```
LOCN B1 B2 B3
                    *
                    *                6800 DISASSEMBLER
                    *             COPYRIGHT (C) 1977 BY
                    *
                    *         TECHNICAL SYSTEMS CONSULTANTS
                    *         BOX 2574  W. LAFAYETTE IN  47906
                    *                  317-742-7509
                    *
                    *
                    *        THE TSC 6800 DISASSEMBLER IS A VERY
                    * POWERFUL TOOL FOR THOSE WHO WISH TO LEARN
                    * PROGRAMMING TECHNIQUES OR TO MODIFY EXIST-
                    * ING SOFTWARE FOR SPECIFIC APPLICATIONS.
                    * THIS PROGRAM WILL TRANSLATE MACHINE CODE
                    * INTO THE CORRESPONDING MNEMONICS, THE OUT-
                    * PUT BEING ALMOST IDENTICAL TO ORIGINAL
                    * SOURCE CODE (LABELS ARE THE EXCEPTION).
                    *        THE DISASSEMBLER PROMPTS THE USER FOR
                    * THE BEGINNING AND ENDING ADDRESSES OF THE
                    * CODE TO BE DISASSEMBLED (ALL 4 HEX DIGITS
                    * OF THE BOTH ADDRESSES MUST BE TYPED) AND
                    * THEN PROCEEDS TO DISPLAY THE ASSEMBLY CODE.
                    * UNIMPLEMENTED OPCODES ARE INDICATED BY
                    * '***' AND THE EQUIVALENT PRINTABLE ASCII
                    * CHARACTER (IF ANY) IS DISPLAYED.  ALL DATA
                    * AND ADDRESSES ARE DISPLAYED IN HEXADECIMAL
                    * WITH THE EXCEPTION OF THE INDEX AMOUNT
                    * (WITH INDEXED ADDRESSING), WHICH IS DEC-
                    * IMAL.
                    *        THE USER WILL NEED TO PATCH IN ADDRES-
                    * SES OF OUTPUT CHARACTER AND INPUT CHARACTER
                    * ROUTINES AT THE JUMP LINKAGES ($190C AND
                    * $190F, RESPECTIVELY) IF THE SYSTEM DOES NOT
                    * USE THE MIKBUG (MOTOROLA TRADEMARK) MONITOR
                    * SYSTEM.  ADDITIONALLY, THE USER WILL MODIFY
                    * THE STACK ADDRESS (INITIALIZED AT $1900)
                    * ACCORDING TO HIS SYSTEM.
                    *        THE STARTING ADDRESS OF THIS PROGRAM
                    * IS $1900.
                    *
                    *
                    *
                    *
                    * TEMPORARY STORAGE
                    *
                              ORG     $1F00
    1F00            ENDPTR  RMB     2
    1F02            XTEMP   RMB     2
    1F04            XTEMP2  RMB     2
    1F06            OBJPTR  RMB     2
    1F08            SRCPTR  RMB     2
    1F0A            MODFY   RMB     1
    1F0B            OPCNT   RMB     1
    1F0C            OP1     RMB     1
    1F0D            OP2     RMB     1
```

```
LOCN B1 B2 B3
1F0E                    OPND    RMB     7
                        *
                        *
                                ORG     $1900
1900 8E A0 7F   DISASM  LDS     #$A07F      *** SET STACK ***
1903 7E 19 9B           JMP     BEGIN       GO TO BEGINNING
                        *
1906 8D 02      OUT3S   BSR     OUTS
1908 8D 00      OUT2S   BSR     OUTS
190A 86 20      OUTS    LDA A   #'          GET A SPACE
                        *
                        * EXTERNAL LINKAGES
                        *
190C 7E E1 D1   OUTCH   JMP     $E1D1
190F 7E E1 AC   INCH    JMP     $E1AC
                        *
                        * INPUT A HEX CHARACTER
                        *    SUBROUTINES
                        *
1912 8D FB      INHEX   BSR     INCH        GET A CHAR
1914 80 47              SUB A   #'G
1916 2A E8              BPL     DISASM      ERROR
1918 8B 06              ADD A   #6
191A 2A 04              BPL     INH2        OK
191C 8B 07              ADD A   #7
191E 2A E0              BPL     DISASM      ERROR
1920 8B 0A      INH2    ADD A   #10         CORRECT
1922 2B DC              BMI     DISASM
1924 39                 RTS                 DONE
                        *
                        * INPUT 2 HEX CHARACTERS
1925 8D EB      INBYTE  BSR     INHEX       GET HEX
1927 48                 ASL A
1928 48                 ASL A
1929 48                 ASL A
192A 48                 ASL A               MOVE TO TOP
192B 16                 TAB                 SAVE
192C 8D E4              BSR     INHEX       GET NEXT
192E 1B                 ABA                 MERGE
192F 39                 RTS
                        *
                        * INPUT 4 HEX CHARACTERS
1930 8D F3      IN4H    BSR     INBYTE      GET A BYTE
1932 B7 1F 00           STA A   ENDPTR      SAVE
1935 8D EE              BSR     INBYTE      GET ANOTHER
1937 B7 1F 01           STA A   ENDPTR+1
193A FE 1F 00           LDX     ENDPTR      GET RESULT
193D 39                 RTS
                        *
                        *
                        * CONVERT LEFT HEX DIGIT TO ASCII
193E 44         HEXL    LSR A
193F 44                 LSR A
1940 44                 LSR A
1941 44                 LSR A               SHIFT TO BOTTOM
```

```
LOCN B1 B2 B3
                    * CONVERT RIGHT HEX DIGIT TO ASCII
1942 84 0F    HEXR    AND A  #$F        MASK DOWN
1944 8B 90            ADD A  #$90
1946 19              DAA
1947 89 40           ADC A  #$40
1949 19              DAA
194A 39              RTS               CONVERT TO HEX
              *
              * CONVERT BYTE TO 2 ASCII CHARS IN X
194B 36       CONV    PSH A
194C 8D F0            BSR    HEXL       GO CONVERT HIGH
194E B7 1F 04         STA A  XTEMP2     SAVE
1951 32              PUL A
1952 8D EE            BSR    HEXR       GO CONVERT LOW
1954 B7 1F 05         STA A  XTEMP2+1
1957 FE 1F 04         LDX    XTEMP2     GET RESULT
195A 39              RTS               DONE
              *
              * PRINT A BYTE AS 2 ASCII CHARS
195B A6 00    OUT2H   LDA A  0,X        GET BYTE
195D 8D DF            BSR    HEXL       CONVERT
195F 8D AB            BSR    OUTCH      PRINT IT
1961 A6 00            LDA A  0,X        GET AGAIN
1963 8D DD            BSR    HEXR       CONVERT
1965 20 A5            BRA    OUTCH      GO PRINT IT
              *
1967 8D F2    OUT2HS  BSR    OUT2H      GO PRINT 2
1969 20 9F            BRA    OUTS       AND A SPACE
              *
196B 8D 9F    P2      BSR    OUTCH      PRINT CHAR
196D 08              INX
196E A6 00    PDATA   LDA A  0,X        GET CHAR
1970 81 04            CMP A  #4         CHECK FOR EOT
1972 26 F7            BNE    P2         IF NOT PRINT IT
1974 39              RTS               DONE
              *
1975 CE 19 7A PCRLF   LDX    #CRLF      GET CRLF
1978 20 F4            BRA    PDATA      GO PRINT IT
              *
197A 0D       CRLF    FCB    $D,$A,0,0,0,0,4
197B 0A
197C 00
197D 00
197E 00
197F 00
1980 04
1981 20       ENDSTR  FCC    '  END ADDR? '
1982 20
1983 45
1984 4E
1985 44
1986 20
1987 41
1988 44
1989 44
```

```
LOCN B1 B2 B3
198A 52
198B 3F
198C 20
198D 04                         FCB       4
198E 42             BEG         FCC       'BEGIN ADDR? '
198F 45
1990 47
1991 49
1992 4E
1993 20
1994 41
1995 44
1996 44
1997 52
1998 3F
1999 20
199A 04                         FCB       4
                    *
                    *   MAIN PROGRAM
                    *
199B 8D D8          BEGIN       BSR       PCRLF       GO DO CR LF
199D 8D D6                      BSR       PCRLF       AGAIN
199F CE 19 8E                   LDX       #BEG
19A2 8D CA                      BSR       PDATA       GO PROMPT
19A4 8D 8A                      BSR       IN4H        GET ADDRESS
19A6 FF 1F 06                   STX       OBJPTR      SAVE
19A9 8D CA                      BSR       PCRLF
19AB 08                         INX
19AC 8D C0                      BSR       PDATA       GO PROMPT AGAIN
19AE BD 19 30                   JSR       IN4H        GET END ADDRESS
19B1 CE 1B F9       DISLOOP     LDX       #OPTBL
19B4 FF 1F 02                   STX       XTEMP       PREPARE
19B7 CE 19 7A                   LDX       #CRLF
19BA 8D B2                      BSR       PDATA       GO PRINT CR LF
19BC C6 07                      LDA B     #7
19BE CE 1F 0E                   LDX       #OPND       POINT TO STORE
19C1 86 04                      LDA A     #4          SET EOT
19C3 A7 00          DISLO1      STA A     0,X         SET IT ALSO
19C5 08                         INX                   ADVANCE PTR
19C6 5A                         DEC B                 COUNT OFF
19C7 26 FA                      BNE       DISLO1
19C9 86 20                      LDA A     #'          GET A SPACE
19CB B7 1F 0A                   STA A     MODFY       SET MODIFIER
19CE 86 01                      LDA A     #1
19D0 B7 1F 0B                   STA A     OPCNT       SET ONE BYTE
19D3 CE 1F 06                   LDX       #OBJPTR     GET POINTER
19D6 8D 83                      BSR       OUT2H       PRINT 2
19D8 08                         INX
19D9 8D 8C                      BSR       OUT2HS      PRINT 2 AND SPACE
19DB FE 1F 06                   LDX       OBJPTR      POINT TO OBJECT
19DE A6 01                      LDA A     1,X
19E0 B7 1F 0C                   STA A     OP1
19E3 A6 02                      LDA A     2,X
19E5 B7 1F 0D                   STA A     OP2         SET OTHER BYTES
19E8 A6 00                      LDA A     0,X         GET OPCODE
```

```
LOCN B1 B2 B3
19EA 36                        PSH A
19EB 5F                        CLR B
19EC 48                        ASL A
19ED 59                        ROL B              TIMES 2
19EE AB 00                     ADD A  0,X
19F0 C9 00                     ADC B  #0          TIMES 3
19F2 BB 1F 03                  ADD A  XTEMP+1
19F5 F9 1F 02                  ADC B  XTEMP       ADD TO ADDRESS
19F8 B7 1F 03                  STA A  XTEMP+1
19FB F7 1F 02                  STA B  XTEMP       SET TABLE LOCN
19FE FE 1F 02                  LDX    XTEMP       GET ADDRESS
1A01 E6 00                     LDA B  0,X         GET FIRST CHAR
1A03 32                        PUL A              GET OPCODE AGAIN
1A04 C1 2A                     CMP B  #'*         CHECK FOR UNDEFINED
1A06 26 0D                     BNE    DISAS3
1A08 81 20                     CMP A  #'          CHECK FOR SPACE
1A0A 25 27                     BCS    UNRAV2      IF < SP, DON'T PRINT
1A0C 81 5F                     CMP A  #$5F
1A0E 22 23                     BHI    UNRAV2      IF > _ , DON'T PRINT
1A10 B7 1F 0E                  STA A  OPND        SET CHAR
1A13 20 1E                     BRA    UNRAV2      GO UNRAVEL
1A15 16           DISAS3       TAB                SAVE OPCODE
1A16 C4 F0                     AND B  #$F0        MASK
1A18 54                        LSR B
1A19 54                        LSR B
1A1A 54                        LSR B              SHIFT IT
1A1B CE 1A 94                  LDX    #JMPTBL     POINT TO TABLE
1A1E FF 1F 04                  STX    XTEMP2
1A21 FB 1F 05                  ADD B  XTEMP2+1
1A24 F7 1F 05                  STA B  XTEMP2+1
1A27 24 03                     BCC    UNRAV1
1A29 7C 1F 04                  INC    XTEMP2
1A2C FE 1F 04     UNRAV1       LDX    XTEMP2      GET ADDRESS
1A2F EE 00                     LDX    0,X         GET TARGET ADDRESS
1A31 AD 00                     JSR    0,X         GO SERVICE
1A33 F6 1F 0B     UNRAV2       LDA B  OPCNT       GET BYTE COUNT
1A36 FE 1F 06                  LDX    OBJPTR      GET POINTER
1A39 BD 19 67                  JSR    OUT2HS      PRINT OPCODE
1A3C 08                        INX
1A3D 5A                        DEC B              COUNT OFF
1A3E 27 0D                     BEQ    OPS2
1A40 BD 19 5B                  JSR    OUT2H       PRINT NEXT BYTE
1A43 08                        INX
1A44 5A                        DEC B              COUNT OFF
1A45 27 09                     BEQ    OPS1
1A47 BD 19 5B                  JSR    OUT2H       PRINT LAST BYTE
1A4A 08                        INX
1A4B 20 06                     BRA    OPS3
1A4D BD 19 08     OPS2         JSR    OUT2S
1A50 BD 19 08     OPS1         JSR    OUT2S
1A53 FF 1F 06     OPS3         STX    OBJPTR      SAVE NEXT POINTER
1A56 BD 19 06                  JSR    OUT3S
1A59 BD 19 06                  JSR    OUT3S       MAKE ROOM FOR LABEL
1A5C FE 1F 02                  LDX    XTEMP       GET MNEMONIC PTR
1A5F C6 03                     LDA B  #3          SET FOR 3 LETTERS
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```
LOCN B1 B2 B3
1A61 A6 00       MNEMON   LDA A  0,X       GET CHAR
1A63 BD 19 0C             JSR    OUTCH      PRINT IT
1A66 08                   INX
1A67 5A                   DEC B             COUNT OFF
1A68 26 F7                BNE    MNEMON
1A6A BD 19 0A             JSR    OUTS       PRINT SPACE
1A6D B6 1F 0A             LDA A  MODFY      GET MODIFIER
1A70 BD 19 0C             JSR    OUTCH      PRINT IT
1A73 BD 19 08             JSR    OUT2S      PRINT 2 SPACES
1A76 CE 1F 0E             LDX    #OPND      GET OPERAND PTR
1A79 BD 19 6E             JSR    PDATA      GO PRINT IT
1A7C B6 1F 06             LDA A  OBJPTR     GET POINTER (MS)
1A7F B1 1F 00             CMP A  ENDPTR     CHECK END
1A82 22 0A                BHI    DONE       CHECK DONE
1A84 25 0B                BCS    NDONE      CHECK DONE
1A86 B6 1F 07             LDA A  OBJPTR+1   GET PTR (LS)
1A89 B1 1F 01             CMP A  ENDPTR+1
1A8C 23 03                BLS    NDONE      IF NOT DONE, DO AGAIN
1A8E 7E 19 00   DONE      JMP    DISASM     RETURN TO BEGINNING
1A91 7E 19 B1   NDONE     JMP    DISLOOP    GO DO AGAIN
                *
                *  THIS IS A JUMP TABLE ON THE MS HEX DIGIT
                *  OF AN OPCODE.  EACH SET OF 16 OPCODES IS
                *  SERVICED AS A GROUP DUE TO THE INHERENT
                *  HEX DIVISIONS.
1A94 1A B4      JMPTBL    FDB    OPOX
1A96 1A B4                FDB    OP1X
1A98 1A B5                FDB    OP2X
1A9A 1A E2                FDB    OP3X
1A9C 1A F3                FDB    OP4X
1A9E 1A F9                FDB    OP5X
1AA0 1A FF                FDB    OP6X
1AA2 1B 37                FDB    OP7X
1AA4 1B 54                FDB    OP8X
1AA6 1B 8C                FDB    OP9X
1AA8 1B AF                FDB    OPAX
1AAA 1B BB                FDB    OPBX
1AAC 1B C7                FDB    OPCX
1AAE 1B D6                FDB    OPDX
1AB0 1B E1                FDB    OPEX
1AB2 1B ED                FDB    OPFX
                *
1AB4 39         OPOX      RTS               NOTHING TO DO
                *
        1AB4    OP1X      EQU    OPOX       NOTHING HERE EITHER
                *
1AB5 C6 24      OP2X      LDA B  #'$
1AB7 F7 1F 0E             STA B  OPND       SET HEX ID
1ABA 5F                   CLR B
1ABB B6 1F 0C             LDA A  OP1        GET BRANCH AMOUNT
1ABE 2A 01                BPL    OP2X2      IF PLUS, B OK
1AC0 53                   COM B             SIGN EXTEND
1AC1 FE 1F 06   OP2X2     LDX    OBJPTR     GET POINTER
1AC4 08                   INX
1AC5 08                   INX
```

```
LOCN B1 B2 B3
1AC6 FF 1F 04              STX     XTEMP2      SAVE (PC)
1AC9 BB 1F 05              ADD A   XTEMP2+1
1ACC F9 1F 04             ADC B   XTEMP2      CALCULATE BRANCH
1ACF 36                    PSH A               SAVE LS
1AD0 17                    TBA                 GET MS
1AD1 BD 19 4B             JSR     CONV        GO CONVERT TO ASCII
1AD4 FF 1F 0F             STX     OPND+1      SAVE
1AD7 32                    PUL A
1AD8 BD 19 4B             JSR     CONV
1ADB FF 1F 11             STX     OPND+3      SET LS ADDRESS
1ADE 7C 1F 0B             INC     OPCNT       KICK BYTE COUNT
1AE1 39                    RTS                 DONE
                      *
1AE2 81 36       OP3X     CMP A   #$36        CHECK FOR EXC.
1AE4 27 0D                BEQ     OP4X
1AE6 81 32                CMP A   #$32
1AE8 27 09                BEQ     OP4X
1AEA 81 33                CMP A   #$33
1AEC 27 0B                BEQ     OP5X
1AEE 81 37                CMP A   #$37
1AF0 27 07                BEQ     OP5X
1AF2 39                    RTS                 NO MORE
                      *
1AF3 86 41       OP4X     LDA A   #'A
1AF5 B7 1F 0A             STA A   MODFY       SET A MODIFIER
1AF8 39                    RTS                 DONE
                      *
1AF9 86 42       OP5X     LDA A   #'B
1AFB B7 1F 0A             STA A   MODFY       SET B MODIFIER
1AFE 39                    RTS                 DONE
                      *
1AFF B6 1F 0C    OP6X     LDA A   OP1         GET 2ND BYTE
1B02 CE 1F 0E             LDX     #OPND       POINT TO STORE
1B05 C6 FF                LDA B   #$FF
1B07 5C          HLOOP    INC B
1B08 80 64                SUB A   #100
1B0A 24 FB                BCC     HLOOP       REMOVE 100'S
1B0C 8D 1B                BSR     STIKIT      GO PUT IN
1B0E 8B 64                ADD A   #100
1B10 C6 FF                LDA B   #$FF
1B12 5C          TLOOP    INC B
1B13 80 0A                SUB A   #10
1B15 24 FB                BCC     TLOOP       REMOVE 10'S
1B17 8D 10                BSR     STIKIT      PUT IN
1B19 8B 3A                ADD A   #$3A        BIAS AND CORRECT
1B1B 7C 1F 0B             INC OPCNT           SET 2 BYTES
1B1E A7 00                STA A   0,X         PUT IN STRING
1B20 86 2C                LDA A   #',
1B22 A7 01                STA A   1,X
1B24 86 58                LDA A   #'X
1B26 A7 02                STA A   2,X         SET INDEXED MODE
1B28 39          OP6X1    RTS                 DONE
1B29 8C 1F 0E    STIKIT   CPX     #OPND       SEE IF ANY YET
1B2C 26 03                BNE     STICK1      IF SO, DON'T CARE
1B2E 5D                    TST B
```

(handwritten margin note near 1AE2:)
1AE1
1500
1E1

```
LOCN B1 B2 B3
1B2F 27 05                      BEQ     STICK2      SEE IF 0
1B31 CB 30        STICK1  ADD B   #$30        BIAS
1B33 E7 00                STA B   0,X         STORE
1B35 08                   INX                 POINT NEXT
1B36 39           STICK2  RTS                 DONE
                  *
1B37 86 24        OP7X    LDA A   #'$
1B39 B7 1F 0E             STA A   OPND        SET HEX ID
1B3C B6 1F 0C             LDA A   OP1         GET FIRST BYTE
1B3F BD 19 4B             JSR     CONV
1B42 FF 1F 0F             STX     OPND+1
1B45 B6 1F 0D             LDA A   OP2         GET SECOND BYTE
1B48 BD 19 4B             JSR     CONV
1B4B FF 1F 11             STX     OPND+3      SET ASCII
1B4E 86 03                LDA A   #3
1B50 B7 1F 0B             STA A   OPCNT       SET 3 BYTER
1B53 39                   RTS                 DONE
                  *
1B54 81 8D        OP8X    CMP A   #$8D        CHECK FOR BSR
1B56 26 03                BNE     OP8X1       IF NOT, SKIP
1B58 7E 1A B5             JMP     OP2X        GO TO RELATIVE GROUP
1B5B C6 23        OP8X1   LDA B   #'#
1B5D F7 1F 0E             STA B   OPND        SET IMMEDIATE
1B60 C6 24                LDA B   #'$
1B62 F7 1F 0F             STA B   OPND+1      SET HEX ID
1B65 36                   PSH A               SAVE OPCODE
1B66 B6 1F 0C             LDA A   OP1         GET NEXT BYTE
1B69 BD 19 4B             JSR     CONV
1B6C FF 1F 10             STX     OPND+2      SET DATA
1B6F 32                   PUL A               GET OPCODE BACK
1B70 7C 1F 0B             INC     OPCNT       SET 2 BYTER
1B73 84 0F                AND A   #$0F        MASK DOWN
1B75 81 0B                CMP A   #$0B        CHECK 3 BYTER
1B77 23 0D                BLS     OP8X3
1B79 B6 1F 0D     OP8X4   LDA A   OP2         GET THIRD BYTE
1B7C BD 19 4B             JSR     CONV
1B7F FF 1F 12             STX     OPND+4
1B82 7C 1F 0B             INC     OPCNT       SET TO 3
1B85 39           OP8X2   RTS                 DONE
1B86 86 41        OP8X3   LDA A   #'A
1B88 B7 1F 0A             STA A   MODFY       SET MODIFIER
1B8B 39                   RTS                 DONE
                  *
1B8C 81 9B        OP9X    CMP A   #$9B        CHECK FOR NON-A
1B8E 22 05                BHI     OP9X2
1B90 86 41                LDA A   #'A
1B92 B7 1F 0A     OP9X1   STA A   MODFY       SET MODIFIER
1B95 86 24        OP9X2   LDA A   #'$
1B97 B7 1F 0E             STA A   OPND
1B9A 86 30                LDA A   #'0         GET ASCII 0
1B9C B7 1F 0F             STA A   OPND+1
1B9F B7 1F 10             STA A   OPND+2      SET ZERO PAGE
1BA2 B6 1F 0C             LDA A   OP1         GET LS ADDRESS
1BA5 BD 19 4B             JSR     CONV
1BA8 FF 1F 11             STX     OPND+3
```

```
LOCN B1 B2 B3
1BAB 7C 1F 0B              INC     OPCNT
1BAE 39                    RTS
                     *
1BAF 81 AB        OPAX     CMP A   #$AB      CHECK NON-A
1BB1 22 05                 BHI     OPAX1
1BB3 86 41                 LDA A   #'A
1BB5 B7 1F 0A              STA A   MODFY     SET MODIFIER
1BB8 7E 1A FF     OPAX1    JMP     OP6X      GO HANDLE INDEXED
                     *
1BBB 81 3B        OPBX     CMP A   #$3B      CHECK NON-A
1BBD 22 05                 BHI     OPBX1
1BBF 86 41                 LDA A   #'A
1BC1 B7 1F 0A              STA A   MODFY
1BC4 7E 1B 37     OPBX1    JMP     OP7X      GO HANDLE EXTENDED
                     *
1BC7 36           OPCX     PSH A             SAVE OPCODE
1BC8 BD 1B 5B              JSR     OP8X1     GO TEST AND CONVERT
1BCB 32                    PUL A             GET OPCODE
1BCC 81 CE                 CMP A   #$CE      CHECK NON B
1BCE 27 05                 BEQ     OPCX1
1BD0 C6 42                 LDA B   #'B
1BD2 F7 1F 0A              STA B   MODFY     SET MODIFIER
1BD5 39           OPCX1    RTS               DONE
                     *
1BD6 81 DB        OPDX     CMP A   #$DB      CHECK NON-B
1BD8 22 05                 BHI     OPDX1
1BDA C6 42                 LDA B   #'B
1BDC F7 1F 0A              STA B   MODFY     SET MODIFIER
1BDF 20 B4        OPDX1    BRA     OP9X2     GO HANDLE DIRECT
                     *
1BE1 81 EB        OPEX     CMP A   #$EB      CHECK NON-B
1BE3 22 05                 BHI     OPEX1
1BE5 C6 42                 LDA B   #'B
1BE7 F7 1F 0A              STA B   MODFY     SET MODIFIER
1BEA 7E 1A FF     OPEX1    JMP     OP6X      GO HANDLE INDEXED
                     *
1BED 81 FB        OPFX     CMP A   #$FB      CHECK NON-B
1BEF 22 05                 BHI     OPFX1
1BF1 C6 42                 LDA B   #'B
1BF3 F7 1F 0A              STA B   MODFY     SET MODIFIER
1BF6 7E 1B 37     OPFX1    JMP     OP7X      GO HANDLE EXTENDED
                     *
                     *
                     *   THIS IS THE MNEMONIC TABLE FOR THE 256
                     * OPCODES
1BF9 2A           OPTBL    FCC     '***'     00
1BFA 2A
1BFB 2A
1BFC 4E                    FCC     'NOP'
1BFD 4F
1BFE 50
1BFF 2A                    FCC     '***'
1C00 2A
1C01 2A
1C02 2A                    FCC     '***'
```

```
LOCN B1 B2 B3
1C03 2A
1C04 2A
1C05 2A          FCC      '***'
1C06 2A
1C07 2A
1C08 2A          FCC      '***'
1C09 2A
1C0A 2A
1C0B 54          FCC      'TAP'
1C0C 41
1C0D 50
1C0E 54          FCC      'TPA'
1C0F 50
1C10 41
1C11 49          FCC      'INX'
1C12 4E
1C13 58
1C14 44          FCC      'DEX'
1C15 45
1C16 58
1C17 43          FCC      'CLV'
1C18 4C
1C19 56
1C1A 53          FCC      'SEV'
1C1B 45
1C1C 56
1C1D 43          FCC      'CLC'
1C1E 4C
1C1F 43
1C20 53          FCC      'SEC'
1C21 45
1C22 43
1C23 43          FCC      'CLI'
1C24 4C
1C25 49
1C26 53          FCC      'SEI'
1C27 45
1C28 49
1C29 53          FCC      'SBA'        10
1C2A 42
1C2B 41
1C2C 43          FCC      'CBA'
1C2D 42
1C2E 41
1C2F 2A          FCC      '***'
1C30 2A
1C31 2A
1C32 2A          FCC      '***'
1C33 2A
1C34 2A
1C35 2A          FCC      '***'
1C36 2A
1C37 2A
1C38 2A          FCC      '***'
1C39 2A
```

```
LOCN B1 B2 B3
1C3A 2A
1C3B 54              FCC     'TAB'
1C3C 41
1C3D 42
1C3E 54              FCC     'TBA'
1C3F 42
1C40 41
1C41 2A              FCC     '***'
1C42 2A
1C43 2A
1C44 44              FCC     'DAA'
1C45 41
1C46 41
1C47 2A              FCC     '***'
1C48 2A
1C49 2A
1C4A 41              FCC     'ABA'
1C4B 42
1C4C 41
1C4D 2A              FCC     '***'
1C4E 2A
1C4F 2A
1C50 2A              FCC     '***'
1C51 2A
1C52 2A
1C53 2A              FCC     '***'
1C54 2A
1C55 2A
1C56 2A              FCC     '***'
1C57 2A
1C58 2A
1C59 42              FCC     'BRA'        20
1C5A 52
1C5B 41
1C5C 2A              FCC     '***'
1C5D 2A
1C5E 2A
1C5F 42              FCC     'BHI'
1C60 48
1C61 49
1C62 42              FCC     'BLS'
1C63 4C
1C64 53
1C65 42              FCC     'BCC'
1C66 43
1C67 43
1C68 42              FCC     'BCS'
1C69 43
1C6A 53
1C6B 42              FCC     'BNE'
1C6C 4E
1C6D 45
1C6E 42              FCC     'BEQ'
1C6F 45
1C70 51
```

```
LOCN B1 B2 B3
1C71 42              FCC      'BVC'
1C72 56
1C73 43
1C74 42              FCC      'BVS'
1C75 56
1C76 53
1C77 42              FCC      'BPL'
1C78 50
1C79 4C
1C7A 42              FCC      'BMI'
1C7B 4D
1C7C 49
1C7D 42              FCC      'BGE'
1C7E 47
1C7F 45
1C80 42              FCC      'BLT'
1C81 4C
1C82 54
1C83 42              FCC      'BGT'
1C84 47
1C85 54
1C86 42              FCC      'BLE'
1C87 4C
1C88 45
1C89 54              FCC      'TSX'     30
1C8A 53
1C8B 58
1C8C 49              FCC      'INS'
1C8D 4E
1C8E 53
1C8F 50              FCC      'PUL'
1C90 55
1C91 4C
1C92 50              FCC      'PUL'
1C93 55
1C94 4C
1C95 44              FCC      'DES'
1C96 45
1C97 53
1C98 54              FCC      'TXS'
1C99 58
1C9A 53
1C9B 50              FCC      'PSH'
1C9C 53
1C9D 48
1C9E 50              FCC      'PSH'
1C9F 53
1CA0 48
1CA1 2A              FCC      '***'
1CA2 2A
1CA3 2A
1CA4 52              FCC      'RTS'
1CA5 54
1CA6 53
1CA7 2A              FCC      '***'
```

```
LOCN B1 B2 B3
1CA8 2A
1CA9 2A
1CAA 52              FCC      'RTI'
1CAB 54
1CAC 49
1CAD 2A              FCC      '***'
1CAE 2A
1CAF 2A
1CB0 2A              FCC      '***'
1CB1 2A
1CB2 2A
1CB3 57              FCC      'WAI'
1CB4 41
1CB5 49
1CB6 53              FCC      'SWI'
1CB7 57
1CB8 49
1CB9 4E              FCC      'NEG'         40
1CBA 45
1CBB 47
1CBC 2A              FCC      '***'
1CBD 2A
1CBE 2A
1CBF 2A              FCC      '***'
1CC0 2A
1CC1 2A
1CC2 43              FCC      'COM'
1CC3 4F
1CC4 4D
1CC5 4C              FCC      'LSR'
1CC6 53
1CC7 52
1CC8 2A              FCC      '***'
1CC9 2A
1CCA 2A
1CCB 52              FCC      'ROR'
1CCC 4F
1CCD 52
1CCE 41              FCC      'ASR'
1CCF 53
1CD0 52
1CD1 41              FCC      'ASL'
1CD2 53
1CD3 4C
1CD4 52              FCC      'ROL'
1CD5 4F
1CD6 4C
1CD7 44              FCC      'DEC'
1CD8 45
1CD9 43
1CDA 2A              FCC      '***'
1CDB 2A
1CDC 2A
1CDD 49              FCC      'INC'
1CDE 4E
```

```
LOCN  B1 B2 B3
1CDF  43
1CE0  54              FCC       'TST'
1CE1  53
1CE2  54
1CE3  2A              FCC       '***'
1CE4  2A
1CE5  2A
1CE6  43              FCC       'CLR'
1CE7  4C
1CE8  52
1CE9  4E              FCC       'NEG'        50
1CEA  45
1CEB  47
1CEC  2A              FCC       '***'
1CED  2A
1CEE  2A
1CEF  2A              FCC       '***'
1CF0  2A
1CF1  2A
1CF2  43              FCC       'COM'
1CF3  4F
1CF4  4D
1CF5  4C              FCC       'LSR'
1CF6  53
1CF7  52
1CF8  2A              FCC       '***'
1CF9  2A
1CFA  2A
1CFB  52              FCC       'ROR'
1CFC  4F
1CFD  52
1CFE  41              FCC       'ASR'
1CFF  53
1D00  52
1D01  41              FCC       'ASL'
1D02  53
1D03  4C
1D04  52              FCC       'ROL'
1D05  4F
1D06  4C
1D07  44              FCC       'DEC'
1D08  45
1D09  43
1D0A  2A              FCC       '***'
1D0B  2A
1D0C  2A
1D0D  49              FCC       'INC'
1D0E  4E
1D0F  43
1D10  54              FCC       'TST'
1D11  53
1D12  54
1D13  2A              FCC       '***'
1D14  2A
1D15  2A
```

```
LOCN B1 B2 B3
1D16 43              FCC     'CLR'
1D17 4C
1D18 52
1D19 4E              FCC     'NEG'       60
1D1A 45
1D1B 47
1D1C 2A              FCC     '***'
1D1D 2A
1D1E 2A
1D1F 2A              FCC     '***'
1D20 2A
1D21 2A
1D22 43              FCC     'COM'
1D23 4F
1D24 4D
1D25 4C              FCC     'LSR'
1D26 53
1D27 52
1D28 2A              FCC     '***'
1D29 2A
1D2A 2A
1D2B 52              FCC     'ROR'
1D2C 4F
1D2D 52
1D2E 41              FCC     'ASR'
1D2F 53
1D30 52
1D31 41              FCC     'ASL'
1D32 53
1D33 4C
1D34 52              FCC     'ROL'
1D35 4F
1D36 4C
1D37 44              FCC     'DEC'
1D38 45
1D39 43
1D3A 2A              FCC     '***'
1D3B 2A
1D3C 2A
1D3D 49              FCC     'INC'
1D3E 4E
1D3F 43
1D40 54              FCC     'TST'
1D41 53
1D42 54
1D43 4A              FCC     'JMP'
1D44 4D
1D45 50
1D46 43              FCC     'CLR'
1D47 4C
1D48 52
1D49 4E              FCC     'NEG'       70
1D4A 45
1D4B 47
1D4C 2A              FCC     '***'
```

```
LOCN B1 B2 B3
1D4D 2A
1D4E 2A
1D4F 2A                    FCC      '***'
1D50 2A
1D51 2A
1D52 43                    FCC      'COM'
1D53 4F
1D54 4D
1D55 4C                    FCC      'LSR'
1D56 53
1D57 52
1D58 2A                    FCC      '***'
1D59 2A
1D5A 2A
1D5B 52                    FCC      'ROR'
1D5C 4F
1D5D 52
1D5E 41                    FCC      'ASR'
1D5F 53
1D60 52
1D61 41                    FCC      'ASL'
1D62 53
1D63 4C
1D64 52                    FCC      'ROL'
1D65 4F
1D66 4C
1D67 44                    FCC      'DEC'
1D68 45
1D69 43
1D6A 2A                    FCC      '***'
1D6B 2A
1D6C 2A
1D6D 49                    FCC      'INC'
1D6E 4E
1D6F 43
1D70 54                    FCC      'TST'
1D71 53
1D72 54
1D73 4A                    FCC      'JMP'
1D74 4D
1D75 50
1D76 43                    FCC      'CLR'
1D77 4C
1D78 52
1D79 53                    FCC      'SUB'    80
1D7A 55
1D7B 42
1D7C 43                    FCC      'CMP'
1D7D 4D
1D7E 50
1D7F 53                    FCC      'SBC'
1D80 42
1D81 43
1D82 2A                    FCC      '***'
1D83 2A
```

```
LOCN B1 B2 B3
1D84 2A
1D85 41              FCC     'AND'
1D86 4E
1D87 44
1D88 42              FCC     'BIT'
1D89 49
1D8A 54
1D8B 4C              FCC     'LDA'
1D8C 44
1D8D 41
1D8E 2A              FCC     '***'
1D8F 2A
1D90 2A
1D91 45              FCC     'EOR'
1D92 4F
1D93 52
1D94 41              FCC     'ADC'
1D95 44
1D96 43
1D97 4F              FCC     'ORA'
1D98 52
1D99 41
1D9A 41              FCC     'ADD'
1D9B 44
1D9C 44
1D9D 43              FCC     'CPX'
1D9E 50
1D9F 58
1DA0 42              FCC     'BSR'
1DA1 53
1DA2 52
1DA3 4C              FCC     'LDS'
1DA4 44
1DA5 53
1DA6 2A              FCC     '***'
1DA7 2A
1DA8 2A
1DA9 53              FCC     'SUB'         90
1DAA 55
1DAB 42
1DAC 43              FCC     'CMP'
1DAD 4D
1DAE 50
1DAF 53              FCC     'SBC'
1DB0 42
1DB1 43
1DB2 2A              FCC     '***'
1DB3 2A
1DB4 2A
1DB5 41              FCC     'AND'
1DB6 4E
1DB7 44
1DB8 42              FCC     'BIT'
1DB9 49
1DBA 54
```

```
LOCN B1 B2 B3
1DBB 4C                    FCC      'LDA'
1DBC 44
1DBD 41
1DBE 53                    FCC      'STA'
1DBF 54
1DC0 41
1DC1 45                    FCC      'EOR'
1DC2 4F
1DC3 52
1DC4 41                    FCC      'ADC'
1DC5 44
1DC6 43
1DC7 4F                    FCC      'ORA'
1DC8 52
1DC9 41
1DCA 41                    FCC      'ADD'
1DCB 44
1DCC 44
1DCD 43                    FCC      'CPX'
1DCE 50
1DCF 58
1DD0 2A                    FCC      '***'
1DD1 2A
1DD2 2A
1DD3 4C                    FCC      'LDS'
1DD4 44
1DD5 53
1DD6 53                    FCC      'STS'
1DD7 54
1DD8 53
1DD9 53                    FCC      'SUB'      A0
1DDA 55
1DDB 42
1DDC 43                    FCC      'CMP'
1DDD 4D
1DDE 50
1DDF 53                    FCC      'SBC'
1DE0 42
1DE1 43
1DE2 2A                    FCC      '***'
1DE3 2A
1DE4 2A
1DE5 41                    FCC      'AND'
1DE6 4E
1DE7 44
1DE8 42                    FCC      'BIT'
1DE9 49
1DEA 54
1DEB 4C                    FCC      'LDA'
1DEC 44
1DED 41
1DEE 53                    FCC      'STA'
1DEF 54
1DF0 41
1DF1 45                    FCC      'EOR'
```

```
LOCN B1 B2 B3
1DF2 4F
1DF3 52
1DF4 41              FCC      'ADC'
1DF5 44
1DF6 43
1DF7 4F              FCC      'ORA'
1DF8 52
1DF9 41
1DFA 41              FCC      'ADD'
1DFB 44
1DFC 44
1DFD 43              FCC      'CPX'
1DFE 50
1DFF 58
1E00 4A              FCC      'JSR'
1E01 53
1E02 52
1E03 4C              FCC      'LDS'
1E04 44
1E05 53
1E06 53              FCC      'STS'
1E07 54
1E08 53
1E09 53              FCC      'SUB'      B0
1E0A 55
1E0B 42
1E0C 43              FCC      'CMP'
1E0D 4D
1E0E 50
1E0F 53              FCC      'SBC'
1E10 42
1E11 43
1E12 2A              FCC      '***'
1E13 2A
1E14 2A
1E15 41              FCC      'AND'
1E16 4E
1E17 44
1E18 42              FCC      'BIT'
1E19 49
1E1A 54
1E1B 4C              FCC      'LDA'
1E1C 44
1E1D 41
1E1E 53              FCC      'STA'
1E1F 54
1E20 41
1E21 45              FCC      'EOR'
1E22 4F
1E23 52
1E24 41              FCC      'ADC'
1E25 44
1E26 43
1E27 4F              FCC      'ORA'
1E28 52
```

```
LOCN B1 B2 B3
1E29 41
1E2A 41                 FCC     'ADD'
1E2B 44
1E2C 44
1E2D 43                 FCC     'CPX'
1E2E 50
1E2F 58
1E30 4A                 FCC     'JSR'
1E31 53
1E32 52
1E33 4C                 FCC     'LDS'
1E34 44
1E35 53
1E36 53                 FCC     'STS'
1E37 54
1E38 53
1E39 53                 FCC     'SUB'       CO
1E3A 55
1E3B 42
1E3C 43                 FCC     'CMP'
1E3D 4D
1E3E 50
1E3F 53                 FCC     'SBC'
1E40 42
1E41 43
1E42 2A                 FCC     '***'
1E43 2A
1E44 2A
1E45 41                 FCC     'AND'
1E46 4E
1E47 44
1E48 42                 FCC     'BIT'
1E49 49
1E4A 54
1E4B 4C                 FCC     'LDA'
1E4C 44
1E4D 41
1E4E 2A                 FCC     '***'
1E4F 2A
1E50 2A
1E51 45                 FCC     'EOR'
1E52 4F
1E53 52
1E54 41                 FCC     'ADC'
1E55 44
1E56 43
1E57 4F                 FCC     'ORA'
1E58 52
1E59 41
1E5A 41                 FCC     'ADD'
1E5B 44
1E5C 44
1E5D 2A                 FCC     '***'
1E5E 2A
1E5F 2A

LOCN B1 B2 B3
```

```
LOCN B1 B2 B3
1E60 2A                    FCC     '***'
1E61 2A
1E62 2A
1E63 4C                    FCC     'LDX'
1E64 44
1E65 58
1E66 2A                    FCC     '***'
1E67 2A
1E68 2A
1E69 53                    FCC     'SUB'       DO
1E6A 55
1E6B 42
1E6C 43                    FCC     'CMP'
1E6D 4D
1E6E 50
1E6F 53                    FCC     'SBC'
1E70 42
1E71 43
1E72 2A                    FCC     '***'
1E73 2A
1E74 2A
1E75 41                    FCC     'AND'
1E76 4E
1E77 44
1E78 42                    FCC     'BIT'
1E79 49
1E7A 54
1E7B 4C                    FCC     'LDA'
1E7C 44
1E7D 41
1E7E 53                    FCC     'STA'
1E7F 54
1E80 41
1E81 45                    FCC     'EOR'
1E82 4F
1E83 52
1E84 41                    FCC     'ADC'
1E85 44
1E86 43
1E87 4F                    FCC     'ORA'
1E88 52
1E89 41
1E8A 41                    FCC     'ADD'
1E8B 44
1E8C 44
1E8D 2A                    FCC     '***'
1E8E 2A
1E8F 2A
1E90 2A                    FCC     '***'
1E91 2A
1E92 2A
1E93 4C                    FCC     'LDX'
1E94 44
1E95 58
1E96 53                    FCC     'STX'
```

```
LOCN B1 B2 B3
1E97 54
1E98 58
1E99 53              FCC      'SUB'      E0
1E9A 55
1E9B 42
1E9C 43              FCC      'CMP'
1E9D 4D
1E9E 50
1E9F 53              FCC      'SBC'
1EA0 42
1EA1 43
1EA2 2A              FCC      '***'
1EA3 2A
1EA4 2A
1EA5 41              FCC      'AND'
1EA6 4E
1EA7 44
1EA8 42              FCC      'BIT'
1EA9 49
1EAA 54
1EAB 4C              FCC      'LDA'
1EAC 44
1EAD 41
1EAE 53              FCC      'STA'
1EAF 54
1EB0 41
1EB1 45              FCC      'EOR'
1EB2 4F
1EB3 52
1EB4 41              FCC      'ADC'
1EB5 44
1EB6 43
1EB7 4F              FCC      'ORA'
1EB8 52
1EB9 41
1EBA 41              FCC      'ADD'
1EBB 44
1EBC 44
1EBD 2A              FCC      '***'
1EBE 2A
1EBF 2A
1EC0 2A              FCC      '***'
1EC1 2A
1EC2 2A
1EC3 4C              FCC      'LDX'
1EC4 44
1EC5 58
1EC6 53              FCC      'STX'
1EC7 54
1EC8 58
1EC9 53              FCC      'SUB'      F0
1ECA 55
1ECB 42
1ECC 43              FCC      'CMP'
1ECD 4D
```

```
LOCN B1 B2 B3
1ECE 50
1ECF 53                      FCC     'SBC'
1ED0 42
1ED1 43
1ED2 2A                      FCC     '***'
1ED3 2A
1ED4 2A
1ED5 41                      FCC     'AND'
1ED6 4E
1ED7 44
1ED8 42                      FCC     'BIT'
1ED9 49
1EDA 54
1EDB 4C                      FCC     'LDA'
1EDC 44
1EDD 41
1EDE 53                      FCC     'STA'
1EDF 54
1EE0 41
1EE1 45                      FCC     'EOR'
1EE2 4F
1EE3 52
1EE4 41                      FCC     'ADC'
1EE5 44
1EE6 43
1EE7 4F                      FCC     'ORA'
1EE8 52
1EE9 41
1EEA 41                      FCC     'ADD'
1EEB 44
1EEC 44
1EED 2A                      FCC     '***'
1EEE 2A
1EEF 2A
1EF0 2A                      FCC     '***'
1EF1 2A
1EF2 2A
1EF3 4C                      FCC     'LDX'
1EF4 44
1EF5 58
1EF6 53                      FCC     'STX'
1EF7 54
1EF8 58
                             END
```

SYMBOL TABLE:

BEG	198E	BEGIN	199B	CONV	194B	CRLF	197A	DISASM	1900
DISAS3	1A15	DISLOO	19B1	DISLO1	19C3	DONE	1A8E	ENDPTR	1F00
ENDSTR	1981	HEXL	193E	HEXR	1942	HLOOP	1B07	INBYTE	1925
INCH	190F	INHEX	1912	INH2	1920	IN4H	1930	JMPTBL	1A94
MNEMON	1A61	MODFY	1F0A	NDONE	1A91	OBJPTR	1F06	OPAX	1BAF
OPAX1	1BB8	OPBX	1BBB	OPBX1	1BC4	OPCNT	1F0B	OPCX	1BC7

OPCX1	1BD5	OPDX	1BD6	OPDX1	1BDF	OPEX	1BE1	OPEX1	1BEA
OPFX	1BED	OPFX1	1BF6	OPND	1F0E	OPS1	1A50	OPS2	1A4D
OPS3	1A53	OPTBL	1BF9	OPOX	1AB4	OP1	1F0C	OP1X	1AB4
OP2	1F0D	OP2X	1AB5	OP2X2	1AC1	OP3X	1AE2	OP4X	1AF3
OP5X	1AF9	OP6X	1AFF	OP6X1	1B28	OP7X	1B37	OP8X	1B54
OP8X1	1B5B	OP8X2	1B85	OP8X3	1B86	OP8X4	1B79	OP9X	1B8C
OP9X1	1B92	OP9X2	1B95	OUTCH	190C	OUTS	190A	OUT2H	195B
OUT2HS	1967	OUT2S	1908	OUT3S	1906	PCRLF	1975	PDATA	196E
P2	196B	SRCPTR	1F08	STICK1	1B31	STICK2	1B36	STIKIT	1B29
TLOOP	1B12	UNRAV1	1A2C	UNRAV2	1A33	XTEMP	1F02	XTEMP2	1F04

OBJECT CODE:

```
S1 13 1900 8E A0 7F 7E 19 9B 8D 02 8D 00 86 20 7E E1 D1 7E 84
S1 13 1910 E1 AC 8D FB 80 47 2A E8 8B 06 2A 04 8B 07 2A E0 7A
S1 13 1920 8B 0A 2B DC 39 8D EB 48 48 48 48 16 8D E4 1B 39 6B
S1 13 1930 8D F3 B7 1F 00 8D EE B7 1F 01 FE 1F 00 39 44 44 1D
S1 13 1940 44 44 84 0F 8B 90 19 89 40 19 39 36 8D F0 B7 1F A0
S1 13 1950 04 32 8D EE B7 1F 05 FE 1F 04 39 A6 00 8D DF 8D FE
S1 13 1960 AB A6 00 8D DD 20 A5 8D F2 20 9F 8D 9F 08 A6 00 DB
S1 13 1970 81 04 26 F7 39 CE 19 7A 20 F4 0D 0A 00 00 00 00 FC
S1 13 1980 04 20 20 45 4E 44 20 41 44 44 52 3F 20 04 42 45 13
S1 13 1990 47 49 4E 20 41 44 44 52 3F 20 04 8D D8 8D D6 CE 31
S1 13 19A0 19 8E 8D CA 8D 8A FF 1F 06 8D CA 08 8D C0 BD 19 78
S1 13 19B0 30 CE 1B F9 FF 1F 02 CE 19 7A 8D B2 C6 07 CE 1F 97
S1 13 19C0 0E 86 04 A7 00 08 5A 26 FA 86 20 B7 1F 0A 86 01 45
S1 13 19D0 B7 1F 0B CE 1F 06 8D 83 08 8D 8C FE 1F 06 A6 01 34
S1 13 19E0 B7 1F 0C A6 02 B7 1F 0D A6 00 36 5F 48 59 AB 00 FF
S1 13 19F0 C9 00 BB 1F 03 F9 1F 02 B7 1F 03 F7 1F 02 FE 1F 15
S1 13 1A00 02 E6 00 32 C1 2A 26 0D 81 20 25 27 81 5F 22 23 88
S1 13 1A10 B7 1F 0E 20 1E 16 C4 F0 54 54 54 CE 1A 94 FF 1F 40
S1 13 1A20 04 FB 1F 05 F7 1F 05 24 03 7C 1F 04 FE 1F 04 EE 9F
S1 13 1A30 00 AD 00 F6 1F 0B FE 1F 06 BD 19 67 08 5A 27 0D DF
S1 13 1A40 BD 19 5B 08 5A 27 09 BD 19 5B 08 20 06 BD 19 08 92
S1 13 1A50 BD 19 08 FF 1F 06 BD 19 06 BD 19 06 FE 1F 02 C6 E3
S1 13 1A60 03 A6 00 BD 19 0C 08 5A 26 F7 BD 19 0A B6 1F 0A A9
S1 13 1A70 BD 19 0C BD 19 08 CE 1F 0E BD 19 6E B6 1F 06 B1 D7
S1 13 1A80 1F 00 22 0A 25 0B B6 1F 07 B1 1F 01 23 03 7E 19 6D
S1 13 1A90 00 7E 19 B1 1A B4 1A B4 1A B5 1A E2 1A F3 1A F9 73
S1 13 1AA0 1A FF 1B 37 1B 54 1B 8C 1B AF 1B BB 1B C7 1B D6 3E
S1 13 1AB0 1B E1 1B ED 39 C6 24 F7 1F 0E 5F B6 1F 0C 2A 01 6C
S1 13 1AC0 53 FE 1F 06 08 08 FF 1F 04 BB 1F 05 F9 1F 04 36 39
S1 13 1AD0 17 BD 19 4B FF 1F 0F 32 BD 19 4B FF 1F 11 7C 1F 80
S1 13 1AE0 0B 39 81 36 27 0D 81 32 27 09 81 33 27 0B 81 37 42
S1 13 1AF0 27 07 39 86 41 B7 1F 0A 39 86 42 B7 1F 0A 39 B6 04
S1 13 1B00 1F 0C CE 1F 0E C6 FF 5C 80 64 24 FB 8D 1B 8B 64 F0
S1 13 1B10 C6 FF 5C 80 0A 24 FB 8D 10 8B 3A 7C 1F 0B A7 00 48
S1 13 1B20 86 2C A7 01 86 58 A7 02 39 8C 1F 0E 26 03 5D 27 31
S1 13 1B30 05 CB 30 E7 00 08 39 86 24 B7 1F 0E B6 1F 0C BD 4D
S1 13 1B40 19 4B FF 1F 0F B6 1F 0D BD 19 4B FF 1F 11 86 03 45
S1 13 1B50 B7 1F 0B 39 81 8D 26 03 7E 1A B5 C6 23 F7 1F 0E D6
S1 13 1B60 C6 24 F7 1F 0F 36 B6 1F 0C BD 19 4B FF 1F 10 32 CA
S1 13 1B70 7C 1F 0B 84 0F 81 0B 23 0D B6 1F 0D BD 19 4B FF 6A
S1 13 1B80 1F 12 7C 1F 0B 39 86 41 B7 1F 0A 39 81 9B 22 05 1E
S1 13 1B90 86 41 B7 1F 0A 86 24 B7 1F 0E 86 30 B7 1F 0F B7 BA
S1 13 1BA0 1F 10 B6 1F 0C BD 19 4B FF 1F 11 7C 1F 0B 39 81 71
S1 13 1BB0 AB 22 05 86 41 B7 1F 0A 7E 1A FF 81 3B 22 05 86 A8
```

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S1 13 1BC0 41 B7 1F 0A 7E 1B 37 36 BD 1B 5B 32 81 CE 27 05 0A
S1 13 1BD0 C6 42 F7 1F 0A 39 81 DB 22 05 C6 42 F7 1F 0A 20 D5
S1 13 1BE0 B4 81 EB 22 05 C6 42 F7 1F 0A 7E 1A FF 81 FB 22 4D
S1 13 1BF0 05 C6 42 F7 1F 0A 7E 1B 37 2A 2A 2A 4E 4F 50 2A 4F
S1 13 1C00 2A 2A 2A 2A 2A 2A 2A 2A 2A 2A 2A 54 41 50 54 50 79
S1 13 1C10 41 49 4E 58 44 45 58 43 4C 56 53 45 56 43 4C 43 0A
S1 13 1C20 53 45 43 43 4C 49 53 45 49 53 42 41 43 42 41 2A 56
S1 13 1C30 2A 2A 2A 2A 2A 2A 2A 2A 2A 2A 2A 54 41 42 54 42 65
S1 13 1C40 41 2A 2A 2A 44 41 41 2A 2A 2A 41 42 41 2A 2A 2A 4B
S1 13 1C50 2A 2A 2A 2A 2A 2A 2A 2A 2A 42 52 41 2A 2A 2A 42 71
S1 13 1C60 48 49 42 4C 53 42 43 43 42 43 53 42 4E 45 42 45 02
S1 13 1C70 51 42 56 43 42 56 53 42 50 4C 42 4D 49 42 47 45 C5
S1 13 1C80 42 4C 54 42 47 54 42 4C 45 54 53 58 49 4E 53 50 85
S1 13 1C90 55 4C 50 55 4C 44 45 53 54 58 53 50 53 48 50 53 45
S1 13 1CA0 48 2A 2A 2A 52 54 53 2A 2A 2A 52 54 49 2A 2A 2A 86
S1 13 1CB0 2A 2A 2A 57 41 49 53 57 49 4E 45 47 2A 2A 2A 2A 4C
S1 13 1CC0 2A 2A 43 4F 4D 4C 53 52 2A 2A 2A 52 4F 52 41 53 E7
S1 13 1CD0 52 41 53 4C 52 4F 4C 44 45 43 2A 2A 2A 49 4E 43 BD
S1 13 1CE0 54 53 54 2A 2A 2A 43 4C 52 4E 45 47 2A 2A 2A 2A 14
S1 13 1CF0 2A 2A 43 4F 4D 4C 53 52 2A 2A 2A 52 4F 52 41 53 B7
S1 13 1D00 52 41 53 4C 52 4F 4C 44 45 43 2A 2A 2A 49 4E 43 8C
S1 13 1D10 54 53 54 2A 2A 2A 43 4C 52 4E 45 47 2A 2A 2A 2A E3
S1 13 1D20 2A 2A 43 4F 4D 4C 53 52 2A 2A 2A 52 4F 52 41 53 86
S1 13 1D30 52 41 53 4C 52 4F 4C 44 45 43 2A 2A 2A 49 4E 43 5C
S1 13 1D40 54 53 54 4A 4D 50 43 4C 52 4E 45 47 2A 2A 2A 2A 4A
S1 13 1D50 2A 2A 43 4F 4D 4C 53 52 2A 2A 2A 52 4F 52 41 53 56
S1 13 1D60 52 41 53 4C 52 4F 4C 44 45 43 2A 2A 2A 49 4E 43 2C
S1 13 1D70 54 53 54 4A 4D 50 43 4C 52 53 55 42 43 4D 50 53 7F
S1 13 1D80 42 43 2A 2A 2A 41 4E 44 42 49 54 4C 44 41 2A 2A 75
S1 13 1D90 2A 45 4F 52 41 44 43 4F 52 41 41 44 44 43 50 58 D1
S1 13 1DA0 42 53 52 4C 44 53 2A 2A 2A 53 55 42 43 4D 50 53 CA
S1 13 1DB0 42 43 2A 2A 2A 41 4E 44 42 49 54 4C 44 41 53 54 F2
S1 13 1DC0 41 45 4F 52 41 44 43 4F 52 41 41 44 44 43 50 58 8A
S1 13 1DD0 2A 2A 2A 4C 44 53 53 54 53 53 55 42 43 4D 50 53 87
S1 13 1DE0 42 43 2A 2A 2A 41 4E 44 42 49 54 4C 44 41 53 54 C2
S1 13 1DF0 41 45 4F 52 41 44 43 4F 52 41 41 44 44 43 50 58 5A
S1 13 1E00 4A 53 52 4C 44 53 53 54 53 53 55 42 43 4D 50 53 E5
S1 13 1E10 42 43 2A 2A 2A 41 4E 44 42 49 54 4C 44 41 53 54 91
S1 13 1E20 41 45 4F 52 41 44 43 4F 52 41 41 44 44 43 50 58 29
S1 13 1E30 4A 53 52 4C 44 53 53 54 53 53 55 42 43 4D 50 53 B5
S1 13 1E40 42 43 2A 2A 2A 41 4E 44 42 49 54 4C 44 41 2A 2A B4
S1 13 1E50 2A 45 4F 52 41 44 43 4F 52 41 41 44 44 2A 2A 2A 7D
S1 13 1E60 2A 2A 2A 4C 44 58 2A 2A 2A 53 55 42 43 4D 50 53 6D
S1 13 1E70 42 43 2A 2A 2A 41 4E 44 42 49 54 4C 44 41 53 54 31
S1 13 1E80 41 45 4F 52 41 44 43 4F 52 41 41 44 44 2A 2A 2A 36
S1 13 1E90 2A 2A 2A 4C 44 58 53 54 58 53 55 42 43 4D 50 53 BC
S1 13 1EA0 42 43 2A 2A 2A 41 4E 44 42 49 54 4C 44 41 53 54 01
S1 13 1EB0 41 45 4F 52 41 44 43 4F 52 41 41 44 44 2A 2A 2A 06
S1 13 1EC0 2A 2A 2A 4C 44 58 53 54 58 53 55 42 43 4D 50 53 8C
S1 13 1ED0 42 43 2A 2A 2A 41 4E 44 42 49 54 4C 44 41 53 54 D1
S1 13 1EE0 41 45 4F 52 41 44 43 4F 52 41 41 44 44 2A 2A 2A D6
S1 0C 1EF0 2A 2A 2A 4C 44 58 53 54 58 80
S9
```

```
BEGIN ADDR? 0000
   END ADDR? 0029
0000 CE FFFF    LDX    #$FFFF
0003 E5 67      BIT B  103,X
0005 E5 EB      BIT B  235,X
0007 E5 23      BIT B  35,X
0009 75         ***
000A EF F5      CLR    245,X
000C 7B         ***
000D E5 3F      BIT B  63,X
000F F5 3EF5    BIT B  $3EF5
0012 3F         SWI
0013 D5 3D      BIT B  $003D
0015 E5 39      BIT B  57,X
0017 B5 39A5    BIT    $39A5
001A 2F F3      BLE    $0011
001C 2F A1      BLE    $FFBF
001E 3E         WAI
001F FD         ***
0020 5F         CLR B
0021 A5 1F      BIT A  31,X
0023 E7 7B      STA B  123,X
0025 D5 3E      BIT B  $003E
0027 95 3F      BIT A  $003F
0029 F7 3F35    STA B  $3F35
```

```
BEGIN ADDR? 1300
   END ADDR? 1318
1300 55    ***    U
1301 41    ***    A
1302 42    ***    B
1303 43    COM A
1304 44    LSR A
1305 45    ***    E
1306 46    ROR A
1307 47    ASR A
1308 48    ASL A
1309 49    ROL A
130A 4A    DEC A
130B 4B    ***    K
130C 4C    INC A
130D 4D    TST A
130E 4E    ***    N
130F 4F    CLR A
1310 50    NEG B
1311 51    ***    Q
1312 52    ***    R
1313 53    COM B
1314 54    LSR B
1315 55    ***    U
1316 56    ROR B
1317 57    ASR B
1318 58    ASL B
```

```
BEGIN ADDR? 1900
   END ADDR? 1920
1900 8E A07F    LDS    #$A07F
1903 7E 199B    JMP    $199B
1906 8D 02      BSR    $190A
1908 8D 00      BSR    $190A
190A 86 20      LDA A  #$20
190C 7E 1000    JMP    $1000
190F 7E 1010    JMP    $1010
1912 8D FB      BSR    $190F
1914 80 47      SUB A  #$47
1916 2A E8      BPL    $1900
1918 8B 06      ADD A  #$06
191A 2A 04      BPL    $1920
191C 8B 07      ADD A  #$07
191E 2A E0      BPL    $1900
1920 8B 0A      ADD A  #$0A
```

```
BEGIN ADDR? 1922
   END ADDR? 1930
1922 2B DC    BMI    $1900
1924 39       RTS
1925 8D EB    BSR    $1912
1927 48       ASL A
1928 48       ASL A
1929 48       ASL A
192A 48       ASL A
192B 16       TAB
192C 8D E4    BSR    $1912
192E 1B       ABA
192F 39       RTS
1930 8D F3    BSR    $1925
```