XBUG V5

```
LINE # LOC     CODE        LINE

0000                       ;
0000                       ;;
0000                       ;-----------------------------------
0000                       ;COPYRIGHT TANGERINE COMPUTER SYSTEMS LTD 1980
0000                       ;REPRODUCTION OF THIS PROGRAM IN WHOLE OR PART
0000                       ;IN ANY FORM WITHOUT EXPRESS
0000                       ;PERMISSION OF TANGERINE COMPUTER
0000                       ;SYSTEMS LTD IS STRICTLY FORBIDDEN
0000                       ;-----------------------------------------
0000                       ;
0000                       ;NOTE-SOME VERSIONS OF XBUG5
0000                       ;MAY BE SLIGTLY DIFFERENT
0000                       ;FROM THIS LISTING DUE TO
0000                       ;VERSION 5 MODS BEING PATCHED
0000                       ;RATHER THAN ASSEMBLED IN
0000                       ;
0000                       ;LINE BY LINE ASSEMBLER SUBROUTINES
0000                       ;
0000                       ;
0000                             *=$F000
F000                       ;
F000                       ;TANBUG DEFINITIONS
F000                       HEXPNT=$FF0B
F000                       VDUIND=$3
F000                       ICURS=$A
F000                       COPH=$1F
F000                       ACMDH=$33
F000                       ACMDL=$31
F000                       OCHAR=$2
F000                       HEXPCK=$FF28
F000                       RETERR=$FC89
F000                       OPCHAR=$FE75
F000                       POLLKB=$FDFA
F000                       HXPKL=$13
F000                       HXPKH=$14
F000                       MODADL=$1C
F000                       MODADH=$1D
F000                       OUTPCR=$FE73
F000                       COPL=$1E
F000                       ICHAR=$01
F000                       NOPAUS=$39
F000                       IPMODL=$35
F000                       DSPCNT=$37
F000                       FSTSLO=$50
F000                       CHAR=$51
F000                       NAME=$52
F000                       CSUM=$13
F000                       ;THE FOLLOWING TABLE MIUST RESIDE AT
F000                       ;LOC F000.IT ENABLES BASIC TO REMAIN
F000                       ;UNMODIFIED EVEN IF WE FOOL ABOUT
F000                       ;WITH XBUG
F000  4C AA F4             JINITC JMP INITCS
F003  4C E6 F5             JAPND  JMP APND
F006  4C B8 F5             JFNAME JMP FNAME
F009  4C D3 F4             JOP32M JMP OP32M
```

```
LINE # LOC     CODE        LINE

0057  F00C  4C FF F5       JRCFN  JMP RCFN
0058  F00F  4C 10 F5       JRECOR JMP RECORD
0059  F012  4C 0C F6       JINDCM JMP INDCMP
0060  F015  4C B4 F5       JOBLCU JMP OBLCUR
0061  F018  4C 75 F5       JRDWD  JMP RDWD
0062  F01B  4C 28 F7       JRERD  JMP RERD
0063  F01E  4C F9 F6       JRCDBL JMP RCDBLK
0064  F021  4C 7B F7       JRDDBL JMP RDDBLK
0065  F024  4C 3B F6       JSPERR JMP SPERR
0066  F027                 ;
0067  F027                 ;XBUG DEFS(PROM X1)
0068  F027                 ;
0069  F027                 ;
0070  F027                 ;SUBROUTINE PROMPT IS USED IN TANBUG
0071  F027                 ;SUB PROGRAMS TO REPLACE THE CURSOR
0072  F027                 ;WITH AN ! TO DISTINGUISH FROM TANBUG
0073  F027  A9 21          PROMPT LDA #$21
0074  F029  A4 03                 LDY VDUIND
0075  F02B  91 0A                 STA (ICURS),Y
0076  F02D  60                     RTS
0077  F02E                 ;
0078  F02E                 ;
0079  F02E                 ;SUBROUTINE HXRDAS READS THE STRING
0080  F02E                 ;$HHHH. ON EXIT OVERFLOW IS CLEAR IF
0081  F02E                 ;THERE ARE ANY ERRORS AT ALL-1ST
0082  F02E                 ;CHAR NOT DOLLARS,NO DATA,OR MORE
0083  F02E                 ;THAN 4 HEX CHARS
0084  F02E                 ;ON EXIT X CONTAINS THE NEXT ILLAGL
0085  F02E                 ;ENCOUNTERED CHAR
0086  F02E                 ;Y POINTS TO THIS CHAR
0087  F02E                 ;ON ENTRY Y POINTS TO THE CHAR BEFORE
0088  F02E                 ;THE $.HXPKL,H CONTAIN THE PACKED
0089  F02E                 ;VALUE ON EXIT
0090  F02E                 ;
0091  F02E  C8             HXRDAS INY                ;POINT TO CHAR
0092  F02F  B1 0A                 LDA (ICURS),Y      ;SHOULD BE $
0093  F031  AA                     TAX
0094  F032  E0 24                 CPX #'$
0095  F034  D0 10                 BNE TRYPRI         ;IF NOT RTY PRIME
0096  F036  98                     TYA               ;ELSE GET CURSOR INDEX
0097  F037  69 05                 ADC #5             ;ADD 5 TO IT
0098  F039  85 02                 STA OCHAR          ;STORE IT FOR LENGH CHECK
0099  F03B  20 28 FF              JSR HEXPCK         ;PACK THE ARG(TANBUG)
0100  F03E  50 04                 BVC HXRDER         ;ERROR IF NONE
0101  F040  C4 02                 CPY OCHAR          ;TOO MANY DIGITS?
0102  F042  90 01                 BCC HXRDOK         ;NO,OK
0103  F044  B8             HXRDER CLV                ;ERROR EXIT OFLOW CLEAR
0104  F045  60             HXRDOK RTS                ;OK EXIT OVERFLOW SET
0105  F046  E0 27          TRYPRI CPX #$27           ;IS IS A PRIME?
0106  F048  F0 04                 BEQ PRIME          ;YES,GO DO
0107  F04A  E0 60                 CPX #$60           ;ELSE IS IT INVERSE PRIME?
0108  F04C  D0 F6                 BNE HXRDER         ;NO,EROR
0109  F04E  C8             PRIME  INY                ;ELSE GET ASCII CHAR
0110  F04F  B1 0A                 LDA (ICURS),Y
0111  F051  85 13                 STA HXPKL
```

```
LINE # LOC    CODE        LINE

F053  A9 00               LDA #0
F055  85 14               STA HXPKH        ;STORE IT UP
F057  C8                  INY              ;INC LINE PTR
F058  B1 0A               LDA (ICURS),Y    ;STORE IN X
F05A  AA                  TAX
F05B  2C 4E F0            BIT TRYPRI       ;SET V FLAG FOR OK
F05E  60                  RTS              ;AND RETURN
F05F                ;
F05F                ;
F05F                ;
F05F                ;
F05F                ;
F05F                ;SUBROUTINE MODBIT READS COMMAND
F05F                ;MODE TYPE FROM X AND SETS ACMDL AND H
F05F                ;IN A CORRESPONDING BIT PATTERN
F05F                ;COPH IS SET UP WITH THE OPCODE OFFSET
F05F  BD 43 F1      MODBIT LDA OFSTBL,X      ;GET OPCODE OFFSET
F062  85 1F               STA COPH         ;STORE IN COPH
F064  A9 00               LDA #0           ;INIT MODE FLAG WRDS
F066  85 33               STA ACMDH
F068  38                  SEC
F069  2A            MDSET ROL A            ;DOUBLE PREC LEFT SHIFT
F06A  26 33               ROL ACMDH        ;TO SET APPRORIATE BIT
F06C  CA                  DEX
F06D  10 FA               BPL MDSET
F06F  85 31               STA ACMDL        ;STORE TH LO PART
F071  60                  RTS
F072                ;
F072                ;SUBROUTINE PRESTR PRINTS THE HEX INSTR PARTS
F072                ;STORES THE SAME AND INCREMENTS PC STORED
F072                ;IN MODADL
F072                ;
F072  A0 00         PRTSTR LDY #0
F074  91 1C               STA (MODADL),Y   ;STORE THE NUMBER
F076  D1 1C               CMP (MODADL),Y   ;DID IT GO IN?
F078  48                  PHA
F079  F0 0D               BEQ WENTIN       ;YES OK ELSE TELL OP
F07B  A5 37               LDA DSPCNT       ;DISABLE THE MEN CHECK
F07D  D0 09               BNE WENTIN       ;IF WE ARE DISSASSEMBLING
F07F  20 73 FE            JSR OUTPCR
F082  20 31 FE            JSR MERR
F085  20 73 FE            JSR OUTPCR
F088  E6 1C         WENTIN INC MODADL      ;INC THE ADDRESS
F08A  D0 02               BNE NOHM
F08C  E6 1D               INC MODADH
F08E  68            NOHM  PLA
F08F  20 4B FE            JSR PRBITE       ;PRINT THE NO
F092  60                  RTS              ;AND RETURN
F093                ;
F093                ;LINK THIS TO XASSEMBLER CODE FILE
F093                ;
F093                ;SUBR CHKARG
F093                ;ON ENTRY X CONTAINS THE MNEMONIC
F093                ;TABLE INDEX,ACMDL,H CONTIAN INPUT MODE
F093                ;ON EXIT IF ANY ILLEGALITY IS DETECTED
```



```
LINE # LOC    CODE        LINE

F093                ;CARRY IS CLEAR.IT IS SET IF OK
F093                ;ON EXIT A HOLDS THE OPCODE,X INDEX AS INPUT,
F093                ;ACMDH,L AS INPUT,MODADH AND L THE PC
F093                ;HXPKH THE REQUIRED ARGUMENT
F093                ;
F093                ;
F093  A0 FF         CHKARG LDY #$FF          ;USE Y TO INDEX LEGALITY TBL
F095  8A                   TXA
F096  C8            NXLGL  INY
F097  D9 4F F1             CMP LEGTBL,Y     ;ACCESS THE WORDS
F09A  B0 FA                BCS NXLGL        ;WHICH SAY WHATS LEGAL
F09C                ;Y NOW CONTAINS THI INDEX TO LEG WORDS
F09C                ;X STILL HOLDS CMD AND OPCODE INDEX
F09C  A5 33                LDA ACMDH        ;HI PRT MODE LEGAL?
F09E  39 5C F1             AND LEGH,Y
F0A1  D0 35                BNE NM4          ;YES,CONTINUE
F0A3  A5 31                LDA ACMDL        ;ELSE TRY LO
F0A5  39 69 F1             AND LEGL,Y
F0A8  F0 60                BEQ EROUT        ;IF ILEGAL,ERROR
F0AA                MODLEG
F0AA                ;OK THE MODES LEGAL-WE CAN GET OPCODE
F0AA                ;X HOLDS OPCODE INDEX,A HOLDS THE MODE
F0AA                ;OF ENTERED INSTR
F0AA                ;FIRST PERFORM FRIGS FOR THE INSTRS
F0AA                ;WHICH DONT FIR INTO THE GENERAL PATTERB
F0AA                ;Y INDEXES LEGALTBL
F0AA  C0 01                CPY #1           ;TYPE 1 INSTR?
F0AC  D0 2A                BNE NM4          ;NO,SKIP
F0AE  C9 04                CMP #4           ;MODE 2 INPUT?
F0B0  F0 10                BEQ NM3          ;YES GO FRIG THE OPCODE
F0B2  C9 80                CMP #$80         ;MODE 7 INPUT?
F0B4  D0 22                BNE NM4          ;NO,SKIP ELSE
F0B6  A9 00                LDA #0           ;FRIG TYPE 1 MODE 7 TO BE MODE 9
F0B8  85 31                STA ACMDL
F0BA  A9 02                LDA #2
F0BC  85 33                STA ACMDH
F0BE  A9 18                LDA #24          ;AND SET DEC OPCODE OFFSET
F0C0  D0 02                BNE NORMP1       ;UNCOND
F0C2  A9 08         NM3    LDA #8           ;ELSE FRIG MODE 2 TO ADD 8
F0C4  85 1F         NORMP1 STA COPH         ;INSTEAD OF 0 FOR M2
F0C6  BD 1F F2      NORMOP LDA OPCOD,X      ;GET OPCODE FROM TBL
F0C9  18                   CLC              ;ADD THE OFFSET FOR THE MODE
F0CA  65 1F                ADC COPH
F0CC  C0 05                CPY #5           ;IS IT A LDX INSTR?
F0CE  D0 06                BNE PCOPJ        ;NO,SKIP
F0D0  C9 BA                CMP #$BA         ;ELSE IS OPCODE BA??
F0D2  D0 02                BNE PCOPJ        ;NO,SKIP
F0D4  A9 BE                LDA #$BE         ;BUT IF SO FRIG IT
F0D6  38            PCOPJ  SEC              ;CLEAR ERROR FLG
F0D7  60                   RTS              ;AND RETURN
F0D8  E0 2E         NM4    CPX #46          ;DEC..FURTHER FRIGS..BR,JMP,JSR?
F0DA  90 EA                BCC NORMOP       ;NO,NORMAL PROCEDURE
F0DC  A5 33                LDA ACMDH        ;MODE =8?
F0DE  C9 01                CMP #1
F0E0  F0 E4                BEQ NORMOP       ;YES,NORMAL
```

```
# LOC     CODE        LINE

F0E2  A9 20                LDA #$20        ;ELSE SET MODE 5-
F0E4  85 31                STA ACMDL
F0E6  A9 00                LDA #0          ;AND INSTR OFFSET TO 0
F0E8  E0 30                CPX #48         ;DEC.. WAS IT BRANCH?
F0EA  90 D8                BCC NORMP1      ;NO,NORMAL ALMOST
F0EC  A9 08                LDA #$8         ;ELSE SET M3
F0EE  85 31                STA ACMDL
F0F0  A5 13                LDA HXPKL       ;CALC BRANCH OFFSET-GET DEST ADDR
F0F2  38                   SEC
F0F3  E9 02                SBC #2          ;SUB THE INSTR OFFSET
F0F5  B0 02                BCS NODB
F0F7  C6 14                DEC HXPKH
F0F9  38            NODB   SEC             ;SUBTRACT THE SOURCE ADDRESS
F0FA  E5 1C                SBC MODADL
F0FC  48                   PHA             ;TEMP SAVE THE RESULT
F0FD  A5 14                LDA HXPKH       ;HI PART
F0FF  E5 1D                SBC MODADH
F101  A8                   TAY             ;SAVE THIS IN Y
F102  68                   PLA             ;REC LO BYTE
F103  10 01                BPL PL          ;IF 0 OR PLIS BRANCH
F105  C8                   INY             ;ELSE INC HI PRT
F106  C0 00         PL     CPY #0          ;OFFSET TOO BIG?
F108  F0 02                BEQ DFOK        ;NO,STORE IT
F10A  18            EROUT  CLC             ;ERROR OP-SET ERROR FLG
F10B  60                   RTS             ;AND RETURN
F10C                DFOK
F10C  85 13                STA HXPKL       ;ELSE STORE IT
F10E                ;HI PART IMMATERIAL
F10E  BD 1F F2             LDA OPCOD,X     ;GET THE OPCODE INA
F111  38                   SEC             ;CLEAR ERRORS
F112  60                   RTS             ;RETURN
F113                ;
F113                ;
F113                ;
F113                ;
F113                ;SUBR PNTINS PRINTS ADRESS,OPCODE,ARGS
F113                ;ON ENTRY CURSOR IS ASSUMED TO BE AT LINE START
F113                ;ACMDH L CONTAIN INSTR MODE
F113                ;MODADH AND L OPCODE ADDR
F113                ;A THE OPCODE
F113                ;
F113  48            PNTINS PHA             ;SAVE OPCODE
F114  20 44 F6             JSR PADDR
F117  E6 03                INC VDUIND      ;SKIPA SPACE
F119  68                   PLA             ;GET OPCODE IN A
F11A  8D FC 03             STA $3FC        ;PRINT ASCII EQUIVALENT
F11D  20 72 F0             JSR PRTSTR      ;PRINT AND STORE IT
F120  A5 31                LDA ACMDL
F122  29 03                AND #3          ;MODE 0 OR 1?
F124  D0 1C                BNE ASRT        ;YES,GO TIDY UP
F126  A5 13                LDA HXPKL       ;ELSE STORE IND PRINT HXPKL
F128  8D FD 03             STA $3FD        ;PRINT ASCII EQUIV
F12B  20 72 F0             JSR PRTSTR
F12E  A5 31                LDA ACMDL
F130  29 60                AND #$60        ;NODE 5,6,8,9?
```

```
LINE # LOC     CODE        LINE

0277  F132  D0 06                BNE THIRMD      ;YES THIRD BYTE OF PRINT AND STR
0278  F134  A5 33                LDA ACMDH
0279  F136  29 03                AND #3
0280  F138  F0 08                BEQ ASRT        ;ELST TIDY UP
0281  F13A  A5 14         THIRMD LDA HXPKH
0282  F13C  8D FE 03             STA $3FE        ;PRINT ASCII EQUIV
0283  F13F  20 72 F0             JSR PRTSTR
0284  F142  60            ASRT   RTS
0285  F143                ;
0286  F143                ;
0287  F143                .FILE ASTBL
0288  F143                ;THIS MODULE ASTBL CONTAINS TABLES NECESSARY
0289  F143                ;FOR ASSEMBLER OPERATION
0290  F143                ;
0291  F143                ;OFSTBL CONTAINS THE NUMERIC OFFSETS
0292  F143                ;TO BE ADDED TO BASIC OPCODE SETS
0293  F143                ;FOR EACH MODE IN DECIMAL
0294  F143                ;
0295  F143  00            OFSTBL .BYTE 0,8,0,4,20,12,28
0295  F144  08
0295  F145  00
0295  F146  04
0295  F147  14
0295  F148  0C
0295  F149  1C
0296  F14A  14                   .BYTE 20,32,24,16,0
0296  F14B  20
0296  F14C  18
0296  F14D  10
0296  F14E  00
0297  F14F                ;
0298  F14F                ;
0299  F14F                ;THE LEGALITY TABLES WORK AS FOLLOWS
0300  F14F                ;LEGTBL CONTAINS AN INDEX WHICH IS AN INEX
0301  F14F                ;TO THE CHARACTER TABLE FRSCH ETC
0302  F14F                ;LEGH AND LEGL CONTAIN BIT PATTERNS
0303  F14F                ;INDICATING WHICH MODES ARE LEGAL FOR
0304  F14F                ;FOR THE GROUP OF INSTRS WITH AN INDEX
0305  F14F                ;LESS THAN THAT ADDRESSING FRSCH
0306  F14F                ;LEGTBL VALUES ARE DECIMAL,LEGL AND H HEX
0307  F14F                ;
0308  F14F                ;
0309  F14F  19            LEGTBL .BYTE 25,32,36,38,40,41,42
0309  F150  20
0309  F151  24
0309  F152  26
0309  F153  28
0309  F154  29
0309  F155  2A
0310  F156  2B                   .BYTE 43,44,45,46,47,56
0310  F157  2C
0310  F158  2D
0310  F159  2E
0310  F15A  2F
0310  F15B  38
```

```
LOC     CODE        LINE

F15C                ;
F15C    00          LEGH    .BYTE 0,$E,0,0,0,2,0
F15D    0E
F15E    00
F15F    00
F160    00
F161    02
F162    00
F163    0E                  .BYTE $E,0,0,0,1,0
F164    00
F165    00
F166    00
F167    01
F168    00
F169                ;
F169    01          LEGL    .BYTE 1,%11111100,%01111010
F16A    FC
F16B    7A
F16C    2C                  .BYTE %00101100,%01111000,%10101100
F16D    78
F16E    AC
F16F    7C                  .BYTE %01111100,%01111000,%10101000
F170    78
F171    A8
F172    38                  .BYTE %00111000,%00101000,%00101000
F173    28
F174    28
F175    28                  .BYTE %00101000
F176                ;
F176                ;
F176                ;INSTRUCTION MENEMONIC TABLES AND OPCODE
F176                ;LOOKUP.TABLES ARE FIRST,SECOND AND THIRD
F176                ;LETTERS OF THE COMMAND AND BASE OPCODE
F176                ;NOTE ORDER IS IMPORTANT,ANT TIES IN
F176                ;WITH LEGTBL TOO
F176                ;
F176    42 43       FRSCH   .BYTE 'BCCCCDDIINPPPPRRS'
F187    53 53               .BYTE 'SSTTTTTTAACELOS'
F196    41 4C               .BYTE 'ALRRCCIDLLS'
F1A1    53 53               .BYTE 'SSBJJBBBBBBBB',0
F1AE    00
F1AF                ;
F1AF    52 4C       SECCH   .BYTE 'RLLLLEENNOHHLLTTE'
F1C0    45 45               .BYTE 'EEAAYSXXDNMODRB'
F1CF    53 53               .BYTE 'SSDOPPNEDDT'
F1DA    54 54               .BYTE 'TTIMSCCEMNPVV'
F1E7                ;
F1E7                ;
F1E7    4B 43       THIRCH  .BYTE 'KCDIVXYXYPAPAPISC'
F1F8    44 49               .BYTE 'DIXYAXASCDPRAAC'
F207    4C 52               .BYTE 'LRLRXYCCXYA'
F212    58 59               .BYTE 'XYTPRCSQIELCS'
F21F                ;
F21F                ;;OPCODES
F21F                ;
```



```
LINE # LOC     CODE        LINE

0346   F21F                ;
0347   F21F    00          OPCOD   .BYTE 00,$18,$D8,$58,$B8,$CA
0347   F220    18
0347   F221    D8
0347   F222    58
0347   F223    B8
0347   F224    CA
0348   F225    88                  .BYTE $88,$E8,$C8,$EA,$48,$08,$68,$28
0348   F226    E8
0348   F227    C8
0348   F228    EA
0348   F229    48
0348   F22A    08
0348   F22B    68
0348   F22C    28
0349   F22D    40                  .BYTE $40,$60,$38,$F8,$78,$AA,$A8,$98
0349   F22E    60
0349   F22F    38
0349   F230    F8
0349   F231    78
0349   F232    AA
0349   F233    A8
0349   F234    98
0350   F235    BA                  .BYTE $BA,$8A,$9A,$61,$21,$C1,$41
0350   F236    8A
0350   F237    9A
0350   F238    61
0350   F239    21
0350   F23A    C1
0350   F23B    41
0351   F23C    A1                  .BYTE $A1,1,$E1,2,$42,$22,$62,$E0
0351   F23D    01
0351   F23E    E1
0351   F23F    02
0351   F240    42
0351   F241    22
0351   F242    62
0351   F243    E0
0352   F244    C0                  .BYTE $C0,$E2,$C2,$A2,$A0,$81,$82
0352   F245    E2
0352   F246    C2
0352   F247    A2
0352   F248    A0
0352   F249    81
0352   F24A    82
0353   F24B    80                  .BYTE $80,$20,$4C,$20,$90,$B0,$F0
0353   F24C    20
0353   F24D    4C
0353   F24E    20
0353   F24F    90
0353   F250    B0
0353   F251    F0
0354   F252    30                  .BYTE $30,$D0,$10,$50,$70
0354   F253    D0
0354   F254    10
```

```
LINE # LOC    CODE        LINE

0387  F28D  20 75 FE  DISPLP JSR OPCHAR      ;OUTPUT CR
0388  F290  20 27 F0  PMPIT  JSR PROMPT      ;CHANGE PROMPT
0389  F293  20 FA FD  PLKKIT JSR POLLKB      ;AWAIT A CHAR
0390  F296  A5 01             LDA ICHAR      ;GET CHAR IN ACC
0391  F298  C9 1B             CMP #$1B       ;WAS IT ESCAPE?
0392  F29A  D0 01             BNE NOESC      ;NO,SKIP
0393  F29C  60                RTS            ;ELSE RETURN TO MONITOR
0394  F29D  C9 0D       NOESC CMP #$D        ;WAS THE TYPED CHAR CR?
0395  F29F  F0 29             BEQ PRCODE     ;IF A CR PROCESS CODE
0396  F2A1  C9 7F             CMP #$7F       ;DEL?
0397  F2A3  D0 08             BNE UPARTS     ;NO,BRANCH
0398  F2A5  A0 0C             LDY #12        ;NO DEL IF CURS BSE
0399  F2A7  C4 03             CPY VDUIND
0400  F2A9  F0 E8             BEQ PLKKIT
0401  F2AB  D0 E0             BNE DISPLP
0402  F2AD                UPARTS
0403  F2AD  C9 5E             CMP #$5E       ;ELSE WAS IT UPARROW →
0404  F2AF  D0 0D             BNE NOARW      ;NO,SKIP
0405  F2B1  C6 1C             DEC MODADL     ;ELSE DEC PC
0406  F2B3  A9 FF             LDA #$FF
0407  F2B5  C5 1C             CMP MODADL
0408  F2B7  D0 34             BNE LINENT
0409  F2B9  C6 1D             DEC MODADH
0410  F2BB  4C ED F2          JMP LINENT
0411  F2BE  C9 0A       NOARW CMP #$A        ;EWAS IT LINE FEED?
0412  F2C0  D0 CB             BNE DISPLP     ;NO,PRINT IT AND LK FOR NEXT
0413  F2C2  E6 1C             INC MODADL
0414  F2C4  D0 27             BNE LINENT     ;ELSE INC PC
0415  F2C6  E6 1D             INC MODADH
0416  F2C8  D0 23             BNE LINENT     ;PRINT PC THEN NXT CMD
0417  F2CA                PRCODE
0418  F2CA  A0 00             LDY #0         ;CLEAR MEM ERR INHIBIT FLAG
0419  F2CC  84 37             STY DSPCNT
0420  F2CE  A0 0C             LDY #12        ;SET INPUT PTR
0421  F2D0  B1 0A             LDA (ICURS),Y  ;GET FIRST DN LINE
0422  F2D2  C9 3B             CMP #';        ;WAS IT A COMMENT?
0423  F2D4  F0 17             BEQ LINENT     ;YES IGNORE THE LINE
0424  F2D6  C9 2A             CMP #'*        ;PROGRAM CTR CMD?
0425  F2D8  D0 2E             BNE NASTY      ;NO,SKIP
0426  F2DA  C8                INY            ;ELSE NEXT CHAR
0427  F2DB  B1 0A             LDA (ICURS),Y
0428  F2DD  C9 3D             CMP #'=        ;
0429  F2DF  D0 3C             BNE ASERR      ;ERROR IF WRONG FORMAT
0430  F2E1  20 2E F0          JSR HXRDAS     ;ELSE READ IN HEX ARGUMENT
0431  F2E4  50 37             BVC ASERR      ;ERROR IF ILLEGAL ARG
0432  F2E6  E0 21             CPX #'!        ;ERROR IF CURSOR NOT NEXT
0433  F2E8  D0 33             BNE ASERR
0434  F2EA  20 52 F6          JSR HXTOMO     ;XFER HXPXK TO MOADAL
0435  F2ED                ;LINE BY LINE ASSEMBLER ENTRY POINT
0436  F2ED  20 73 FE    LINENT JSR OUTPCR    ;PRINT THE PC
0437  F2F0  20 44 F6          JSR PADDR      ;
0438  F2F3  A9 20             LDA #$20       ;SPACE
0439  F2F5  20 75 FE          JSR OPCHR
0440  F2F8  A0 00             LDY #0         ;GET LOCATIONS CONTENTS
0441  F2FA  B1 1C             LDA (MODADL),Y
```

```
LOC    CODE        LINE

F255  50
F256  70
F257                ;
F257                ;
F257                ;
F257                ;PRDEX IS A POINTER TABLE TO CMD
F257                ;ARGUMENT TEXR STRINGS
F257  00            PRDEX   .BYTE 0,1,3,6,8,12,14
F258  01
F259  03
F25A  06
F25B  08
F25C  0C
F25D  0E
F25E  12                    .BYTE 18,22,26,30,36
F25F  16
F260  1A
F261  1E
F262  24
F263                ;
F263                ;PRTBL HOLDS TEXT STRINGS OF CMD ARGS
F263                ;INDEXED BY PRDEX
F263  00            PRTBL   .BYTE 0
F264  41                    .BYTE 'A',0
F265  00
F266  23 24                 .BYTE '#$',0
F268  00
F269  24                    .BYTE '$',0
F26A  00
F26B  24 2C 58              .BYTE '$,X',0
F26E  00
F26F  24                    .BYTE '$',0
F270  00
F271  24 2C 58              .BYTE '$,X',0
F274  00
F275  24 2C 59              .BYTE '$,Y',0
F278  00
F279  28 24 29              .BYTE '($)',0
F27C  00
F27D  24 2C 59              .BYTE '$,Y',0
F280  00
F281  28 24                 .BYTE '($),Y',0
F286  00
F287  28 24                 .BYTE '($,X)',0
F28C  00
F28D                ;
F28D                ;
F28D                ;
F28D                .FILE XASS
F28D                ;LINE BY LINE ASSEMBLER MAIN PROG
F28D                ;
F28D                ;
F28D                ;
F28D                ;MAIN CALLED ENTRY
F28D                ;
```

```
# LOC    CODE        LINE

F2FC  20 0B FF            JSR HEXPNT       ;PRINT IT
F2FF  20 B4 F5            JSR OBLCUR
F302  A0 0C               LDY #12
F304  84 03               STY VDUIND
F306  D0 88               BNE PMPIT
F308  88            NASTY DEY              ;LOOK FOR A DIRECT NO ENTRY
F309  20 2E F0            JSR HXRDAS       ;IS IT ONE??
F30C  A0 0C               LDY #12          ;(RESET Y)
F30E  50 13               BVC NAST         ;NO,TRY MNEMONIC
F310  E0 21               CPX #'!          ;ELSE CHECK CURSOR FOLLOWS
F312  D0 09               BNE ASERR        ;ERR IF NIT
F314  A9 01               LDA #1           ;ELSE SET MODE 0(FORMATS PRINTOUT
F316  85 31               STA ACMDL
F318  A5 13               LDA HXPKL        ;GET NO IN ACC
F31A  4C B4 F3            JMP PCOPC        ;GO PRINT
F31D                ;
F31D                ;
F31D                ;
F31D  20 89 FC      ASERR JSR RETERR       ;ERR PRINT
F320  4C ED F2            JMP LINENT
F323                ;
F323                ;
F323                ;IF WE GET HERE,TRY A MNEMONIC
F323                ;Y STILL POINTS TO FIRST CHAR
F323  84 1E         NAST  STY COPL         ;STORE THEMNENONIC ADDR
F325  C8                  INY
F326  C8                  INY
F327  C8                  INY              ;SKIP THE MNEMONIC
F328                ;
F328                ;
F328                ;Y NOW POINTS TO THE CHAR IMMEDIATELY
F328                ;AFTER THE SUPPOSED COMMAND
F328                ;THE FOLLOWING SECTION OF CODE LOOKS
F328                ;AT THE ARGUMENT TO SEE IF IT IS
F328                ;VALID,AND ASSIGNS A MODE NO AS FOLLOWS
F328                ;0 IMPLIED
F328                ;1 ACCUM
F328                ; IMMED
F328                ;3 Z PAGE
F328                ;4 Z PAGE,X
F328                ;5 ABS
F328                ;6 ABS,X
F328                ;7 ZPGE,Y
F328                ;8 JMP INDIRECT
F328                ;9 ABS,Y
F328                ;10 (INDIRECT),Y
F328                ;11 (INDIRECT),X
F328                ;ALL OTHERRS,THOUGH THEY MAY BE SET,
F328                ;ARE ILLEGAL
F328                ;
F328                ;THE FOLLOWING CODE COMPARES THE
F328                ;INPUT STRING WITH THE ARG TEXT TBL
F328                ;TO SEE IF THE COMMAND IS LEGALLY
F328                ;FORMATTED AND GET ITS MODW
F328  A2 00               LDX #0           ;SET MODE 0
```



```
LINE # LOC    CODE        LINE

0497  F32A  B1 0A               LDA (ICURS),Y    ;PICK UP NXT CHAR
0498  F32C  C9 20               CMP #$20         ;IS IT SPACE?
0499  F32E  D0 54               BNE CURSTS       ;NO,TRY CURSOR
0500  F330  C8                  INY              ;ELSE INC INPUT PTR
0501  F331  84 1F               STY COPH         ;SAVE IT
0502  F333  E8            NXFLSR INX             ;INC MODE
0503  F334  E0 0C               CPX #12          ;ERROR IF X >11,NO EQUIV
0504  F336  F0 43               BEQ ASJP
0505  F338  8A                  TXA
0506  F339  48                  PHA              ;SAVE IT
0507  F33A  BD 57 F2            LDA PRDEX,X      ;GET COMP STRING ADDR THIS MDE
0508  F33D  AA                  TAX              ;IN X
0509  F33E  BD 63 F2      NXBTSR LDA PRTBL,X     ;GET NEXT OF STRING
0510  F341  C9 24               CMP #'$          ;DO WE EXPECT A NUMBER?
0511  F343  D0 0D               BNE NHXINP       ;NO,SKIP
0512  F345  88                  DEY              ;ELSE ADJUST IP PTR
0513  F346  8A                  TXA
0514  F347  48                  PHA              ;SEVE X
0515  F348  20 2E F0            JSR HXRDAS       ;GET THE NO
0516  F34B  68                  PLA
0517  F34C  AA                  TAX              ;REC X
0518  F34D  50 0D               BVC NXIPSR       ;IF ERROR,TRY NEXT CMP STRTING
0519  F34F  E8            DONXIP INX             ;ELSE OK,NEXT THIS STRING
0520  F350  D0 EC               BNE NXBTSR       ;UNCOND
0521  F352  C9 00         NHXINP CMP #0          ;IF NOT NUMERIC,IS STRING END?
0522  F354  D0 0C               BNE NOENDP       ;NO,SKIP
0523  F356  B1 0A               LDA (ICURS),Y    ;ELSE IF SO,CURSOR?
0524  F358  C9 21               CMP #'!
0525  F35A  F0 0D               BEQ FRIGCD       ;IF SO GO TO NEXT SECTION
0526  F35C                NXIPSR                 ;ELSE RECOVER MODE
0527  F35C  68                  PLA              ;CAUSE THIS ONE IS WRONG
0528  F35D  AA                  TAX
0529  F35E  A4 1F               LDY COPH         ;RECOVER INPUT PTR
0530  F360  D0 D1               BNE NXFLSR       ;UNCOND TO TRY NEXT
0531  F362  D1 0A         NOENDP CMP (ICURS),Y   ;HERE,WE COMPARE CHARS
0532  F364  D0 F6               BNE NXIPSR       ;IF NONO,TRY NEXT STRING
0533  F366  C8                  INY              ;BUT IF YES,INC INPUT PTR
0534  F367  D0 E6               BNE DONXIP       ;GO OFF,INC STRING PTR AND CONT
0535  F369                FRIGCD                 ;IF HERE,WEVE FOUND IT.THE ODD FF
0536  F369  68                  PLA              ;GET MODE
0537  F36A  AA                  TAX
0538  F36B  E0 01               CPX #1           ;MODE 1?
0539  F36D  F0 15               BEQ CURSTS       ;YES NO ZPG CHK
0540  F36F  E0 08               CPX #8           ;DITTO IF JMP INDIRECT
0541  F371  F0 11               BEQ CURSTS
0542  F373  E0 02               CPX #2           ;MODE 2?IF SO CHECK ARG IS MAX 25
0543  F375  D0 07               BNE ZCHK         ;ELSE ZPAGE CHECK TO ALTER MDE
0544  F377  A5 14               LDA HXPKH
0545  F379  F0 03               BEQ ZCHK
0546  F37B  4C 1D F3      ASJP  JMP ASERR
0547  F37E                ;
0548  F37E                ZCHK                   ;IF NOT ZPAGE,ADD 2 TO MODE
0549  F37E  A5 14               LDA HXPKH
0550  F380  F0 02               BEQ CURSTS
0551  F382  E8                  INX
```

```
LINE # LOC    CODE        LINE

     F383  E8                 INX
     F384  B1 0A       CURSTS LDA (ICURS),Y    ;LOOK FOR CURSOR HERE
     F386  C9 21              CMP #'!         ;IF NOT ERROR
     F388  D0 F1              BNE ASJP
     F38A  E0 0C              CPX #$C         ;ALSO CHECK FOR ILLGAL MODE
     F38C  10 ED              BPL ASJP
     F38E                ;
     F38E                ;
     F38E                ;
     F38E                ;
     F38E                ;POINT BACK TO FIRST FILE
     F38E                ;
     F38E                .FILE XASSO
     F38E                ;MODULE XASSO IS THE OBJECT PROCESSOR
     F38E                ;
     F38E  20 5F F0           JSR MODBIT      ;SET MODE BITSINACMDH,L
     F391                ;NOW SEARCH CMD TBL FOR EQUIV
     F391  A2 FF              LDX #$FF        ;USE X TO ADDRESS TBL INDEX
     F393  A4 1E       NXCOM  LDY COPL        ;GET WHERE MNEM STORED
     F395  E8                 INX
     F396  BD 76 F1           LDA FRSCH,X     ;CMP FIRST CHAR
     F399  F0 E0              BEQ ASJP        ;IF ZERO TBL END,NO EQIV ERROR
     F39B  D1 0A              CMP (ICURS),Y   ;ELSE CMP WITH INPUT CHAR
     F39D  D0 F4              BNE NXCOM       ;NEXT IF NO EQ
     F39F  C8                 INY             ;ELSE NEXT CHAR
     F3A0  BD AF F1           LDA SECCH,X
     F3A3  D1 0A              CMP (ICURS),Y
     F3A5  D0 EC              BNE NXCOM
     F3A7  C8                 INY             ;IF EQUIV,THE LAST
     F3A8  BD E7 F1           LDA THIRCH,X
     F3AB  D1 0A              CMP (ICURS),Y
     F3AD  D0 E4              BNE NXCOM
     F3AF                ;IF WE DROP THRU,EQUIV.X IS INDEX
     F3AF                ;ITS MAX VAL IS 55 DECIMAL
     F3AF  20 93 F0           JSR CHKARG      ;CHECK THE ARGUMENT
     F3B2  90 C7              BCC ASJP        ;ERROR IF CARRY SET
     F3B4                ;
     F3B4                ;
     F3B4                ;
     F3B4                PCOPC
     F3B4                ;HERE,WE KNOW INSTR AND MODE ARE LEGAL
     F3B4                ;ARGUMENT SET RIGHT
     F3B4                ;A HOLDS OPCDOE
     F3B4                ;SO PUT THEM INTO MEN AND PRINT
     F3B4  48                 PHA             ;SAVE OPCODE
     F3B5  20 B4 F5           JSR OBLCUR      ;KILL CURSOR
     F3B8  A0 00              LDY #0          ;POINT TO LINE START
     F3BA  84 03              STY VDUIND
     F3BC  68                 PLA
     F3BD  20 13 F1           JSR PNTINS      ;PRINT ISTRNSTR AND OPCODE
     F3C0                ;
     F3C0  4C ED F2    ASTDY  JMP LINENT
     F3C3                ;
     F3C3                ;
     F3C3                ;
```



```
LINE # LOC    CODE        LINE

     F3C3                ;
     F3C3                .FILE DISAS
     F3C3                ;FILE DISAS CONTAINS DISSAS CODE
     F3C3                ;
     F3C3                ;
     F3C3                ;
     F3C3                ;ON ENTRY SPECIFIED ADDR IS IN
     F3C3                ;HXPKL AND H
     F3C3                ;DISASS ENTRY POINT
     F3C3                DISERY
     F3C3  A9 0F       DISENT LDA #15          ;SET THE PAGE ON/OFF FLG
     F3C5  85 39              STA NOPAUS
     F3C7  A9 0F       DISAS  LDA #15          ;AND PAGE LINE COUNNT
     F3C9  85 37              STA DSPCNT
     F3CB  20 B4 F5    NXINST JSR OBLCUR
     F3CE  A5 39              LDA NOPAUS      ;ID PAGING DISBLED
     F3D0  F0 1C              BEQ NXINS1      ;THEN SKIP
     F3D2  C6 37              DEC DSPCNT      ;ELSE SEE IF PGE FULL
     F3D4  D0 18              BNE NXINS1      ;NO,SKIP
     F3D6  20 73 FE           JSR OUTPCR
     F3D9  20 27 F0           JSR PROMPT
     F3DC  20 FA FD           JSR POLLKB      ;IF SO AWIAT THE USER
     F3DF  A5 01              LDA ICHAR       ;GET CHAR
     F3E1  C9 1B              CMP #$1B        ;IS IT ECS?
     F3E3  D0 01              BNE NDSES       ;NO,SKIP
     F3E5  60                 RTS             ;ELSE BACK TO THE BUG
     F3E6  C9 0A       NDSES  CMP #$A         ;IS IT LF?
     F3E8  D0 DD              BNE DISAS       ;NO,RESET COUNT AND NEXT PGE
     F3EA  A9 00              LDA #0          ;ELSE DISABLE PAGE MODE
     F3EC  F0 D7              BEQ DISERY+2
     F3EE                NXINS1
     F3EE  A2 37              LDX #55         ;DEC..HIGHEST INSTR INDEX
     F3F0                ;
     F3F0  A9 0C       TRYALL LDA #12          ;DEC..HIGHEST INSTR MODE
     F3F2  85 35              STA IPMODL      ;STORE IT
     F3F4  C6 35       NXIPMD DEC IPMODL       ;DEC THE MODE
     F3F6  10 07              BPL TRTHS       ;IF POS,TRY IT
     F3F8  CA                 DEX             ;ELSE NO MODES OK,DEC INSTR INDEX
     F3F9  10 F5              BPL TRYALL      ;DO THIS FOR ALL INSTR
     F3FB  E6 35              INC IPMODL      ;IF NEVER FOUND,SET UP
     F3FD  F0 1D              BEQ ILLOP       ;TO PRINT ERROR
     F3FF  8A          TRTHS  TXA             ;SAVE OPCODE INDEX
     F400  48                 PHA
     F401  A6 35              LDX IPMODL LOAD X WITH MIDE TYDE
     F403  20 5F F0           JSR MODBIT      ;SET UP BIT FLAGS
     F406  68                 PLA             ;RESTOR INSTR CODE
     F407  AA                 TAX
     F408  A5 1C              LDA MODADL      ;SET ARG = PC TO AVOID BNCH ERRS
     F40A  85 13              STA HXPKL
     F40C  A5 1D              LDA MODADH
     F40E  85 14              STA HXPKH
     F410  20 93 F0           JSR CHKARG      ;IS ARG LEGAL?
     F413  90 DF              BCC NXIPMD      ;IT ISNT,NEXT MODE
     F415  A0 00              LDY #0          ;PICK UP THE STORE CONTENTS
     F417  D1 1C              CMP (MODADL),Y  ;DOES IT = GENERATED OPCODE?
```

```
LINE # LOC     CODE        LINE

0717  F47C  18                  CLC
0718  F47D  E5 1C               ADC MODADL        ;ADD PC
0719  F47F  85 13               STA HXPKL         ;STORE RESULT
0720  F481  68                  PLA               ;TEST BRANCH SUGN
0721  F482  30 05               BMI NEGO          ;SKIP IF NEG OGFFSET
0722  F484  8A                  TXA
0723  F485  E9 00               ADC #0            ;ALSLSE ADD CARRY
0724  F487  90 16               BCC NOCLHH        ;GO STORE
0725  F489  8A            NEGO  TXA
0726  F48A  E9 00               SBC #0            ;NEG,SUB CARRY
0727  F48C  B0 11               BCS NOCLHH
0728  F48E  A6 14         NOBR  LDX HXPKH         ;GET HI PART ARG
0729  F490  A5 31               LDA ACMDL         ;IF MODES 5,6,8,9
0730  F492  29 60               AND #$60          ;DONT CLEAR HXPKH,ELSE Z PAGE
0731  F494  D0 08               BNE NOCLH1        ;SO CLEAR HI PRT ADDRESS
0732  F496  A5 33               LDA ACMDH
0733  F498  29 03               AND #3
0734  F49A  D0 02               BNE NOCLH1
0735  F49C  A2 00               LDX #0            ;IF ZPG TYPE ZERO THE HI BIT
0736  F49E  8A            NOCLH1 TXA              ;GET IN A
0737  F49F  20 0B FF      NOCLHH JSR HEXPNT       ;PRINT ADDRESS
0738  F4A2  A5 13               LDA HXPKL
0739  F4A4  20 0B FF            JSR HEXPNT
0740  F4A7                ;NOW,FINALLY,PRINT THE ARG ENDING
0741  F4A7  C8            NODOL INY               ;INC INDEX
0742  F4A8  D0 B8               BNE NXTRAI        ;NEXT PRT STRING
0743  F4AA                ;
0744  F4AA                ;
0745  F4AA                ;
0746  F4AA                ;GO LINK CASS SUBR
0747  F4AA                .FILE CSUB
0748  F4AA                ;FILE CSUB CONTAINS CASS SUBR
0749  F4AA                ;AND FILENAME HANLERS
0750  F4AA                IOIER=$BFCE
0751  F4AA                IOACR=$BFCB
0752  F4AA                IODDRB=$BFC2
0753  F4AA                IOT1LL=$BFC6
0754  F4AA                IOT1LH=$BFC7
0755  F4AA                IOORB=$BFC0
0756  F4AA                IOT1CL=$BFC4
0757  F4AA                IOIFR=$BFCD
0758  F4AA                T2CH=$BFC9
0759  F4AA                IOPCR=$BFCC
0760  F4AA                ;
0761  F4AA                ;
0762  F4AA                BASE=$BFC0
0763  F4AA                ;
0764  F4AA                ;SUBR INITCS
0765  F4AA  78            INITCS SEI              ;DIABLE KB
0766  F4AB  A0 06               LDY #6            ;Y=TBL END
0767  F4AD  BE BA F4      NXINIT LDX IN6522,Y     ;INDX TBL ADDR
0768  F4B0  B9 C1 F4            LDA OPDTA,Y       ;REGD DAT
0769  F4B3  9D C0 BF            STA BASE,X        ;SEND IT
0770  F4B6  88                  DEY
0771  F4B7  10 F4               BPL NXINIT
```



```
LINE # LOC     CODE        LINE

F419  18                  CLC
F41A  D0 D8               BNE NXIPMD        ;IF NOT TRY NEXT OPCODE
F41C                ;ELSE WEVE FOUND IT
F41C  8A            ILLOP TXA               ;SAVE OPCODE INDEX
F41D  48                  PHA
F41E  A0 00               LDY #0
F420  B1 1C               LDA (MODADL),Y    ;PUSH OPCODE
F422  48                  PHA
F423  C8                  INY
F424  B1 1C               LDA (MODADL),Y    ;PICK UP NEXT 2 MEM BYTES
F426  85 13               STA HXPKL
F428  C8                  INY               ;IN HXPCK
F429  B1 1C               LDA (MODADL),Y
F42B  85 14               STA HXPKH
F42D  20 73 FE            JSR OUTPCR        ;GIVE CR
F430  68                  PLA               ;RECOVER OPCODE
F431  20 13 F1            JSR PNTINS        ;PRINT ADDR AND OPCODE
F434  20 B4 F5            JSR OBLCUR        ;OBLITERATE CURSOR
F437  A9 0C               LDA #12           ;SET PRINT FORMAT
F439  85 03               STA VDUIND        ;FOR TANBUG
F43B  68                  PLA
F43C  AA                  TAX
F43D  10 06               BPL NODISR        ;SKIP IF LEGAL TO UNPACK
F43F  20 89 FC            JSR RETERR        ;ELSE PRINT QMARK
F442  4C CB F3      NXINJP JMP NXINST       ;AND DO NEXT INSTR
F445                ;ELSE OK.PRINT THE MNEMONIC
F445  BD 76 F1      NODISR LDA FRSCH,X
F448  20 75 FE            JSR OPCHAR
F44B  BD AF F1            LDA SECCH,X
F44E  20 75 FE            JSR OPCHAR
F451  BD E7 F1            LDA THIRCH,X
F454  20 75 FE            JSR OPCHAR
F457  A9 20               LDA #$20          ;GIVE A SPACE
F459  20 75 FE            JSR OPCHAR
F45C                ;NOW PRINT THE LEADING PART OF ARG
F45C  A4 35               LDY IPMODL        ;GET MODE IN Y
F45E  B9 57 F2            LDA PRDEX,Y       ;GET INDEX IN TEXT STRS
F461  A8                  TAY               ;THIS IN Y
F462  B9 63 F2      NXTRAI LDA PRTBL,Y      ;GET TXT CHAR
F465  D0 03               BNE NOTLLL        ;IF ZERO THIA LINE ALL DONE
F467  4C CB F3            JMP NXINST
F46A  48            NOTLLL PHA              ;ELSE PNT CHAR
F46B  20 75 FE            JSR OPCHAR
F46E  68                  PLA
F46F  C9 24               CMP #'$           ;WAS IT DOLLARS?
F471  D0 34               BNE NODOL         ;NO,SKIP
F473                ;ELSE DO THE NUMERIC PART
F473  E0 30               CPX #48           ;WAS IT A BRANCH??
F475  90 17               BCC NOBR          ;NO,SKIP THE NEXT BIT
F477                ;ELSE CALULATE THE ABS ADDRESS
F477                ;TO BE PRINTED FROM HXPKL(OFFSET)
F477                ;AND MODADL(BR OPCODE +2)
F477  A5 13               LDA HXPKL         ;GET OFFSET
F479  48                  PHA
F47A  A6 1D               LDX MODADH        ;HI BYTE IN X
```

```
LINE # LOC     CODE        LINE

0772  F4B9  60                    RTS
0773  F4BA  05            IN6522 .BYT 5
0774  F4BB  04                   .BYT 4,$B,2,$C,8,$E
0774  F4BC  0B
0774  F4BD  02
0774  F4BE  0C
0774  F4BF  08
0774  F4C0  0E
0775  F4C1  00            OPDTA  .BYT 0
0776  F4C2  9C                   .BYT $9C,$C0,$FF,$40,$B6,$7F
0776  F4C3  C0
0776  F4C4  FF
0776  F4C5  40
0776  F4C6  B6
0776  F4C7  7F
0777  F4C8                ;
0778  F4C8                ;SUBR ENDCY
0779  F4C8  AD C4 BF      ENDCY  LDA IDT1CL      ;CLEAR TIMOUT BIT
0780  F4CB  2C CD BF      WAITCY BIT IDIFR       ;WAIT FOR IT TO SET
0781  F4CE  50 FB                BVC WAITCY
0782  F4D0  60                   RTS
0783  F4D1  A0 20         OP32   LDY #$20        ;A WHILE OF 2400 TO SETTLE RECORD
0784  F4D3  20 DA F4      OP32M  JSR OPNON
0785  F4D6  88                   DEY
0786  F4D7  D0 FA                BNE OP32M
0787  F4D9  60                   RTS
0788  F4DA  20 C8 F4      OPNON  JSR ENDCY       ;WAIT FOR CYCLES TO END
0789  F4DD  CA                   DEX
0790  F4DE  D0 FA                BNE OPNON
0791  F4E0  60                   RTS
0792  F4E1                ;SUBR XOP
0793  F4E1  A9 9C         XOP    LDA #$9C        ;2400 TIME CODE
0794  F4E3  A2 00                LDX #0
0795  F4E5  B0 02                BCS OPFS        ;LOGIC 1-SKIP
0796  F4E7  0A                   ASL A           ;ELSE SET FOR 0
0797  F4E8  E8                   INX
0798  F4E9  8D C6 BF      OPFS   STA IDT1LL      ;PREPARE LATCHES
0799  F4EC  8E C7 BF             STX IDT1LH
0800  F4EF  10 D7                BPL ENDCY       ;UNCOND TO WAIT TILL EFFECTIVE
0801  F4F1                ;SUBR OPBIT
0802  F4F1  48            OPBIT  PHA
0803  F4F2  08                   PHP
0804  F4F3  A5 50                LDA FSTSLO      ;F/S?
0805  F4F5  D0 0A                BNE CUTS0       ;SKIP TO CUTS
0806  F4F7  38                   SEC             ;ELSE OP 1/2 CYC
0807  F4F8  20 E1 F4             JSR XOP
0808  F4FB  28                   PLP
0809  F4FC  20 E1 F4             JSR XOP         ;THN DATA BT
0810  F4FF  68                   PLA
0811  F500  60                   RTS
0812  F501  20 E1 F4      CUTS0  JSR XOP         ;O/P ONE DATA CYCLE
0813  F504  A2 0F                LDX #$F
0814  F506  28                   PLP             ;SET NO REQD,X
0815  F507  B0 02                BCS REST
0816  F509  A2 07                LDX #$7
```



```
LINE # LOC     CODE        LINE

0817  F50B  20 DA F4      REST   JSR OPNON       ;XMIT THE REST
0818  F50E  68                   PLA
0819  F50F  60                   RTS
0820  F510                ;
0821  F510                ;SUBR RECORD
0822  F510  85 51         RECORD STA CHAR
0823  F512  8A                   TXA
0824  F513  48                   PHA
0825  F514  98                   TYA
0826  F515  48                   PHA
0827  F516  20 C8 F4             JSR ENDCY
0828  F519  18                   CLC
0829  F51A  A0 09                LDY #9          ;SET UP 8 BTS
0830  F51C  A9 00                LDA #0          ;ACC =PARITY
0831  F51E  F0 06                BEQ SRTBT       ;OUTPUT 0 START BIT 1ST
0832  F520  46 51         NXBIT  LSR CHAR        ;OUTPUT THE CHAR BIT BY BIT
0833  F522  08                   PHP
0834  F523  69 00                ADC #0          ;UPD PARITY
0835  F525  28                   PLP
0836  F526  20 F1 F4      SRTBT  JSR OPBIT
0837  F529  88                   DEY             ;8 TIMES
0838  F52A  D0 F4                BNE NXBIT
0839  F52C  49 01                EOR #1;EVEN PATITY
0840  F52E  4A                   LSR A           ;GET IN CARRY
0841  F52F  A0 04                LDY #4          ;O/P PRRITY &
0842  F531  20 F1 F4      RPT    JSR OPBIT       ;2 STOPS
0843  F534  38                   SEC
0844  F535  88                   DEY
0845  F536  D0 F9                BNE RPT
0846  F538  68                   PLA
0847  F539  A8                   TAY
0848  F53A  68                   PLA
0849  F53B  AA                   TAX
0850  F53C  60                   RTS
0851  F53D                ;
0852  F53D                ;SUBR EXTIM
0853  F53D  48            XTIM   PHA
0854  F53E  AD C0 BF             LDA IDORB       ;CLEAR EDGE DETECTOR
0855  F541  AD CD BF      XTIM1  LDA IDIFR       ;WAIT FOR EDGE
0856  F544  29 08                AND #8
0857  F546  F0 F9                BEQ XTIM1
0858  F548  AD C9 BF             LDA T2CH        ;GET TIME
0859  F54B  48                   PHA
0860  F54C  A9 FF                LDA #$FF        ;RESET TIMR
0861  F54E  8D C9 BF             STA T2CH
0862  F551  68                   PLA
0863  F552  C9 FE                CMP #$FE        ;SET UP CRY
0864  F554  68                   PLA
0865  F555  60                   RTS
0866  F556                ;
0867  F556                ;SUBR RDBIT
0868  F556  20 3D F5      RDBIT  JSR XTIM        ;GET BIT
0869  F559  A6 50         BITEND LDX FSTSLO      ;FAST/SLOW?
0870  F55B  F0 17                BEQ EXRD        ;FAST,EXIT
0871  F55D  48                   PHA
```

```
LINE # LOC    CODE       LINE
0872  F55E  20 3D F5          JSR XTIM
0873  F561  A2 02             LDX #2          ;CUTS,RD XTRA BITS
0874  F563  90 02             BCC NOUG
0875  F565  A2 06             LDX #6
0876  F567  A9 00       NOUG  LDA #0          ;USE A BEST OF N XFERS
0877  F569  20 3D F5   NOUG1  JSR XTIM
0878  F56C  69 00             ADC #0
0879  F56E  CA                DEX
0880  F56F  D0 F8             BNE NOUG1
0881  F571  C9 04             CMP #4          ;SET UP CARRY
0882  F573  68                PLA
0883  F574  60          EXRD  RTS
0884  F575              ;
0885  F575              ;SUBR RDWD
0886  F575  98          RDWD  TYA
0887  F576  48                PHA
0888  F577  8A                TXA
0889  F578  48                PHA
0890  F579  20 3D F5          JSR XTIM        ;DUMMY RD
0891  F57C  20 3D F5   LOOK0  JSR XTIM        ;LOOK FOR 0
0892  F57F  B0 FB             BCS LOOK0
0893  F581  20 59 F5          JSR BITEND      ;FORMAT
0894  F584  B0 16             BCS RDEND       ;CUTS FRAME ERROR
0895  F586  A9 00             LDA #0          ;PARITY
0896  F588  A0 08             LDY #8          ;BIT CNT
0897  F58A  20 56 F5   NXRDW  JSR RDBIT       ;RD
0898  F58D  08                PHP
0899  F58E  66 51             ROR CHAR        ;STORE BIT
0900  F590  28                PLP
0901  F591  69 00             ADC #0          ;UPD PARITY
0902  F593  88                DEY             ;8 BITS
0903  F594  D0 F4             BNE NXRDW
0904  F596  20 56 F5          JSR RDBIT       ;GET PARITY
0905  F599  69 00             ADC #0          ;ADD IN
0906  F59B  4A                LSR A           ;SET C AS PAR
0907  F59C  68          RDEND PLA
0908  F59D  AA                TAX
0909  F59E  68                PLA
0910  F59F  A8                TAY
0911  F5A0  A5 51             LDA CHAR
0912  F5A2  60                RTS
0913  F5A3              ;
0914  F5A3              ;SUBR BURST
0915  F5A3  A0 0C       BURST LDY #$C         ;CNT OF $70
0916  F5A5  20 3D F5    BRS1  JSR XTIM        ;GET BIT
0917  F5A8  90 F9             BCC BURST       ;START AGAIN IF 1
0918  F5AA  CA                DEX
0919  F5AB  D0 F8             BNE BRS1        ;$70 CONSEC ONES
0920  F5AD  88                DEY
0921  F5AE  D0 F5             BNE BRS1
0922  F5B0  60          ENL   RTS
0923  F5B1              ;FURTHER CASSETTE FILE  AND NAME HANDLING SUBR
0924  F5B1              ;
0925  F5B1              ;DEFS
0926  F5B1              OPCHR=$FE75
```



```
LINE # LOC    CODE       LINE
0927  F5B1              RC1=$FC4B
0928  F5B1              ;
0929  F5B1              ;
0930  F5B1              ;
0931  F5B1              ;SUBR CRDBL
0932  F5B1  20 73 FE    CRDBL  JSR OUTPCR;CR
0933  F5B4              ;SUBR DBLCUR
0934  F5B4  A4 03       DBLCUR LDY VDUIND
0935  F5B6  A9 20              LDA #$20
0936  F5B8  91 0A              STA (ICURS),Y
0937  F5BA  60                 RTS
0938  F5BB              ;
0939  F5BB              ;
0940  F5BB              ;SUBR FNAME
0941  F5BB              ;
0942  F5BB              ;
0943  F5BB              ;PACKS UP AN ENTERED FNAME TO LOC
0944  F5BB              ;52 ONWARDS..CARRY SET ON EXIT
0945  F5BB              ;IF NAME WAS TOO LONG
0946  F5BB  A9 00       FNAME  LDA #$0
0947  F5BD  A2 08              LDX #8          ;INIT
0948  F5BF  95 52       INITB  STA NAME,X      ;TO CONTAIN SPACES
0949  F5C1  A9 20              LDA #$20
0950  F5C3  CA                 DEX
0951  F5C4  10 F9             BPL INITB
0952  F5C6  C8         NXFC   INY             ;GET CHRS FROM VDU
0953  F5C7  B1 0A              LDA (ICURS),Y
0954  F5C9  C9 2D              CMP #$2D;CHECK LEGAL CHAR
0955  F5CB  90 15              BCC FTDY        ;AND FINISH WHEN ILLEGAL OCCURS
0956  F5CD  C9 3A              CMP #$3A
0957  F5CF  90 08              BCC FCH
0958  F5D1  C9 41              CMP #$41
0959  F5D3  90 0D              BCC FTDY
0960  F5D5  C9 5B              CMP #$5B
0961  F5D7  B0 09              BCS FTDY
0962  F5D9  E8         FCH    INX             ;STORE IF LEGAL
0963  F5DA  95 52              STA NAME,X
0964  F5DC  E0 08              CPX #$8         ;BUFF FULL?
0965  F5DE  D0 E6              BNE NXFC        ;NO NEXT
0966  F5E0  38                 SEC             ;ERR EXIT SET CARRY
0967  F5E1  60                 RTS
0968  F5E2  18         FTDY   CLC
0969  F5E3  60                 RTS
0970  F5E4              ;
0971  F5E4              ;
0972  F5E4              ;
0973  F5E4              ;SUBR APNDA
0974  F5E4  A9 41       APNDA  LDA #$41        ;SET A AS APPENDIX
0975  F5E6              ;SUBR APND
0976  F5E6              APND                   ;SAVE APNDX
0977  F5E6  85 59              STA NAME+7      ;OVERWRITE WITH APPENDIX
0978  F5E8  A9 2E              LDA #$2E        ;DOT
0979  F5EA  85 58              STA NAME+6
0980  F5EC  20 73 FE           JSR OUTPCR      ;CAR RET
0981  F5EF  A2 00              LDX #$0         ;PRINT NME
```

```
LINE # LOC    CODE       LINE

F5F1  B5 52        NPT     LDA NAME,X
F5F3  F0 06                BEQ OBIT
F5F5  20 75 FE             JSR OPCHR
F5F8  E8                   INX
F5F9  D0 F6                BNE NPT
F5FB  20 B4 F5     OBIT    JSR OBLCUR       ;OBLIT CUR
F5FE  60                   RTS
F5FF               ;
F5FF               ;SUBR RCFN
F5FF  A2 00        RCFN    LDX #0
F601  B5 52        NEXX    LDA NAME,X
F603  20 10 F5             JSR RECORD
F606  E8                   INX
F607  E0 08                CPX #8
F609  D0 F6                BNE NEXX
F60B  60                   RTS
F60C               ;
F60C               ;
F60C               ;
F60C               ;SUBR INDCMP
F60C  A5 1C        INDCMP LDA MODADL
F60E  C5 1E                CMP COPL
F610  D0 06                BNE INEND
F612  A5 1D                LDA MODADH
F614  C5 1F                CMP COPH
F616  F0 06                BEQ RTN
F618  E6 1C        INEND   INC MODADL
F61A  D0 02                BNE RTN
F61C  E6 1D                INC MODADH
F61E  60           RTN     RTS
F61F               ;
F61F               ;SUBR GENERR
F61F  20 89 FC     GENERR JSR RETERR;?
F622  A2 FF        GENRET LDX #$FF;SET STACK
F624  9A                   TXS
F625  A9 00        CLST    LDA #0           ;CLOSE TAPE
F627  8D CB BF             STA IOACR
F62A  4C 4B FC             JMP RC1;TO MON LOOP
F62D               ;
F62D               ;TAPE ERROR PRINTS
F62D  A0 46        FERR    LDY #$46;F
F62F  D0 0A                BNE SPERR
F631  A0 4D        MERR    LDY #$4D;M
F633  D0 06                BNE SPERR
F635  A0 50        PERR    LDY #$50
F637  D0 02                BNE SPERR;P
F639  A0 43        CERR    LDY #$43;C
F63B  A9 20        SPERR   LDA #$20         ;SP
F63D  20 75 FE             JSR OPCHR
F640  98                   TYA
F641  20 75 FE             JSR OPCHR
F644  A5 1D        PADDR   LDA MODADH;PNT ADDR
F646  20 0B FF             JSR HEXPNT
F649  A5 1C                LDA MODADL
F64B  20 0B FF     PRBITE JSR HEXPNT
```



```
LINE # LOC    CODE       LINE

F64E  20 B4 F5             JSR OBLCUR
F651  60           ENL1    RTS
F652               ;SUBROUTINE HXTOMO TRANSFERS HXPKL,H
F652               ;CONTENTS TO MODADL,H
F652  A5 13        HXTOMO LDA HXPKL
F654  85 1C                STA MODADL
F656  A5 14                LDA HXPKH
F658  85 1D                STA MODADH
F65A  60                   RTS
F65B               ;
F65B               ;
F65B               .FILE XBUG
F65B               ;XBUG CODE
F65B               ;
F65B               ;
F65B               ;DEFS
F65B               RUNIND=$C
F65B               VDUBOT=$3E0
F65B               ;
F65B               XBUG
F65B               ;
F65B               ;------------
F65B               ;TEMPORARY FRIG TO RECT. X1 RECORD BUG
F65B               TYFG=$31
F65B  A9 00                LDA #0
F65D  85 31                STA TYFG         ;ZEEO TYPE FLAG
F65F  A0 01                LDY #1           ;ZRO STRING INDEX
F661  84 0C                STY RUNIND
F663  B1 0A                LDA (ICURS),Y;ONE LETTER?
F665  C9 FF                CMP #$FF
F667  D0 11                BNE STNG         ;NO,STRING
F669  88                   DEY              ;ELSE,C OR F?
F66A  B1 0A                LDA (ICURS),Y
F66C  C9 43                CMP #$43         ;CUTS?
F66E  D0 03                BNE NOTCUT
F670  85 50                STA FSTSLO       ;Y,SET SLO
F672  60                   RTS              ;TANBUG
F673  C9 46        NOTCUT CMP #$46;FST?
F675  D0 04                BNE STNG1
F677  84 50                STY FSTSLO;SET FST
F679  60                   RTS
F67A  88           STNG    DEY
F67B  B1 0A        STNG1   LDA (ICURS),Y    ;GET CMD CHAR
F67D  38                   SEC              ;SUB ASCII D
F67E  E9 44                SBC #$44
F680  C9 03                CMP #3           ;D,E OR F?
F682  90 2C                BCC CSCM         ;YES,CONT
F684  69 43                ADC #$43         ;ELSE REVERT TO ASCII (CRY SET)
F686  C9 41                CMP #'A          ;=====================
F688  D0 07                BNE TRYI         ;TEMP X1 TO X2 CNV FRIG
F68A  E6 31                INC TYFG
F68C  A9 02                LDA #2           ;RESET FETCH CMD
F68E  18                   CLC              ;NORMALISE CARRY
F68F  90 1F                BCC CSCM         ;GO TO CS SOFTWARE
F691  48           TRYI    PHA              ;PUSH THE LETTER
```

```
LINE # LOC     CODE        LINE

F692  20 28 FF            JSR HEXPCK       ;PACK AN ARGUMENT
F695  50 16               BVC EJ           ;BMRK IF ERROR
F697  20 52 F6            JSR HXTOMO       ;TRANSFER IT TO MODADL,H
F69A  E0 FF               CPX #$FF         ;CURSOR NEXT?
F69C  D0 0F               BNE EJ           ;NO,ERROR
F69E  68                  PLA              ;PICK UPD CMP LETTER
F69F  C9 49               CMP #'I          ;IS IT I FOR INSTR DISASS
F6A1  D0 03               BNE NOTI         ;NO,SKIP
F6A3  4C C3 F3            JMP DISERY       ;ELSE GO AND DISASS
F6A6  C9 54       NOTI    CMP #'T          ;T FOR TRANSLATE
F6A8  D0 03               BNE EJ           ;NO,CRAP OUT
F6AA  4C ED F2            JMP LINENT       ;IF SO,L BY L
F6AD              ;RTS FROM THESE 2 RETURNF TO THE BUG
F6AD  4C 1F F6    EJ      JMP GENERR
F6B0  E9 00       CSCM    SBC #0           ;ADJ CMD
F6B2  48                  PHA              ;SAVE CMD
F6B3  10 1A               BPL RDCD         ;GO TO READ
F6B5  20 28 FF    DUMP    JSR HEXPCK       ;DUMP SA
F6B8  50 F3               BVC EJ           ;ERR IF NO ARG
F6BA  E0 2C               CPX #$2C         ;ERR IF NO,
F6BC  D0 EF               BNE EJ
F6BE  20 52 F6            JSR HXTOMO       ;XFER TO MODADL,H
F6C1  20 28 FF            JSR HEXPCK       ;DUMP FA
F6C4  50 E7               BVC EJ           ;SIM ERR CHKS
F6C6  A5 13               LDA HXPKL
F6C8  85 1E               STA COPL
F6CA  A5 14               LDA HXPKH
F6CC  85 1F               STA COPH
F6CE  88                  DEY              ;ADJ Y
F6CF  C8          RDCD    INY              ;READ ENTRY
F6D0  B1 0A               LDA (ICURS),Y
F6D2  C9 2C               CMP #$2C         ;LOOK FR ,
F6D4  D0 D7               BNE EJ
F6D6  20 BB F5            JSR FNAME;PACK FNAME
F6D9  B0 D2               BCS EJ           ;ERROR IF TOOMANY CHARS
F6DB  C9 FF               CMP #$FF         ;CURSOR NXT
F6DD  D0 CE               BNE EJ           ;ERR IF NOT
F6DF  A9 00               LDA #$0          ;ENSURE REMOTE CONTROL ON
F6E1  8D C0 BF            STA IDORB
F6E4  20 E4 F5            JSR APNDA        ;PACK AND PNT FILE NAME
F6E7  20 AA F4            JSR INITCS       ;INIT CS
F6EA  68                  PLA              ;READ IF E OR F
F6EB  10 39               BPL RDCDO1
F6ED  20 D1 F4            JSR OP32         ;OUTPUT LEADER
F6F0  20 FF F5            JSR RCFN         ;RECORD FILE NAME
F6F3  20 F9 F6            JSR RCDBLK
F6F6  4C 22 F6            JMP GENRET
F6F9              RCDBLK
F6F9  A2 03               LDX #3           ;RECORD DUMP SA AND FA
F6FB  B5 1C       RCST    LDA MODADL,X
F6FD  20 10 F5            JSR RECORD
F700  CA                  DEX
F701  10 F8               BPL RCST
F703  20 DA F4            JSR OPNON
F706  A0 00               LDY #0           ;CLR INDEX
```



```
LINE # LOC     CODE        LINE

F708  84 13               STY CSUM         ;CLR CHKSUM
F70A              OPNXRC
F70A  B1 1C               LDA (MODADL),Y   ;OP A BYTE
F70C  48                  PHA
F70D  20 10 F5            JSR RECORD
F710  68                  PLA
F711  18                  CLC
F712  65 13               ADC CSUM;UPD CSUM
F714  85 13               STA CSUM
F716  20 0C F6            JSR INDCMP       ;INC INDEX AND COMPARE
F719  D0 EF               BNE OPNXRC
F71B              ;OP CSUM A FEW TIMES
F71B  A2 10               LDX #$10
F71D  A5 13       NXTZR   LDA CSUM
F71F  20 10 F5            JSR RECORD
F722  CA                  DEX
F723  D0 F8               BNE NXTZR
F725  60                  RTS              ;RETURN TO MON LOOP
F726  10 48       RDCDO1  BPL RDCDOE
F728              ;
F728              ;
F728              ;SUBROUTINE RERD
F728              ;LOOKS FOR STARTING BURST,READS FILENAME
F728              ;TO VDU,READS FILE STATUS TO MODADL ETC
F728              ;COMPARES THE NAME READ TO THAT ENTERED
F728              ;AND EXITS IF OK
F728              ;ELSE IT LOOKS FOR NEXT.INTS ARE ENABLES
F728              ;TO
F728              ;ALLOW A NON RESET EXIT
F728  20 B1 F5    RERD    JSR CROBL        ;CR
F72B  58                  CLI              ;ALLOW INTS
F72C  20 A3 F5            JSR BURST        ;LOOK FOR FILE BURST
F72F  A2 08               LDX #$8          ;READ FILE NAME TO VDE
F731  20 75 F5    NXRVD   JSR RDWD
F734  B0 06               BCS OKFNN        ;PARITY?
F736  20 2D F6    PFERR   JSR FERR
F739  4C 28 F7            JMP RERD
F73C  20 75 FE    OKFNN   JSR OPCHR
F73F  20 B4 F5            JSR OBLCUR
F742  CA                  DEX
F743  D0 EC               BNE NXRVD
F745  A2 03               LDX #3           ;SA AND FA
F747  20 75 F5    NSTAT   JSR RDWD
F74A  90 EA               BCC PFERR
F74C  95 1C               STA MODADL,X
F74E              ;--------------
F74E              ;TEMP X1 FOEMAT FRIG
F74E  A5 31               LDA TYFG
F750  F0 05               BEQ NORMLR
F752  CA                  DEX
F753  D0 F2               BNE NSTAT
F755  F0 04               BEQ CRAOP
F757              NMREAD
F757              ;----------
F757  CA          NORMLR  DEX
```

```
LINE # LOC    CODE       LINE

 202  F758  10 ED              BPL NSTAT
 203  F75A  E8                 INX
 204  F75B  86 13       CRAOP  STX CSUM        ;CLR CSUM
 205  F75D  A0 20              LDY #$20
 206  F75F  20 3B F6           JSR SPERR       ;PRINT SA
 207  F762  A2 07              LDX #$7         ;CMP FILENMS
 208  F764  BD E0 03    NXCOMP LDA VDUBOT,X
 209  F767  D5 52              CMP NAME,X
 210  F769  D0 BD              BNE RERD        ;SKIP ON NO COMP
 211  F76B  CA                 DEX
 212  F76C  10 F6              BPL NXCOMP      ;EXIT HERE GIVES A COMP
 213  F76E  78                 SEI             ;DISABLE INTS
 214  F76F  60                 RTS             ;AND RETURN
 215  F770              RDCDOE                 ;THE READ CODE
 216  F770  48                 PHA             ;PUSH THE CMD MNENON
 217  F771  20 2B F7           JSR RERD        ;READ THE NAME AND STATUS
 218  F774  68                 PLA
 219  F775  20 7B F7           JSR RDDBLK
 220  F778  4C 22 F6           JMP GENRET
 221  F77B  48          RDDBLK PHA
 222  F77C  20 B1 F5           JSR CROBL
 223  F77F  A0 00       NXDAIP LDY #0
 224  F781  20 75 F5           JSR RDWD        ;GET DATA
 225  F784  48                 PHA
 226  F785  B0 03              BCS READOK      ;PARITY?
 227  F787  20 35 F6           JSR PERR
 228  F78A  68          READOK PLA             ;CMD E,F?
 229  F78B  AA                 TAX
 230  F78C  18                 CLC
 231  F78D  65 13              ADC CSUM
 232  F78F  85 13              STA CSUM
 233  F791  68                 PLA
 234  F792  48                 PHA
 235  F793  F0 03              BEQ ECMD        ;E,DONT PUT IN MEM
 236  F795  8A                 TXA
 237  F796  91 1C              STA (MODADL),Y;F,STORE IT
 238  F798  8A          ECMD   TXA
 239  F799  D1 1C              CMP (MODADL),Y;DID IT GO IN?
 240  F79B  F0 03              BEQ MEMOK
 241  F79D  20 31 F6           JSR MERR        ;ERR IF NOT
 242  F7A0  20 0C F6    MEMOK  JSR INDCMP;NXT
 243  F7A3  D0 DA              BNE NXDAIP      ;NEXT
 244  F7A5  20 75 F5           JSR RDWD        ;GET CSUM
 245  F7A8  C5 13              CMP CSUM        ;CHECK IT
 246  F7AA  F0 03              BEQ NCSME
 247  F7AC  20 39 F6           JSR CERR
 248  F7AF  68          NCSME  PLA             ;UNLESS DONE,TANBUG RET
 249  F7B0  60                 RTS
 250  F7B1              ;
 251  F7B1              ;
 252  F7B1                     .END ASSUB

ERRORS = 0000 (0000)
```


SYMBOL	VALUE						
ACMDH	0033	ACMDL	0031	APND	F5E6	APNDA	F5E4
ASERR	F31D	ASJP	F37B	ASRT	F142	ASTDY	F3C0
BASE	BFC0	BITEND	F559	BRS1	F5A5	BURST	F5A3
CERR	F639	CHAR	0051	CHKARG	F093	CLST	F625
COPH	001F	COPL	001E	CRAOP	F75B	CROBL	F5B1
CSCM	F6B0	CSUM	0013	CURSTS	F3B4	CUTS0	F501
DISAS	F3C7	DISENT	F3C3	DISERY	F3C3	DISPLP	F28D
DONXIP	F34F	DSPCNT	0037	DUMP	F6B5	ECMD	F798
EJ	F6AD	ENDCY	F4C8	ENL	F5B0	ENL1	F651
ERDUT	F10A	EXRD	F574	FCH	F5D9	FERR	F62D
FNAME	F5BB	FRIGCD	F369	FRSCH	F176	FSTSLD	0050
FTDY	F5E2	GENERR	F61F	GENRET	F622	HEXPCK	FF28
HEXPNT	FF0B	HXPKH	0014	HXPKL	0013	HXRDAS	F02E
HXRDER	F044	HXRDOK	F045	HXTOMO	F652	ICHAR	0001
ICURS	000A	ILLOP	F41C	IN6522	F4BA	INDCMP	F60C
INEND	F618	INITB	F5BF	INITCS	F4AA	IOACR	BFCB
IODDRB	BFC2	IOIER	BFCE	IOIFR	BFCD	IORB	BFC0
IOPCR	BFCC	IOT1CL	BFC4	IOT1LH	BFC7	IOT1LL	BFC6
IPMODL	0035	JAPND	F003	JFNAME	F006	JINDCM	F012
JINITC	F000	JOBLCU	F015	JOP32M	F009	JRCDBL	F01E
JRCFN	F00C	JRDDBL	F021	JRDWD	F018	JRECOR	F00F
JRERD	F01B	JSPERR	F024	LEGH	F15C	LEGL	F169
LEGTBL	F14F	LINENT	F2ED	LOOK0	F57C	MDSET	F069
MEMOK	F7A0	MERR	F631	MODADH	001D	MODADL	001C
MODBIT	F05F	MODLEG	F0AA	NAME	0052	NAST	F323
NASTY	F308	NCSME	F7AF	NDSES	F3E6	NEGD	F489
NEXX	F601	NHXINP	F352	NM3	F0C2	NM4	F0D8
NMREAD	F757	NOARW	F2BE	NOBR	F48E	NOCLH1	F49E
NOCLHH	F49F	NODB	F0F9	NODISR	F445	NODOL	F4A7
NOENDP	F362	NOESC	F29D	NOHM	F08E	NOPAUS	0039
NORMLR	F757	NORMOP	F0C6	NORMP1	F0C4	NOTCUT	F673
NOTI	F6A6	NOTLLL	F46A	NOUG	F567	NOUG1	F569
NPT	F5F1	NSTAT	F747	NXBIT	F520	NXBTSR	F33E
NXCOM	F393	NXCOMP	F764	NXDAIP	F77F	NXFC	F5C6
NXFLSR	F333	NXINIT	F4AD	NXINJP	F442	NXINS1	F3EE
NXINST	F3CB	NXIPMD	F3F4	NXIPSR	F35C	NXLGL	F096
NXRDW	F58A	NXRVD	F731	NXTRAI	F462	NXTZR	F71D
OBIT	F5FB	OBLCUR	F5B4	OCHAR	0002	OFOK	F10C
OFSTBL	F143	OKFNN	F73C	OP32	F4D1	OP32M	F4D3
OPBIT	F4F1	OPCHAR	FE75	OPCHR	FE75	OPCOD	F21F
OPDTA	F4C1	OPFS	F4E9	OPNON	F4DA	OPNXRC	F70A
OUTPCR	FE73	PADDR	F644	PCOPC	F3B4	PCOPJ	F0D6
PERR	F635	PFERR	F736	PL	F106	PLKKIT	F293
PMPIT	F290	PNTINS	F113	POLLKB	FDFA	PRBITE	F64B
PRCODE	F2CA	PRDEX	F257	PRIME	F04E	PROMPT	F027
PRTBL	F263	PRTSTR	F072	RC1	FC4B	RCDBLK	F6F9
RCFN	F5FF	RCST	F6FB	RDBIT	F556	RDCD	F6CF
RDCDO1	F726	RDCDOE	F770	RDDBLK	F77B	RDEND	F59C
RDWD	F575	READOK	F78A	RECORD	F510	RERD	F728
REST	F50B	RETERR	FC89	RPT	F531	RTN	F61E
RUNIND	000C	SECCH	F1AF	SPERR	F63B	SRTBT	F526
STNG	F67A	STNG1	F67B	T2CH	BFC9	THIRCH	F1E7
THIRMD	F13A	TRTHS	F3FF	TRYALL	F3F0	TRYI	F691
TRYPRI	F046	TYFG	0031	UPARTS	F2AD	VDUBOT	03E0
VDUIND	0003	WAITCY	F4CB	WENTIN	F088	XBUG	F65B
XOP	F4E1	XTIM	F53D	XTIM1	F541	ZCHK	F37E

END OF ASSEMBLY