30 F5          BMI   TWX      PAGE?
0790: 2316 20 2B 2E      JSR   INCH
0800: 2319 C9 0D          CMPIM $0D
0810: 231B D0 EA          BNE   CONT
0820:
0830: 231D F0 CF          RSTRTC BEQ   RSTRTA
0840: 231F A5 3D          CHK   LDA   PCLO
0850: 2321 C5 1B          CMP   LOPAR   +01
0860: 2323 A5 3E          LDA   PCHI   END
0870: 2325 E5 1E          SBC   HIPAR  +01 ADDRESS?
0880: 2327 90 E2          BCC   TWX
0890: 2329 B0 C3          BCS   RSTRTA
0900:
0910: 232B C9 54          NOTZ  CMPIM 'T
0920: 232D D0 03          BNE   NOTT
0930:
0940:          ***[TABLE]***
0950:
0960: 232F 4C 14 25          JMP   TABLE
0970:
0980: 2332 C9 52          NOTT  CMPIM 'R
0990: 2334 D0 18          BNE   NOTR
1000:
1010:          ***[REPRODUCE]***
1020:
1030: 2336 A5 1B          LDA   LOPAR  +01
1040: 2338 85 27          STA   SAVID
1050: 233A A5 1A          RDTWO LDA   LOPAR
1060: 233C 85 62          STA   ID     ID=LOPAR
1070: 233E 20 97 2E      JSR   READ   COPY
1080: 2341 20 AC 21      JSR   SAVEY  FILE
1090:
1100: 2344 E6 1A          INC   LOPAR
1110: 2346 A5 27          LDA   SAVID  LAST ID?
1120: 2348 C5 1A          CMP   LOPAR
1130: 234A B0 EE          BCS   RDTWO
1140: 234C 90 A0          BCC   RSTRTA
1150:
1160: 234E C9 42          NOTR  CMPIM 'B
1170: 2350 D0 14          BNE   NOTB
1180:
1190:          ***[BLOCKMOVE]***
1200:
1210: 2352 A4 1C          LDY   LOPAR  +02
1220: 2354 A6 1B          LDX   LOPAR  +01 REARRANGE
1230: 2356 A5 1D          LDA   HIPAR  PARAMETERS
1240: 2358 86 1D          STX   HIPAR
1250: 235A 85 1B          STA   LOPAR  +01
1260: 235C 88          JLP   DEY
1270: 235E B1 1A          LDAIY LOPAR  MOVE
1280: 2360 91 1D          STAIY HIPAR  BLOCK
1290: 2362 98          TYA
1300: 2364 D0 F8          BNE   JLP

```

1310: 2364 F0 B7 BEQ RSTRTC
 1320:
 1330: 2366 00 NOTB BRK *****<6R> COMMAND ERROR
 1340:
 ID=E8

0010: *****
 0020: ***EDITOR SUBROUTINES***
 0030: *****
 0040:
 0050:

0060: LIST 1 OR MORE LINES
 0070: GIVEN BY LOPAR,HIPAR
 0080:

0090: 2367 20 4F 24 LIST JSR FNDLN
 0100: 236A A5 1D LDA HIPAR
 0110: 236C 05 1A ORA LOPAR ARGUMENT?
 0120: 236E D0 06 BNE PARAMS
 0130:
 0140: 2370 A9 99 LDAIM \$99
 0150: 2372 85 1E STA HIPAR +01 LIST ALL
 0160: 2374 85 1B STA LOPAR +01
 0170:
 0180: 2376 20 FB 24 PARAMS JSR LOAD
 0190: 2379 85 16 STA NHI GET N
 0200: 237B 20 FB 24 JSR LOAD
 0210: 237E 85 15 STA NLO
 0220:
 0230: 2380 A5 1B LDA LOPAR +01
 0240: 2382 C5 15 CMP NLO ALL DONE?
 0250: 2384 A5 1E LDA HIPAR +01
 0260: 2386 E5 16 SBC NHI
 0270: 2388 90 15 BCC RETL
 0280:
 0290: 238A 20 C5 2D PRINT JSR NOUT PRINT N
 0300: 238D A9 3A LDAIM ': :
 0310: 238F 20 F0 2D JSR OUTCH
 0320: 2392 20 EE 2D JSR OUTSP SPACE
 0330: 2395 20 DE 24 JSR BUFOUT FILL BUFFER
 0340: 2398 48 PHA
 0350: 2399 20 84 2E JSR PRBUF PRINT BUFFER
 0360: 239C 68 PLA
 0370: 239D 10 D7 BPL PARAMS
 0380: 239F 60 RETL RTS
 0390:
 0400: DELETE ROUTINE
 0410:
 0420: 23A0 20 4F 24 DELETE JSR FNDLN FIND LINE N
 0430: 23A3 10 33 BPL ADL
 0440: 23A5 60 RTS
 0450:
 0460: 23A6 A0 02 DLN LDYIM \$02
 0470: 23A8 C8 GETY INY
 0480: 23A9 B1 10 LDAIY BLO COUNT
 0490: 23AB C9 0D CMPIM \$0D LINE
 0500: 23AD F0 05 BEQ CLOSE LENGTH
 0510: 23AF C9 40 CMPIM EOF
 0520: 23B1 D0 F5 BNE GETY

```

0530: 23B3 60          RTS
0540:
0550: 23B4 84 14      CLOSE STY LTH SAVE LENGTH
0560: 23B6 A5 10      LDA BLO AND
0570: 23B8 85 12      STA OBLO START ADDRESS
0580: 23BA A5 11      LDA BHI
0590: 23BC 85 13      STA OBHI
0600:
0610: 23BE A4 14      LOOP LDY LTH
0620: 23C0 B1 10      LDAIY BLO CLOSE
0630: 23C2 A0 00      LDYIM $00 LINE
0640: 23C4 91 10      STAIY BLO TO
0650: 23C6 20 0D 25    JSR INCBUF EOF
0660: 23C9 AD A5 2E    LDA SOURCEF
0670: 23CC C5 11      CMP BHI
0680: 23CE DC EE      BNE LOOP
0690:
0700: 23D0 A5 12      LDA OBLO
0710: 23D2 85 10      STA BLO RESTORE
0720: 23D4 A5 13      LDA OBHI ADDRESS
0730: 23D6 85 11      STA BHI
0740:
0750: 23D8 A0 02      ADL LDYIM $02
0760: 23DA A5 1B      LDA LOPAR +01
0770: 23DC D1 10      CMPIY BLO
0780: 23DE 88          DEY
0790: 23DF A5 1E      LDA HIPAR +01
0800: 23E1 F1 10      SBCIY BLO
0810: 23E3 B0 C1      BCS DLN
0820: 23E5 60      RETDEL RTS
0830:
0840:
ID=E9

010: DECREMENT POINTER
0020: BLO, BHI
0030:
0040: 23E6 A5 10      DECBUF LDA BLO
0050: 23E8 38          SEC 16 BIT
0060: 23E9 E9 01      SBCIM $01 SUBTRACT
0070: 23EB 85 10      STA BLO
0080: 23ED A5 11      LDA BHI
0090: 23EF E9 00      SBCIM $00
0100: 23F1 85 11      STA BHI
0110: 23F3 60          RTS
0120:
0130: RESET POINTER
0140: TO START OF WORKSPACE
0150: AND N TO 0000
0160:
0170: 23F4 A9 FF      RESB LDAIM $FF
0180: 23F6 85 10      STA BLO
0190: 23F8 AD A3 2E    LDA SOURCEM
0200: 23FB 85 11      STA BHI
0210: 23FD A9 00      LDAIM $00
0220: 23FF 85 15      STA NLO
0230: 2401 85 16      STA NHI
0240: 2403 60          RTS

```

```

0250:
0260:          PRINT ERROR MESSAGE
0270:
0280: 2404 68          ERROR PLA          GET LO
0290: 2405 68          PLA          RET ADDRESS
0300: 2406 20 0C 24    JSR    ERRPRT
0310: 2409 4C 31 20    JMP    RESTRT
0320:
0330: 240C 48          ERRPRT PHA
0340: 240D 20 E7 2D    JSR    CRLF
0350: 2410 A0 0A          LDYIM $0A    PRINT
0360: 2412 A9 2A    STAR LDAIM '*    *****<
0370: 2414 20 F0 2D    JSR    OUTCH
0380: 2417 88          DEY
0390: 2418 10 F8          BPL    STAR
0400: 241A A9 3C          LDAIM '<
0410: 241C 20 F0 2D    JSR    OUTCH
0420: 241F 68          PLA          ERROR # >
0430: 2420 20 CD 2D    JSR    HEXOUT
0440: 2423 A9 3E          LDAIM '>
0450: 2425 4C F0 2D    JMP    OUTCH
0460:
0470:          STORE NLO,NHI
0480:
0490: 2428 A5 16    STORN LDA    NHI
0500: 242A 20 2F 24    JSR    STORE
0510: 242D A5 15          LDA    NLO
0520:
0530:          STORE ONE BYTE
0540:          CHECK FOR OVFLOW
0550:
0560: 242F 20 0D 25    STORE JSR    INCBUF
0570: 2432 AC A5 2E          LDY    SOURCEF
0580: 2435 C4 11          CPY    BHI
0590: 2437 D0 01          BNE    OKS
0600: 2439 00          BRK          ****<3B> SOURCE OVFLW
0610:
0620: 243A A0 00    OKS  LDYIM $00
0630: 243C 91 10          STAIY BLO
0640: 243E 60          RTS
0650:
0660:          N=N+10
0670:
0680: 243F A9 10    NADJ LDAIM $10
0690: 2441 18    NADJA CLC
0700: 2442 F8          SED
0710: 2443 65 15          ADC    NLO    16 BIT
0720: 2445 85 15          STA    NLO    ADD
0730: 2447 A5 16          LDA    NHI
0740: 2449 69 00          ADCIM $00
0750: 244B 85 16          STA    NHI
0760: 244D D8          CLD
0770: 244E 60          RTS
0780:
0790:          FIND LINE # N
0800:

```

```

0810: 244F 20 F4 23 FNDLN JSR RESB RESET POINTER
0820:
0830: 2452 20 FB 24 LODE JSR LOAD LOOK
0840: 2455 30 1E BMI ENDF FOR
0850: 2457 C9 0D CMPIM $0D CR
0860: 2459 D0 F7 BNE LODE
0870:
0880: 245B 20 FB 24 JSR LOAD
0890: 245E 85 16 STA NHI GET N
0900: 2460 20 FB 24 JSR LOAD
0910: 2463 85 15 STA NLO
0920: 2465 C5 1A CMP LOPAR COMPARE
0930: 2467 A5 16 LDA NHI LOPAR,HIPAR
0940: 2469 E5 1D SBC HIPAR
0950: 246B 90 E5 BCC LODE
0960: 246D 20 E6 23 ENDO JSR DECBUF ADJUST
0970: 2470 20 E6 23 JSR DECBUF BLO,BHI
0980: 2473 A9 00 LDAIM $00
0990: 2475 60 ENDF RTS
1000:
1010: STORE BUFFER IN WORKSPACE
1020:
1030: 2476 A2 00 LINE LDXIM $00
1040: 2478 BD 00 01 STR LDAAX BUFFER
1050: 247B C9 40 CMPIM EOF
1060: 247D F0 08 BEQ ENDLN
1070: 247F 20 2F 24 JSR STORE
1080: 2482 E8 INX
1090: 2483 C9 0D CMPIM $0D END OF LINE
1100: 2485 D0 F1 BNE STR
1110: 2487 60 ENDLN RTS
1120:
1130: PROMPT "N:" AND INPUT TO BUFFER
1140:
1150: 2488 20 C5 2D PRNN JSR NOUT
1160: 248B A9 3A LDAIM ':
1170: 248D 20 F0 2D BUFX JSR OUTCH
1180: 2490 20 EE 2D JSR OUTSP
1190: 2493 4C 3F 2E JMP BUFIN
1200:
ID=EA

0010:
0010: FIND END OF FILE RECORD
0020:
0030:
0040: 2496 20 F4 23 FNDND JSR RESB
0050: 2499 20 FB 24 LD JSR LOAD
0060: 249C C9 40 CMPIM EOF LOOK
0070: 249E D0 01 BNE NOTEN FOR
0080: 24A0 60 RTS FIRST
0090: 24A1 C9 0D NOTEN CMPIM $0D EOF
0100: 24A3 D0 F4 BNE LD CHARACTER
0110: 24A5 20 FB 24 JSR LOAD
0120: 24A8 85 16 STA NHI
0130: 24AA 20 FB 24 JSR LOAD GET N
0140: 24AD 85 15 STA
0150: 24AF 4C 99 JMP

```



```

0160:
0170:          CREATE A SPACE
0180:          Y+3 CHARACTERS LONG
0190:          FROM BLO,BHI
0200:
0210:
0220: 24B2 C8          SPACE  INY
0230: 24B3 C8          INY          Y=Y+3
0240: 24B4 C8          INY
0250: 24B5 84 14      STY  LTH
0260: 24B7 A5 10      LDA  BLO
0270: 24B9 85 12      STA  OBLO  SAVE
0280: 24BB A5 11      LDA  BHI  BLO,BHI
0290: 24BD 85 13      STA  OBHI
0300: 24BF 20 96 24   JSR  FNDND
0310:
0320: 24C2 A0 00      SPACIT LDYIM $00
0330: 24C4 B1 10      LDAIY BLO
0340: 24C6 A4 14      LDY  LTH  MOVE BLOCK
0350: 24C8 91 10      STAIY BLO  UP LTH
0360: 24CA 20 E6 23   JSR  DECBUF  BYTES
0370: 24CD CD A3 2E   CMP  SOURCM
0380: 24D0 D0 01      BNE  NOERS
0390: 24D2 00          BRK          ****<D4> MOVING BELOW SOURCE!
0400:
0410: 24D3 C5 13      NOERS  CMP  OBHI
0420: 24D5 D0 EB      BNE  SPACIT
0430: 24D7 A5 10      LDA  BLO
0440: 24D9 C5 12      CMP  OBLO
0450: 24DB D0 E5      BNE  SPACIT
0460: 24DD 60          RTS
0470:
0480:          FILL BUFFER WITH CURRENT LINE
0490:
0500: 24DE A2 00      BUFOUT LDXIM $00
0510: 24E0 20 FB 24   LDX  JSR  LOAD
0520: 24E3 9D 00 01   STAAX BUFFER
0530: 24E6 E8          INX          LIMIT OF
0540: 24E7 E0 40      CPXIM $40    64 CHARACTERS
0550: 24E9 10 08      BPL  OVFLOW
0560:
0570: 24EB C9 0D      CMPIM $0D
0580: 24ED F0 0B      BEQ  ENDOT  END OF
0590: 24EF C9 40      CMPIM EOF   LINE
0600: 24F1 D0 ED      BNE  LDX
0610:
0620: 24F3 A9 0D      OVFLOW LDAIM $0D
0630: 24F5 9D 00 01   STAAX BUFFER
0640: 24F8 A9 FF      LDAIM $FF   RET N=1
0650: 24FA 60          ENDOT RTS    IF OVFLOW
0660:
0670:          LOAD A FROM WORKSPACE
0680:          CHECKING FOR EOF
0690:
0700: 24FB 20 0D 25   LOAD JSR  INCBUF
0710: 24FD AC A5 2E   LDY  SOURCF

```

```

0720: 2501 C4 11          CPY   BHI
0730: 2503 D0 03          BNE   NOEND
0740: 2505 A9 FF          LDAIM $FF      RET N=1 IF
0750: 2507 60              RTS           EOF REACHED
0760:
0770: 2508 A0 00          NOEND LDYIM $00
0780: 250A B1 10          LDAIY BLO
0790: 250C 60              RTS
0800:
0810:                      INCREMENT BLO, BHI
0820:
0830: 250D E6 10          INCBUF INC   BLO
0840: 250F D0 02          BNE   RETI
0850: 2511 E6 11          INC   BHI
0860: 2513 60          RETI   RTS
D=EB

0010:
0020:                      SYMBOL TABLE ROUTINE
0030:
0040: 2514 A0 4B          TABLE LDYIM $4B      PRINT
0050: 2516 20 A0 27        JSR   MESSY "SYMBOL TABLE"
0060: 2519 AD A6 2E        LDA   SYMBOL
0070: 251C A2 00          LDXIM $00
0080: 251E 20 EB 2D        JSR   HEXSP      START &
0090: 2521 A5 42          LDA   EHI        END ADDRESSES
0100: 2523 A6 41          LDX   ELO
0110: 2525 20 C9 2D        JSR   HEXAX
0120:
0130: 2528 A6 1A          LDX   LOPAR
0140: 252A E0 02          CPXIM $02
0150: 252C F0 73          BEQ   LONLY      (T2 COMMAND)
0160:
0170: 252E 30 0A          BMI   SORT
0180:
0190: 2530 A5 1B          LDA   LOPAR      +01
0200: 2532 85 41          STA   ELO        SET ELO, EHI
0210: 2534 A5 1E          LDA   HIPAR      +01
0220: 2536 85 42          STA   EHI
0230: 2538 D0 67          BNE   LONLY
0240:
0250:                      BUBBLE SORT ROUTINE
0260:
0270: 253A 20 E6 25        SORT   JSR   SETSY
0280: 253D A6 1A          LOOPT  LDX   LOPAR
0290: 253F D0 11          BNE   LOOPB
0300: 2541 A0 00          LDYIM $00
0310: 2543 B1 55          NEXTY LDAIY XLO        COMPARE
0320: 2545 D1 3F          CMPIY SLO        FOR
0330: 2547 90 16          BCC   MOVX       ALPHA
0340: 2549 D0 25          BNE   LESS       SORT
0350: 254B C8              INY
0360: 254C C0 04          CPYIM $04
0370: 254E D0 F3          BNE   NEXTY
0380: 2550 F0 1E          BEQ   LESS
0390:
0400: 2552 A0 04          LOOPB LDYIM $04
0410: 2554 B1 55          CMPIY XLO        COMPARE

```

```

0420: 2556 D1 3F          CMPIY SLO      FOR
0430: 2558 C8            INY           ADDRESS
0440: 2559 B1 55          LDAIY XLO     SORT
0450: 255B F1 3F          SBCIY SLO
0460: 255D B0 11          BCS          LESS
0470:
0480: 255F A0 05          MOVX  LDYIM $05
0490: 2561 B1 3F          MOVET LDAIY SLO
0500: 2563 48             PHA
0510: 2564 B1 55          LDAIY XLO     EXCHANGE
0520: 2566 91 3F          STAIY SLO     SYMBOLS
0530: 2568 68             PLA
0540: 2569 91 55          STAIY XLO
0550: 256B 88             DEY
0560: 256C 10 F3          BPL  MOVET
0570: 256E E6 54          INC  CNT
0580:
0590: 2570 20 C1 27      LESS JSR  DADS     S=S+6
0600: 2573 A2 16          LDXIM $16
0610: 2575 20 C3 27      JSR  DADX     X=X+6
0620: 2578 90 C3          BCC  LOOPT
0630:
0640: 257A A6 54          LDX  CNT     FINISHED?
0650: 257C D0 BC          BNE  SORT
0660:
0670: 257E A9 00          LDAIM $00
0680: 2580 20 E6 25      JSR  SETSY
0690: 2583 E6 54          PRNT INC  CNT  PRINT
0700: 2585 30 07          BMI  PRNTX   NEW
0710: 2587 20 E7 2D      JSR  CRLF    LINE
0720: 258A A9 FC          LDAIM $FC
0730: 258C 85 54          STA  CNT
0740:
0750: 258E 20 A4 25      PRNTX JSR  PRSYM
0760: 2591 A0 04          LDYIM $04    PRINT
0770: 2593 B1 3F          LDAIY SLO    SYMBOL
0780: 2595 AA            TAX          AND
0790: 2596 C8            INY          ADDRESS
0800: 2597 B1 3F          LDAIY SLO
0810: 2599 20 C9 2D      JSR  HEXAX
0820: 259C 20 C1 27      JSR  DADS
0830: 259F 90 E2          BCC  PRNT
0840:
0850: 25A1 4C 31 20      LONLY JMP  RESTRT
0860:
0870:          ROUTINE TO PRINT 4 SPACES
0880:          AND SYMBOL  ADDRESS
0890:
0900: 25A4 A0 04          PRSYM LDYIM $04
0910: 25A6 20 EE 2D      PRX  JSR  OUTSP
0920: 25A9 88            DEY
0930: 25AA D0 FA          BNE  PRX
0940:
0950:          ROUTINE TO PRINT SYMBOL
0960:
0970: 25AD A0 00          PRSYM LDYIM $00

```

EDITOR

SYMBOL	TABLE	3000	346E				
A	25BC	ADL	23D8	AGN	210F	ASMBLR	25F8
BACKSP	2DE3	BHI	0011	BLO	0010	BUFFER	0100
BUFIN	2E3F	BUFOUT	24DE	BUFX	248D	CHK	231F
CLEAR	201E	CLOSE	23B4	CNT	0054	COMMA	209D
CONT	2307	COUNTL	0064	CRLF	2DE7	CTR	0017
DADS	27C1	DADX	27C3	DECBUF	23E6	DELETE	23A0
DELFN	2171	DLW	23A6	DPSYM	25AC	DSMBLR	2C7A
DUN	2272	EAH	17F8	EAL	17F7	EDITOR	2000
EHI	0042	ELO	0041	ENDAD	20EB	ENDF	2475
ENDLN	2487	ENDN	2174	ENDO	246D	ENDOT	24FA
EOF	4040	ERRM	2224	ERROR	2404	ERRPRT	240C
ERR	209C	FNDLN	244F	FNDND	2496	GETADS	22B1
GETRD	22D0	GETY	23A8	GTA	205E	GTCLR	2057
HEXAX	2DC9	HEXOUT	2DCD	HEXSP	2DEB	HI	0019
HIPAR	001D	ID	0062	INCBUF	250D	INCCLR	2022
INCH	2E2B	INSRX	211B	JLP	235C	LABEL	0020
LD	2499	LDX	24E0	LESS	2570	LINE	2476
LIST	2367	LO	0018	LOAD	24FB	LODE	2452
LOD	25AE	LONLY	25A1	LOOP	23BE	LOOPB	2552
LOOP	253D	LOPAR	001A	LSFN	20F4	LTH	0014
MESSY	27A0	MOVE	2202	MOVET	2561	MOVX	255F
NADJ	243F	NADJA	2441	NEXTY	2543	NHI	0016
NLO	0015	NOEND	2508	NOERS	24D3	NOSP	25D5
NOTA	20F0	NOTB	2366	NOTC	217E	NOTD	2177
NOTE	22F1	NOTEN	24A1	NOTF	218B	NOTG	22DD
NOTI	2150	NOTL	20FA	NOTM	22A4	NOTN	216D
NOTON	20BD	NOTP	22C8	NOTR	234E	NOTS	21FB
NOTT	2332	NOTW	219C	NOTX	22B8	NOTZ	232B
NOUT	2DC5	NUMB	2157	NXTAD	20D9	NXTL	2253
NXT	2072	OBHI	0013	OBJECT	2EA8	OBLO	0012
OKLN	2225	OKS	243A	OUTCH	2DF0	OUTSP	2DEF
OVFLOW	24F3	PACKT	2E94	PARAMS	2376	PCHI	003E
PCLO	003D	PMODE	0063	PRBUF	2E84	PRINT	238A
PRNN	2488	PRNT	2583	PRNTX	258E	PRSYM	25A4
PRX	25A6	RDTWO	233A	READ	2E97	REGET	2069
REGETA	2068	REMOVA	2217	REMOVE	228A	RESB	23F4
RESTR	2031	RETDEL	23E5	RETI	2513	RETL	239F
ROTT	25BE	ROT	208B	RSTRTA	22EE	RSTRTB	20F7
RSTRTC	231D	SAHX	0061	SAH	17F6	SALX	0060
SAL	17F5	SAVA	21C4	SAVEX	21A6	SAVEY	21AC
SAVID	0027	SAVX	17E9	SETSY	25E6	SHFT	2274
SHI	0040	SLO	003F	SORT	253A	SOURCE	2EA4
SOURCF	2EA5	SOURCM	2EA3	SPACE	24B2	SPACIT	24C2
STAR	2412	STORE	242F	STORN	2428	STR	2478
SYMBOL	2EA6	SYMF	2EA7	TABLE	2514	TWIN	22FF
TWO	2287	TWX	230B	WOUT	2192	WRITE	2E9A
WRITEA	21EE	X	25E0	XHI	0056	XLO	0055
YSNO	2794						