ANNOTATED DISASSEMBLY OF JOT
==============================

```
\ main turnkey entry point for JOT system
: JOT
RESCUE?
0 TEXT-SAFE !
EMPTY-BUFFERS
LOAD-TEXT        \ retrieve document from disk
TEXT-TOP
CACOPH           \ play all sounds (cacophony)
1 ´MODE !
0 LEVEL !
ACTIVE
?STACK
?KEY 0= 0BRANCH 0014
  START-ECHO
  ?KEY 0= 0BRANCH 0008
    ECHO BRANCH FFF4
    END-ECHO
KEY DUP LIT 0060 < 0BRANCH 000E
  DUP KEYT @ EXECUTE BRANCH FFCC
HOME (.") 07  ASCII " . (.") 10 FROM KEYBOARD!?
"
0 EXIT-KEY
;S

\ handle recovery from abort
806D : RESCUE?
TEXT-SAFE @ 0= 0BRANCH 0095
HOME (.") 44 JOT WAS ABORTED BEFORE CHANGES
COULD BE SAVED.  DO YOU WANT TO SAVE?"
KEY CR LIT 0059 = 0BRANCH 0036
(.") 27 INSERT THE JOT TEXT DISK YOU WERE USING"
CR &HIT RESCUE BRANCH 0004
```

```
EMPTY-BUFFERS 1 TEXT-SAFE !
;S


\ handle forced capitalization
8017 : CAPS-MODE-KEY
´SCREMIT @
2+ SDUP LITW 63A8 = EH? 0BRANCH 000A
LITW 63BC BRANCH 001C
LITW 63BC = EH? 0BRANCH 000A
LITW 0EEE BRANCH 0008 2DROP LITW 63A8 CF
A ´SCREMIT ! DROP DEPART TEXT-TOP ;S


\ initialize a disk
7F9C : NEW-DISK
Y/NQUERY FREE-ALL
CR (.") 20 IS THIS A 2-DRIVE SYSTEM? (Y/N):"
KEY DUP EMIT CR LIT 0059 = DUP 0= 0BRANCH 001F
(.") 18 REMOVE THE CURRENT DISK "
&HIT B/DSK * DUP BLK1 0 ROT COPY-SOME MAKE-DISK
;S


7F66 : MAKE-DISK
END-MARK DUP >TOP >BOT DUP 0BRANCH 0012
TOP ´TOS-BLK C@ >#2 BOT
TOM ´TOS-BLK C@ >#2
INDX + WRITE-INDEX FLUSH
;S


7F4A : COPY-DISK
Y/NQUERY
CR 0 B/DSK B/DSK
COPY-SOME
;S
```

```
7ED3 : COPY-SOME
DUP FMT ROT ROT DUP 0BRANCH 0011
CR (.") 0A COPYING..."
B/DSK ROT (DO) I #BUFS + B/DSK MIN
I (DO) I OVER > 0BRANCH 000A
I BUFFER BRANCH 0006
I BLOCK DROP OVER 0BRANCH 000A
I >#2 BRANCH 0004 UPDATE (LOOP) FFD6
FLUSH #BUFS (+LOOP) FFC0
2DROP
;S


7EBF : >#2
DUP #2 SWAP REASSIGN UPDATE
;S


7E45 : FMT
(.") 14 PUT A DISK IN DRIVE "
DUP B/DSK / 1+ .
&HIT EMPTY-BUFFERS
(.") 0F INITIALIZING..."
&DRV DROP 1 LIT B7EB C!
LIT 0004 LIT B7F4 C!
&RWTS 0BRANCH 001F
LIT 0007 EMIT
CR (.") 10 FORMATTING ERROR"
QUIT
;S


7E22 : &HIT
(.") 0F AND HIT ANY KEY"
KEY DROP CR
;S
```

```
7E16 : SET
!
;S


7DF1 : END-ECHO
BLACK-CURS CURS-TYPE WORD-LEN !
CAP ! PUNKED ! WORD1 ! CHV!
;S


7DDE : ECHO
BLINK ´ECHO @ EXECUTE
;S


7DA4 : BLINK
BLINK-COUNTER @ 1+ BLINK-PERIOD MOD DUP BLINK-
COUNTER !
-DUP 0BRANCH 0012
WHITE-PERIOD = 0BRANCH 0006
BLACK-CURS CURS-TYPE BRANCH 000A
INVERSE WHITE-CURS CURS-TYPE INVERSE
;S


7D45 : START-ECHO
LIT 000B 0 (DO) LF (LOOP) FFFC
LIT 000B 0 (DO) UP (LOOP) FFFC
CURS-PREP
WORD1 @ PUNKED @ CAP @ WORD-LEN @ 0 WORD-LEN !
LITW 7C93 CFA ´ECHO !
BOTTOM SIZE ECHO-PTR !
LIT FFFF BLINK-COUNTER !
;S


7CE1 : CURS-PREP
TWEEN CURS-SIZE DUP WHITE-CURS C!
```

```
BLACK-CURS C!
TWEEN 0BRANCH 0022
TOP>* DUP END-MARK < 0BRANCH 0004
ARRIVE? CH @ SWAP *>TOP CH @ BL BRANCH 000E
CH @ -> DUP LIT 003C DUP WHITE-CURS 1+ C!
BLACK-CURS 1+ C!
SWAP CURS-CHV !
;S


7CD2 : <-
LIT FC10 CALL
;S


7CC3 : ->
LIT FBF4 CALL
;S


7C89 : PAINT
ECHO-PTR @ -DUP 0BRANCH 001A
1 - BOTTOM PEEK
POUR
DROP LIT FFFF ECHO-PTR +! BRANCH 000C
LITW 7C71 CFA ´ECHO ! ECHO-DONE?
;S


7C67 : CLEAN
SPACE
LIT 0027 CH C@ - LIT 0013 MIN
SPACES ECHO-DONE?
;S


7C30 : ECHO-DONE?
CH @ LIT 1627 > 0BRANCH 001A
BL LIT 0080 + CURS-ADR C!
```

```
TELL-FREE
LITW 7BDE CFA ´ECHO !
;S

\ bottom of screen shows memory calculation of
free disk space
7BEC : TELL-FREE
LIT 0017 BCALC
LIT 0028 BL LIT 0080 + FILL
LIT 0017 LIT 0014 VHTAB
FREE-BLOCKS @ LIT 0004 - .
(.") 07 K FREE."
;S

7BD5 : IDLE
LIT 0078 0 (DO) (LOOP) FFFE
;S

7BB3 : CURS-TYPE
CH @ SWAP CURS-CHV @ CHV!
COUNT TYPE CHV!
;S

7B9C : BLACK-CURS 13DA \ DOES> 451E =  :"

01 20 20 20 20 20

7B85 : WHITE-CURS 13DA \ DOES> 451E =  :"

01 20 20 20 20 20

7B76 : ECHO-PTR 0F21

7B6A : ´ECHO 0F21
```

```
7B56 : BLINK-COUNTER 0F21


7B47 : ECHO-CHV 0F21


7B38 : CURS-CHV 0F21


7B25 : WHITE-PERIOD 0F05


7B12 : BLINK-PERIOD 0F05


7AFB : PLUS-KEY
DROP LIT 002B INSCH
;S


7AE3 : CARET-KEY
DROP LIT 005E INSCH
;S


7ACB : SLASH-KEY
DROP LIT 002F INSCH
;S


7AB5 : PUNCSTUFF
PUNCT (´) (STUFF)
;S


7AA0 : KEYSTUFF
KEYT (´) (STUFF)
;S


7A8D : ]KEY
DROP LIT 005D INSCH
;S
```

```
7A7A : [KEY
DROP LIT 005B INSCH
;S


7A39 : PARA-DEL-KEY
DROP DEPART MARK-> TWEEN 3 = 0BRANCH 001A
LIT 0004 SOUND TOP >* DROP ARRIVE?
HOVER @ -DUP 0BRANCH 0004
*>TOP 0 HOVER !
;S


7A0B : PARAKEY
DROP DEPART MARK-> TWEEN 3 = 0BRANCH 0008
TOP>* HOVER !
PARAMARK *>TOP 1 MODE !
;S


79D5 : PRINT-KEY
DROP DEPART TEXT-TOP SAVE-TEXT 1 TEXT-SAFE !
PR-START BOT> DUP >PR PR-DONE? 0BRANCH FFF6
LOAD-TEXT TEXT-TOP 0 TEXT-SAFE !
;S


79A2 : PR-DONE?
KEY? 0BRANCH 000A
DROP 1 BRANCH 0018
END-MARK < 0BRANCH 0008
0 BRANCH 000A
PR-FLUSH PR-CR ENDPAGE 1
;S


7956 : >PR
SDUP MIN-SP < EH?> 0BRANCH 0008
```

```
   CAPIZE? BRANCH 0030
SENTMARK < EH? 0BRANCH 0008
  BL BRANCH 0020
1 CAP ! PARAMARK < EH? 0BRANCH 000A
  LIT 0013 BRANCH 0008
2DROP LIT 0010 PREMIT
;S


792A : EXIT-KEY
DROP RESCUE LIT 0017 0 VHTAB
CR (.") 08 ----- OK"
EMPTY-BUFFERS
QUIT
;S


7913 : RESCUE
DEPART SAVE-TEXT 1 TEXT-SAFE !
;S


7903 : TEXT-SAFE 0F21


78BC : PREMIT
SDUP LIT 0010 = EH? 0BRANCH 0008
PR-PARA BRANCH 0028 LIT 0013 = EH? 0BRANCH 0008
PR-SENT BRANCH 0016 BL = EH? 0BRANCH 0008
PR-BL BRANCH 0006
DROP PR-PR
;S


789A : PR-SENT
BLOCKING @ 0BRANCH 000A
PR-FLUSH PR-CR BRANCH 0006
PR-BL PR-BL
;S
```

```
786E : PR-BL
PR-PTR C@ 0BRANCH 001A
PR-FLUSH BL PR-EAT COL C@
PR-WIDTH @ < 0= 0BRANCH 0004
PR-CR
;S

781A : PR-PARA
COL C@ 0BRANCH 0006
PR-FLUSH PR-CR PARA-SKIP @ 1+ ENDPAGE?
DROP PR-LINE @ TOPMARG @ > 0BRANCH 0008
PARA-SKIP @ PR-SKIP BLOCKING @ 0= 0BRANCH 000C
1PR INDENT @ SPACES 0PR COL C@ PR-PTR !
;S

7794 : PR-PR
PR-EAT PR-PTR @ PR-WIDTH @ > 0BRANCH 006C
COL C@ PR-BUF C@ BL - 0BRANCH 0024
PR-WIDTH @ 2 - PR-UPTO
1PR (.") 01 -"
0PR COL C@ 1 - COL C! BRANCH 001A
COL C@ 1+ DUP COL C! PR-BUF C@
BL - 0BRANCH FFEA
COL C@ PR-PTR @ PR-CR
OVER - DUP ROT
PR-BUF 0 PR-BUF ROT CMOVE
PR-PTR !
;S

7744 : PR-CR
COL C@ PR-WIDTH @ < 0=
END-CR @ 0= AND
DUP PR-LINE +! 0=
```

```
SPACING @ 1 - + DUP
ENDPAGE? 0= 0BRANCH 0008
PR-SKIP BRANCH 0004
DROP 0 COL C!
0 PR-PTR !
;S

772B : PR-FLUSH
PR-PTR @ 1 - PR-UPTO
;S

7710 : PR-EAT
PR-PTR @ PR-BUF C!
1 PR-PTR +!
;S

76E6 : PR-UPTO
COL C@ - 1+ -DUP 0BRANCH 0010
1PR COL C@ PR-BUF SWAP TYPE 0PR
;S

76BD : ENDPAGE?
PR-LINE @ +
PAGELEN @ BOTMARG @ - > DUP 0BRANCH 0004
ENDPAGE
;S

7692 : PR-START
0 PAGE# !
0 PR-PTR !
1PR
(.") 03     "
0PR 1 PR-SKIP NEWPAGE
;S
```

```
7674 : ENDPAGE
ROLLPAPER @ 0BRANCH 0008
PAGELEN @ SKIP-TO NEWPAGE
;S


763C : NEWPAGE
1 PAGE# +!
1PR ROLLPAPER @ 0BRANCH 000A
LIT 002D BRANCH 0006
LIT 000C EMIT
0 PR-LINE !
TOPMARG @ PR-SKIP
;S


7626 : SKIP-TO
PR-LINE @ - PR-SKIP
;S


75EA : PR-SKIP
DUP 0 > 0BRANCH 0024
DUP PR-LINE +!
1PR 0 (DO) CR LF? @ 0BRANCH 0004
LF (LOOP) FFF2 0PR BRANCH 0004
DROP
;S



75DC : 0PR
0 PR
;S


75A8 : 1PR
SLOT @ DUP
```

```
PR -DUP 0BRANCH 0016
LIT 07F8 + DUP C@ LIT 0080 OR
SWAP C! COL C@ CH C! ;S


7588 : COL
SLOT @ -DUP 0BRANCH 000C
LIT 05F8 + BRANCH 0004
CH
;S


757E : LF? 0F21


756E : ROLLPAPER 0F21


74DC : PR-BUF 13DA \ DOES> 4E88 = CARRAY

74E9-    20 20 20 20 20 20 20
74F0- 20 20 20 20 20 20 20 20
74F8- 20 20 20 20 20 20 50 61
7500- 72 65 6E 74 27 73 2E 31
7508- 32 35 20 46 38 32 2E 36
7510- 35 2E 6E 67 69 6E 65 65
7518- 72 2E 65 63 74 20 6F 6E
7520- 20 49 74 74 79 20 42 69
7528- 74 74 79 20 4D 61 63 68
7530- 69 6E 65 20 43 6F 6D 70
7538- 61 6E 79 2E 6E 20 36 20
7540- 28 74 65 6C 65 70 68 0F
7548- 01 00 83 43 4F CC 3A 75
7550- BE 0E F2 73 C1 0D D0 11
7558- 32 09 0C 00 9E 08 F8 05
7560- E1 0C 13 09 04 00 89 52
7568- 4F 4C 4C 50 41 50


74D0 : PAGE# 0F21


74C2 : BOTMARG 0F21


74C2 : BOTMARG 0F21
```

```
74B4 : TOPMARG 0F21

74A6 : PAGELEN 0F21

7498 : PR-LINE 0F21

7489 : BLOCKING 0F21

747C : INDENT 0F21

746C : PARA-SKIP 0F21

745E : SPACING 0F21

7453 : CHSV 0F21

7446 : PR-PTR 0F21

7439 : END-CR 0F21

742A : PR-WIDTH 0F21

741F : SLOT 0F05

73FF : CLR-DEL-KEY
DROP DELETE-BUFFER EMPTY-CSTACK
LIT 0004 3 SOUNDS
;S

73D0 : DELETE-KEY
DROP 0 HOVER ! TWEEN 0BRANCH 000A
MODE DELETE BRANCH 000A
LIT 0004 SOUND
ERAC
```

```
;S


736F : DELETE
MARK-> BOTTOM TOS-TYPE LIT 0004 < 0BRANCH 0044
DUP 3 SOUNDS CUT-MARK >DEL
BOTTOM DELETE-BUFFER ROT TYPE-SP XFER
BOTTOM TOS-TYPE 3 < 0BRANCH 0006
BOT> >DEL BOTTOM
TOS-TYPE 2 > TWEEN 3 = AND 0BRANCH 0008
TOP>* >DEL ARRIVE? BRANCH 0004
DROP
;S


7357 : SLURP-KEY
END-WORD? 2DROP ACTIVE BLURP
;S


7319 : BLURP
DEL>? 0BRANCH 002E
LIT 0005 SOUND
DUP PARAMARK < 0= 0BRANCH 0018
2LIT 0005 SOUNDS
<-MARK ARRIVE?
SP-> SPIT
*>TOP BRANCH 0006
>DEL SPIT
;S


72EC : SPIT
DELETE-BUFFER LIT 0004 + @
0= 0= 0BRANCH 0012
DELETE-BUFFER BOTTOM CUT-MARK XFER
DEL>? 0BRANCH 0004
DROP
```

```
;S


72B8 : ESC-KEY
DROP LEVEL @ 1+ LIT 0004 MOD
DUP LEVEL ! -DUP 0BRANCH 000A
1 SOUNDS BRANCH 0006
2 SOUND
;S


728F : MODE-KEY
DROP ´MODE @ 3 + MODETAB @
DUP ´MODE ! ABS 0 SOUNDS
;S


7273 : MODETAB 13DA  \ DOES> 4E11 = ARRAY

7281-   01 00 FD FF 03 00 00
7288- 00 FE FF FF FF 02 00


7254 : LETTER
LEVEL @ 0= 0BRANCH 0008
LIT 0020 + INSCH
;S


721C : INSCH
LEVEL @ 1 = 0BRANCH 0008
0 LEVEL ! HOVER @ -DUP 0BRANCH 000A
>BOT 0 HOVER ! *>TOP 1 ´MODE !
;S


7200 : SENTKEY
END-WORD? DROP 1 WASPUNKED !
END-SENT? DROP
;S
```

```
71DA : SPACE-BAR
DROP INS-SP? 0= MODE 1 > OR 0BRANCH 0006
MODE NOISY-STEP
;S

7185 : BACK-KEY
DROP WORDMODE TWEEN 0= 0BRANCH 0016
BUMPY @ *>TOP PUNKED @ WASPUNKED !
LIT FFFF STEP TWEEN 3 = 0BRANCH 0006
TOP>* >BOT TWEEN 3 < 0BRANCH 0010
LIT 0007 SOUND
TOP>* BUMPY ! CHEK-WORD
;S

7173 : <-KEY
SUPER
MINUS
NOISY-STEP
;S

7163 : ->KEY
SUPER
NOISY-STEP
;S

7163 : ->KEY
SUPER
NOISY-STEP
;S

7151 : SUPER
DROP MODE 1+
;S
```

```
7124 : NOISY-STEP
DUP DUP 0< 0BRANCH 000C
MINUS LIT 0007 BRANCH 0006
LIT 0006 SOUNDS STEP
;S

70FB : STEP
DEPART
0 HOVER !
DUP 0< 0BRANCH 000C
MINUS UNSHIFT? BKWD BRANCH 0006
UNSHIFT? FWD
;S

70E0 : UNSHIFT?
DUP 1 > 0BRANCH 0004
UNSHIFT
;S

70CE : FWD
MARK-> TYPE-SP
BOT>***>TOP SP->
;S

70A7 : BKWD
DUP LIT 0004 = 0BRANCH 000A
DROP TEXT-TOP BRANCH 000A
<-MARK TYPE-SP TOP>***>BOT ARRIVE?
;S

7080 : SP->
BOTTOM TOS DUP MIN-SP < 0=
SWAP PARAMARK < AND 0BRANCH 0006
BOT> *>TOP ;S
```

```
7053 : MARK->
BOTTOM TOS DUP MIN-SP < 0=
SWAP END-MARK < AND 0BRANCH 000A
BOT> *>TOP BRANCH FFE2
;S

7026 : <-MARK
TOP TOS DUP END-MARK <
SWAP MIN-SP < 0= AND 0BRANCH 000A
TOP>* >BOT BRANCH FFE2
;S

6FDF : DEPART
END-WORD? DROP
TWEEN 3 = 0BRANCH 0018
BOTTOM TOS-TYPE
LIT 0004 = 0BRANCH 0006
TOP>* DROP BRANCH 0012
BOTTOM TOS-TYPE 2 > 0BRANCH 0006
END-SENT? DROP CLRPUNC CLRWAS ACTIVE
;S

6FC5 : INS-SP?
END-WORD? -DUP 0= 0BRANCH 0004
  END-SENT?
;S

6F93 : END-SENT?
WASPUNKED @
TWEEN 1 = AND
DUP 0BRANCH 000C
  TOP>* DROP
  SENTMARK
```

```
   *>TOP ACTIVE
0 WASPUNKED !
;S

6F53 : END-WORD?
TWEEN 0= DUP 0BRANCH 0028
PUNKED @ WASPUNKED !
SPACER *>TOP 0 HOVER !
LEVEL @ 3 < 0BRANCH 0008
0 LEVEL ! ACTIVE ;S

6F3D : ANDIF
COMPILE DUP IF COMPILE DROP
;S

6F28 : ORIF
COMPILE -DUP COMPILE 0= IF
;S

6EED : ERAC
TOP>* DROP TWEEN 3 = 0BRANCH 0020
CLRPUNC 1 CAP !
BOTTOM TOS-TYPE 3 = 0BRANCH 0008
BOT> HOVER ! BRANCH 000
4 CHEK-WORD ACTIVE
;S

6EC5 : CHEK-WORD
SPACER >BOT CLRPUNC SPACER
TOP>***>BOT TOP>* *>TOP ARRIVE?
SPACER BOT>***>TOP BOT> DROP
;S

6EAE : ACTIVE MODE
```

```
DROP SPACER BUMPY !
;S

6E8F : TEXT-TOP
HOME TOP BOTTOM END-MARK XFER
BANNER CR AT-LEFT
;S

6E7A : WORDMODE 1 ´MODE ! ;S

6E63 : MODE
´MODE @ ABS DUP ´MODE !
;S

6E43 : UNSHIFT
LEVEL @ 0BRANCH 000C
  2 SOUND 0 LEVEL !
;S

6E37 : BUMPY 0F21      \variable $0080

6E2B : HOVER 0F21      \variable $0000

6E1F : ´MODE 0F21      \variable $0001

6E10 : JUST-ESC 0F21   \variable $0000

6E04 : LEVEL 0F21      \variable $0000

6DAA : NOISE-KEY
DROP MUFF @ SDUP LIT 0008 = EH? 0BRANCH 000A
  LIT 0006 BRANCH 002A
LIT 0006 = EH? 0BRANCH 0008
  2 BRANCH 0018
```

```
2 = EH? 0BRANCH 0008
  0 BRANCH 0008
2DROP LIT 0008
MUFF !
CACOPH
;S

6D79 : CACOPH
LIT 0008 0 (DO)
  I SOUND I 1+
  MUFF @ < 0BRANCH 0008
    PAUSE PAUSE PAUSE
(LOOP) FFE6
;S

6D40 : SOUNDS
SWAP -DUP 0BRANCH 0024
0 SWAP 0 (DO)
  -DUP 0BRANCH 000C
  0 (DO)
    PAUSE
  (LOOP) FFFC
  DUP (SOUND)
(LOOP) FFEA
DROP DROP
;S

6D30 : SOUND (SOUND) DROP ;S

6C6A : (SOUND)
DUP MUFF @ < 0BRANCH 00AA
0 SWAP SDUP 0 = EH? 0BRANCH 000C
  LIT 0007 EMIT BRANCH 008C
1 = EH? 0BRANCH 000A
```

```
   CLUCK 1+ BRANCH 007A
2 = EH? 0BRANCH 000A
   CLACK 1+ BRANCH 0068
3 = EH? 0BRANCH 000E
   0 2 UP- SWEEP BRANCH 0052
LIT 0004 = EH? 0BRANCH 0010
   LIT 0046 1 UP- SWEEP BRANCH 0038
LIT 0005 = EH? 0BRANCH 000E
   0 2 DWN- SWEEP BRANCH 0020
DROP LIT 0005 LIT 0014 OSC
LIT 0007 = 0BRANCH 0008
   PAUSE CLUCK 1+ 1+ BRANCH 0006
DROP 0
;S


6C59 : DWN- LIT FFFF CLICKER ;S


6C49 : UP- CLICKER LIT FFFF ;S


6C3E : MUFF 0F21


6C14 : CLUCK 1 LIT 0004 OSC LIT 003C 0 (DO)
(LOOP) FFFE LIT 0005 LIT 0004 OSC ;S


6BFE : CLACK LIT 000A LIT 0004 OSC/2 ;S


6BE6 : PAUSE LIT 0177 0 (DO) (LOOP) FFFE ;S


6BC4 : OSC/2 0 (DO) GLICK DUP 0 (DO) (LOOP) FFFE
(LOOP) FFF2 DROP ;S


6BA2 : OSC 0 (DO) GLICK DUP 0 GLICK (DO) (LOOP)
FFFE (LOOP) FFF0 DROP ;S
```

```
6B90 : GLICK 0 CLICKER C! ;S

6B78 : CLICK 0 0 CLICKER C! CLICKER C! ;S

6B6A : CLICKER 0F05

\ machine code for apple sound sweep
6B09 : SWEEP 6B13

6B13-    A9 04       LDA    #$04
6B15-    20 E0 08    JSR    $08E0
6B18-    86 E0       STX    $E0
6B1A-    A5 D1       LDA    $D1
6B1C-    8D 56 6B    STA    $6B56
6B1F-    A5 D2       LDA    $D2
6B21-    8D 57 6B    STA    $6B57
6B24-    A5 D3       LDA    $D3
6B26-    8D 38 6B    STA    $6B38
6B29-    A5 D4       LDA    $D4
6B2B-    8D 39 6B    STA    $6B39
6B2E-    A2 00       LDX    #$00
6B30-    88          DEY
6B31-    D0 0A       BNE    $6B3D
6B33-    A4 D7       LDY    $D7
6B35-    E6 D5       INC    $D5
6B37-    AD FF FF    LDA    $FFFF
6B3A-    4C 47 6B    JMP    $6B47
6B3D-    A5 D1       LDA    $D1
6B3F-    E6 D1       INC    $D1
6B41-    AD FF FF    LDA    $FFFF
6B44-    4C 47 6B    JMP    $6B47
6B47-    CA          DEX
6B48-    D0 11       BNE    $6B5B
6B4A-    A6 D5       LDX    $D5
6B4C-    C6 D7       DEC    $D7
6B4E-    D0 05       BNE    $6B55
6B50-    A6 E0       LDX    $E0
6B52-    4C B8 08    JMP    $08B8
6B55-    AD 30 C0    LDA    $C030
6B58-    4C 67 6B    JMP    $6B67
6B5B-    A5 D1       LDA    $D1
6B5D-    C6 D1       DEC    $D1
6B5F-    D0 00       BNE    $6B61
6B61-    AD FF FF    LDA    $FFFF
6B64-    4C 67 6B    JMP    $6B67
6B67-    4C 30 6B    JMP    $6B30
```

```
6AF5 : BOT>***>TOP B>***>T ;S


6AE5 : *>TOP POUR >TOP ;S


6AC7 : ARRIVE?
LOST @ 0BRANCH 0008
ARRIVE BRANCH 0004
SENTCAP?
;S


6A7A : ARRIVE
CUT-MARK >BOT TWEEN LIT 0004 < 0BRANCH 0016
TOP>* >BOT WORD1 @ 0BRANCH FFF6
SPACER TOP>***>BOT BRANCH 0008
WORD1-BIT WORD1 ! 0 CH C! 0 LOST ! SENT
CAP? CUT-MARK B>***>T BOT> DROP ;S


6A34 : TOP>***>BOT
DIME ! TOP S-CS ! DONE 0= 0BRANCH 0024
TOP ´TOS BOTTOM PREPUSH
TOP #CHARS BOTTOM @ MIN
(T>*>B) DUP TOP #CPOPPED
BOTTOM #CPUSHED
BRANCH FFD8
;S


69E4 : (T>*>B)
0 SWAP 0 (DO)
  DROP OVER I + C@ DUP DIME @ < 0BRANCH 0016
  DUP UNPOUR OVER I - C! I 1+ BRANCH 0008
  DROP I LEAVE
(LOOP) FFCE R
OT ROT 2DROP
```

```
;S


69A2 : B>***>T
DIME ! BOTTOM S-CS ! DONE 0= 0BRANCH 0024
BOTTOM ´TOS TOP PREPUSH
BOTTOM #CHARS TOP @ MIN (B>*>T)
DUP BOTTOM #CPOPPED TOP #CPUSHED BRANCH FFD8
;S


6954 : (B>*>T)
0 SWAP 0 (DO)
  DROP OVER I + C@ DUP DIME @ < 0BRANCH 0014
POUR
  OVER I - C! I 1+ BRANCH 0008
  DROP I LEAVE
(LOOP) FFD0
ROT ROT 2DROP
;S


6942 : TOP>* TOP> DUP UNPOUR ;S


68AD : UNPOUR
DUP MIN-SP < 0= 0BRANCH 001A
WORD1 @ 0BRANCH 0004
AT-LEFT DUP WORD 1-BIT AND WORD1 ! BRANCH 000A
LIT FFFF WORD-LEN +!
CH C@ OVER CH-SIZE - DUP 0< 0BRANCH 0038
DROP DUP END-MARK <
0= CV C@ 0=
UNLF LIT 0026 CH C!
OVER 0BRANCH 0004
  BANNER?
OR DUP LOST !
0= 0BRANCH 0004
```

```
   GROPE
BRANCH 0006
CH C!
PARAMARK < 0= 0BRANCH 0008
0 LOST !
;S


6877 : GROPE
CV C@ BCALC CH C@ 1 - 2DUP + C@
BL LIT 0080 + - 0BRANCH FFEA
1+ CH C!
DROP
;S


6858 : POUR
DUP MIN-SP < 0BRANCH 000A
DUP NON-SP-POUR BRANCH 0004
SP-POUR
;S


67F6 : NON-SP-POUR
CH C@ LIT 0025 > 0BRANCH 003C
CH C@ WORD-LEN @ - NEXT-LINE
AT-LEFT CV C@ 1 - BCALC + DUP CURS-ADR WORD-LEN
@ CMOVE
WORD-LEN @ BL LIT 0080 +
FILL WORD-LEN @ CH +! (>SCR) 1 WORD-LEN +!
;S


67DD : (>SCR)
DUP CHEKCHAR CAPIZE?
´SCREMIT @ EXECUTE
;S
```

```
67CE : ´SCREMIT 0F21


6774 : SP-POUR
DUP DUP SENTMARK < 0= CAP !
DUP CH-TYPE 3 - 0BRANCH 000A
  CH-SIZE SPACES BRANCH 0016
DROP CH C@ 0BRANCH 0004
  NEXT-LINE
AT-LEFT LIT 0005 SPACES
0 WORD-LEN !
HI-BITS AND WORD1 @ OR 0 WORD1 !
;S


6758 : NEXT-LINE LIT 0028 CH C@ - SPACES ;S


6738 : AT-LEFT WORD1-BIT WORD1 ! 0 LOST ! 0 CH
C! ;S


672C : WORD1 0F21      \ variable $0000


671D : WORD-LEN 0F21   \ variable $0000


6712 : LOST 0F21       \ variable $0000


66EC : BANNER?
CV C@ 2 < 0BRANCH 000E
  UNLF UNLF
  0 CH C! BANNER
;S


6686 : BANNER
(.") 50 JOT(TM) VERSION 0.53 (C) 1986 TED
NELSON . . . . . . . . . ."
LIT 0026 SPACES
```

;S

6658 : MULTI<-
CH C@ SWAP - DUP 0< 0BRANCH 000E
UNLF LIT 0028 + BRANCH FFEE
CH C!
;S

6649 : LF LIT 000A EMIT ;S

662E : UNLF
CV C@ 0BRANCH 0008
UP BRANCH 0004
SCROLLDOWN
;S

661F : UP LIT FC1A CALL ;S

65D4 : SCROLLDOWN
LIT 0017 BCALC LIT FFFF LIT 0016 (DO)
  I BCALC DUP ROT LIT 0028 CMOVE
LIT FFFF (+LOOP) FFEC
DROP 0 BCALC LIT 0028 BL
LIT 0080 + FILL
;S

6599 : CHEKCHAR
SDUP LIT 005D = EH? 0BRANCH 0006
  BRANCH 001C
LIT 0040 < EH?> 0BRANCH 000C
  PUNCT @ EXECUTE BRANCH 0006
2DROP CLRPUNC
;S

```
6587 : PUNCT BL - (PUNCT) ;S

6573 : SETPUNC 1 PUNKED ! ;S

655F : CLRPUNC 0 PUNKED ! ;S

654C : CLRWAS 0 WASPUNKED ! ;S

653C : WASPUNKED 0F21  \ variable $0000

652F : PUNKED 0F21      \ variable $0000

64E1 : (PUNCT) 13DA    \ DOES> 4E11 = ARRAY

64E1- 87 28 50 55 4E 43 54
64E8- A9 D6 63 DA 13 11 4E 20
64F0- 20 7D 65 22 55 69 65 69
64F8- 65 69 65 69 65 22 55 69
6500- 65 22 55 69 65 69 65 69
6508- 65 69 65 7D 65 69 65 69
6510- 65 69 65 69 65 69 65 69
6518- 65 69 65 69 65 69 65 69
6520- 65 69 65 69 65 69 65 69
6528- 65 69 65 69 65 7D 65 86


63D6 : KEYT 13DA        \ DOES> 4E11 = ARRAY

63D6- 84 4B
63D8- 45 59 D4 B0 63 DA 13 11
63E0- 4E 61 0D 61 0D 61 0D 27
63E8- 80 61 0D 35 79 61 0D 61
63F0- 0D 7B 71 61 0D 48 7A 06
63F8- 7B D7 7A 9A 72 B6 6D E1
6400- 79 15 7A 0D 74 61 0D 0A
6408- 72 61 0D 6B 71 61 0D 61
6410- 0D 61 0D 61 0D 61 0D C2
6418- 72 61 0D 61 0D 61 0D 61
6420- 0D E6 71 24 72 24 72 24
6428- 72 24 72 24 72 24 72 24
6430- 72 24 72 24 72 24 72 90
6438- 71 24 72 24 72 24 72 DD
6440- 73 24 72 24 72 24 72 24
```

```
6448- 72 24 72 24 72 24 72 24
6450- 72 24 72 24 72 24 72 24
6458- 72 81 7A 24 72 94 7A 24
6460- 72 63 73 5D 72 5D 72 5D
6468- 72 5D 72 5D 72 5D 72 5D
6470- 72 5D 72 5D 72 5D 72 5D
6478- 72 5D 72 5D 72 5D 72 5D
6480- 72 5D 72 5D 72 5D 72 5D
6488- 72 5D 72 5D 72 5D 72 5D
6490- 72 5D 72 5D 72 5D 72 24
6498- 72 24 72 24 72 3B 5E 24
64A0- 72 24 72 24 72 24 72 24
64A8- 72 24 72 24 72 24 72 24
64B0- 72 24 72 24 72 24 72 24
64B8- 72 24 72 24 72 24 72 24
64C0- 72 24 72 24 72 24 72 24
64C8- 72 24 72 24 72 24 72 24
64D0- 72 24 72 24 72 24 72 24
64D8- 72 24 72 24 72 24 72 0E
64E0- 72 87
*
```

63B0 : REVCAPS DUP DUP LETTER? = 0BRANCH 000C
INVERSE EMIT INVERSE BRANCH 0004 A
LLCAPS ;S

639C : ALLCAPS CAPIZE DROP EMIT ;S

6380 : CAPIZE? CAP @ 0BRANCH 0008 CAPIZE
CAP ! ;S

635D : CAPIZE DUP LETTER? -DUP 0BRANCH 000C SWAP
DROP 0 BRANCH 0004 1 ;S

632D : LETTER? LIT FFDF AND DUP DUP LIT 0041 <
SWAP LIT 005A > OR 0BRANCH 0006 D
ROP 0 ;S

6314 : SENTCAP? TWEEN 1 > CAP ! ;S

630A : CAP 0F21   \ VARIABLE $0001

```
62F6 : LIKEY BL CURS-ADR C! DARKEY ;S

62DB : CURS-ADR CV C@ BCALC CH C@ + ;S

62C8 : DARKEY KEY? 0BRANCH FFFC ;S

62B0 : INVERSE LIT 0032 LIT 00C0 TOGGLE ;S

6299 : KEY? ?KEY DUP 0BRANCH 0006 KEY SWAP ;S

6284 : ?KEY KBD C@ LIT 007F > ;S

626F : CHV! CH ! LIT FC22 CALL ;S

6265 : KBD 0F05              \ CONSTANT $C000

624E : CURS-SIZE 13DA        \ DOES> 550C = CTABLE
625E- 22 55
6260- 01 01 02 05 01

6239 : CH-SIZE 13DA          \ DOES> 550C = CTABLE
6247- CA
6248- 61 01 01 02 05 01

6229 : TWEEN TOP TOS-TYPE ;S

6216 : TOS-TYPE TOS CH-TYPE ;S

61C0 : CH-TYPE
SDUP MIN-SP < EH? 0BRANCH 0008
  0 BRANCH 0038
SENTMARK < EH? 0BRANCH 0008
  1 BRANCH 0028
```

```
PARAMARK < EH? 0BRANCH 0008
  2 BRANCH 0018
END-MARK < EH? 0BRANCH 0008
  3 BRANCH 0008
2DROP LIT 0004
;S

618E : DEFAULT                            \ NO MATCH
FOUND IN A CASE STATEMENT
CASES @
DUP 0BRANCH 0010
0 (DO) THEN (LOOP) FFFC
BRANCH 0004
DROP
LIT 0005 ?PAIRS CASES ! ;S

\ ANOTHER FORM OF THE CASE STATEMENT - NOT SURE
WHEN USED
6176 : CASE> 1 CASES +! COMPILE EH?> IF ;S

615F : CASE
1 CASES +!      \ INCREMENT NUMBER OF CASES
COMPILE EH?     \ ADD LOGIC TO EVALUATE CASE
VALUE
IF              \ DO SUBSEQUENT LOGIC ONLY IF
CASE MATCHES
;S              \ SHOULD HAVE A "THEN" AT THE END
OF THAT LOGIC

6140 : SWITCH   \ NEW SWITCH-CASE STRUCTURE
    CASES @     \ GET PREVIOUS NUMBER OF CASES ON
STACK
    0 CASES !   \ ZERO OUT THE NUMBER OF CASES
    LIT 0005    \ PUT A 5 ON THE STACK (STATE
PARAMETER?)
```

```
    COMPILE SDUP \ ADD A DUP TO THE WORD BEING
COMPILED
    ;S


6127 : EH?>
0BRANCH 0008
  1 BRANCH 0006
DUP
0
;S

610D : EH?      \ COMPILED BY CASE TO EVALUATE
THE CONDITION
0BRANCH 000A    \ IF FALSE, SKIP TO THE DUP BELOW
  DROP 1            \ IF TRUE, REPLACE WITH 1
  BRANCH 0006  \ EXIT
DUP
0
;S

6100 : SDUP DUP ;S     \ SYNONYM FOR DUP –
COMPILED BY SWITCH

60F4 : CASES 0F21      \ VARIABLE $0000 – COUNTS
THE NUMBER OF CASES?
LFA = $1992 (WORD WITH 1 SPACE THAT LINKS TO
$8118 – JOT)

\ WORD CONTAINS 1 SPACE – USED TO LINK
VOCABULARIES?
60EE :
LFA = $6127 (EH?>)
CFA = $343B (IN THE EDITOR VOCABULARY)
```

```
60DF : SW-STUFF 13DA   \ DOES>      \ 197E =
VOCABULARY - "SWITCH STUFF"

608C : XFER
DIME ! D-CS ! S-CS ! DONE 0= 0BRANCH 0036
S-CS @ ´TOS D-CS @ PREPUSH
S-CS @ #CHARS
D-CS @ @ MIN
LIT 00FF MIN MLXFER
DUP S-CS @ #CPOPPED
D-CS @ #CPUSHED BRANCH FFC6
;S

605B : DONE
S-CS @ DUP LIT 0004 + @ 0= 0BRANCH 000A
DROP 1 BRANCH 000C
TOS DIME @ < 0=
;S

6050 : D-CS 0F21   \ variable $99, $58

6045 : S-CS 0F21   \ variable $54, $57

6036 : >= (MACRO) < 0= ;S

6029 : <> (MACRO) - ;S

601A : <= (MACRO) > 0= ;S

600C : NOT (MACRO) 0= ;S

5FCC : MLXFER 5FD7
5FD7-   A9 03       LDA   #$03
5FD9-   20 E0 08    JSR   $08E0
5FDC-   86 E0       STX   $E0
```

```
5FDE-   A5 D3       LDA     $D3
5FE0-   38          SEC
5FE1-   E5 D1       SBC     $D1
5FE3-   8D F9 5F    STA     $5FF9
5FE6-   A5 D4       LDA     $D4
5FE8-   E5 D2       SBC     $D2
5FEA-   8D FA 5F    STA     $5FFA
5FED-   A6 D1       LDX     $D1
5FEF-   A0 00       LDY     #$00
5FF1-   B1 D5       LDA     ($D5),Y
5FF3-   CD CA 5F    CMP     $5FCA
5FF6-   B0 07       BCS     $5FFF
5FF8-   9D B7 AC    STA     $ACB7,X
5FFB-   C8          INY
5FFC-   CA          DEX
5FFD-   D0 F2       BNE     $5FF1
5FFF-   A6 E0       LDX     $E0
6001-   A9 00       LDA     #$00
6003-   CA          DEX
6004-   95 00       STA     $00,X
6006-   CA          DEX
6007-   94 00       STY     $00,X
6009-   4C B8 08    JMP     $08B8
```

5FC1 : DIME 0F21   \ variable $00F0 = 240

5EE2 : CLEAR-TEXT
EMPTY-BUFFERS
FREE-ALL
END-MARK >TOP
END-MARK >BOT
;S

\ load index block (35)
5ECE : LOAD-TEXT INDX LOAD-INDEX ;S

5E9D : LOAD-INDEX
EMPTY-BUFFERS
DUP BLOCK PTR !
FREE-BLOCKS
LOAD-BUNCH
TOP LOAD-CS

```
DELETE-BUFFER
LOAD-CS
BOTTOM
LOAD-CS
SLURP-BUFFER
LOAD-CS
FLUSH-ONE
;S

5E7F : LOAD-CS
DUP LIT 0004 LOAD-BYTES
LIT 0004 + LOAD-BUNCH
;S

5E64 : LOAD-BUNCH PTR @ @ 2+ LOAD-BYTES ;S

5E43 : LOAD-BYTES
PTR @
OVER PTR +!
ROT ROT
CMOVE
;S

5E30 : SAVE-KEY
DROP
SAVE-TEXT
;S

5E1A : SAVE-TEXT
INDX WRITE-INDEX
WRITE-ALL
;S
```

\ *** THIS IS THE DATA STRUCTURE FOR THE

```
DOCUMENT INDEX ***
5DE8 : WRITE-INDEX
DUP BUFFER PTR !
FREE-BLOCKS SAVE-BUNCH
TOP SAVE-CS
DELETE-BUFFER SAVE-CS
BOTTOM SAVE-CS
SLURP-BUFFER SAVE-CS
UPDATE
FLUSH-ONE
;S

5DCA : SAVE-CS DUP LIT 0004 SAVE-BYTES LIT 0004
+ SAVE-BUNCH ;S

5DB1 : SAVE-BUNCH DUP @ 2+ SAVE-BYTES ;S

5D92 : SAVE-BYTES PTR @ SWAP DUP PTR +!
CMOVE  ;S

5D88 : PTR 0F21    \ variable $AE,$A8

5D79 : >SIP SLURP-BUFFER CPUSH ;S

5D6A : >DEL DELETE-BUFFER CPUSH ;S

5D5B : >BOT BOTTOM CPUSH ;S

5D4C : >TOP TOP CPUSH ;S

5D32 : CPUSH SWAP OVER PREPUSH C! 1 SWAP
#CPUSHED ;S

5D0D : #CPUSHED SWAP DUP 0BRANCH 000C MINUS SWAP
```

```
+! BRANCH 0006 SWAP #CPOPPED ;S


5CD3 : PREPUSH DUP @ 0= 0BRANCH 001C 1 OVER LIT
0004 + +! ALLOC OVER ´TOS-BLK C!
 B/BUF OVER ! ´TOS 1 - UPDATE ;S


5CC3 : SIP>? SLURP-BUFFER CPOP? ;S


5CB3 : DEL>? DELETE-BUFFER CPOP? ;S


5CA4 : BOT> BOTTOM CPOP ;S


5C95 : TOP> TOP CPOP ;S


5C6A : EMPTY-CSTACK
DUP LIT 0004 + @ 0BRANCH 000A
DUP POP-BLK BRANCH FFEC
DROP
;S


5C4E : CPOP CPOP? 0= 0BRANCH 000B (.") 04 CPOP"
QUIT ;S


5C1E : CPOP? DUP LIT 0004 + @ 0= 0BRANCH 000A
DROP 0 BRANCH 000E DUP TOS 1 ROT #
CPOPPED 1 ;S


5BED : #CPOPPED SWAP -DUP 0BRANCH 001A OVER +!
DUP #CHARS 0BRANCH 0008 DROP BRAN
CH 0004 POP-BLK BRANCH 0004 DROP ;S


5BB8 : FREE-ALL 0 FREE-BLOCKS ! BLKN 1+ BLK1
(DO) I FREE (LOOP) FFFA DELETE-BUFF
ER CLR-CSTK TOP CLR-CSTK SLURP-BUFFER CLR-CSTK
```

BOTTOM CLR-CSTK ;S

5B8E : POP-BLK DUP ´TOS-BLK C@ FREE LIT FFFF
OVER LIT 0004 + +! 0 SWAP ! ;S

5B75 : FREE 1 FREE-BLOCKS +! DUP FREE-BUFFER
LAST-FREE C! ;S

5B33 : ALLOC FREE-BLOCKS @ 0BRANCH 0012 LAST-
FREE C@ LIT FFFF FREE-BLOCKS +! BRA
NCH 001A (.") 13 OUT OF DISK BLOCKS!" QUIT DUP
BUFFER DROP ;S

5B19 : LAST-FREE FREE-BLOCKS DUP @ + 1+ ;S

5B0A : RES-FREE 0F21   \variable $0000

5A6C : FREE-BLOCKS 0F21   \variable $0066
5A7E- 8B 8A
5A80- 89 88 87 86 85 84 83 82
5A88- 81 80 7F 7E 7D 7C 7B 7A
5A90- 79 78 77 76 75 74 73 72
5A98- 71 70 6F 6E 6D 6C 6B 6A
5AA0- 69 68 67 66 65 64 63 62
5AA8- 61 60 5F 5E 5D 5C 5B 5A
5AB0- 59 58 57 56 55 54 53 52
5AB8- 51 50 4F 4E 4D 4C 4B 4A
5AC0- 49 48 47 46 45 44 43 42
5AC8- 41 40 3F 3E 3D 3C 3B 3A
5AD0- 39 38 37 36 35 34 33 32
5AD8- 31 30 2F 2E 2D 2C 2B 2A
5AE0- 29 28 27 6B 24 24 00 00
5AE8- 00 00 00 00 00 00 00 00
5AF0- 00 00 00 00 00 00 00 00
5AF8- 00 00 00 00 00 00 00 00
5B00- 00 00 00 00 00 00 00 00
5B08- 00 00

5A41 : TURKEY
QUIT CFA DUP DUP

```
LITW 2675 !
LITW 4A81 !
LIT 5A4C !
SAVETURNKEY
;S

5A22 : PEEK LIT 0006 + SWAP B/BUF /MOD ROT + C@
TH-CHAR ;S

5A06 : TH-CHAR BLOCK B/BUF ROT 1+ - + C@ ;S

59EF : ´BOT-BLK (MACRO) LIT 0006 + ;S

59D0 : SIZE DUP LIT 0004 + @ B/BUF * SWAP @ - ;S

592B : SLURP-BUFFER 13DA        \ DOES> 562E =
CSTACK

593C- 2E 56 00 00
5940- 00 00 00 00 20 20 20 20
5948- 20 20 20 20 20 00 00 00
5950- 00 00 00 00 00 00 00 00
5958- 00 00 00 00 00 00 00 00
5960- 00 00 00 00 00 00 00 00
5968- 00 00 00 00 00 00 00 00
5970- 00 00 00 00 00 00 00 00
5978- 00 00 00 00 00 00 00 00
5980- 00 00 00 00 00 00 00 00
5988- 00 00 00 00 00 00 00 00
5990- 00 00 00 00 00 00 00 00
5998- 00 00 00 00 00 00 00 00
59A0- 00 00 00 00 00 00 00 00
59A8- 00 00 00 00 00 00 00 00
59B0- 00 00 00 00 00 00 00 00
59B8- 00 00 00 00 00 00 00 00
59C0- 00 00 00 00 00 00 00 00
59C8- 00 00 00 00 00 00 00 00

588C : BOTTOM 13DA               \ DOES> 562E =
CSTACK
```

```
5897- 2E
5898- 56 33 00 00 00 02 00 26
58A0- 25 7B 7C 7D 7E 7F 80 81
58A8- 86 89 82 83 87 85 84 00
58B0- 00 00 00 00 00 00 00 00
58B8- 00 00 00 00 00 00 00 00
58C0- 00 00 00 00 00 00 00 00
58C8- 00 00 00 00 00 00 00 00
58D0- 00 00 00 00 00 00 00 00
58D8- 00 00 00 00 00 00 00 00
58E0- 00 00 00 00 00 00 00 00
58E8- 00 00 00 00 00 00 00 00
58F0- 00 00 00 00 00 00 00 00
58F8- 00 00 00 00 00 00 00 00
5900- 00 00 00 00 00 00 00 00
5908- 00 00 00 00 00 00 00 00
5910- 00 00 00 00 00 00 00 00
5918- 00 00 00 00 00 00 00 00
5920- 00 00 00 00 00 00 00 00
5928- 00 00 00 8C
```

57E6 : DELETE-BUFFER 13DA   \ DOES> 562E = CSTACK

```
57F8- 2E 56 FD 03 00 00 01 00
5800- 6D 20 20 20 20 20 20 20
5808- 00 00 00 00 00 00 00 00
5810- 00 00 00 00 00 00 00 00
5818- 00 00 00 00 00 00 00 00
5820- 00 00 00 00 00 00 00 00
5828- 00 00 00 00 00 00 00 00
5830- 00 00 00 00 00 00 00 00
5838- 00 00 00 00 00 00 00 00
5840- 00 00 00 00 00 02 00 00
5848- 00 00 00 00 00 7F 00 00
5850- 00 00 82 83 00 00 00 00
5858- 00 00 00 00 00 00 00 00
5860- 00 00 00 00 00 00 00 00
5868- 00 00 00 00 00 00 00 00
5870- 00 00 00 00 00 00 00 00
5878- 00 00 00 00 00 00 00 00
5880- 00 00 00 00 00 00 00 00
5888- 00 00 00 00
```

574A : TOP 13DA   \ DOES> 562E = CSTACK

5752- 2E 56 = CSTACK — does nothing ("Character stack?")

```
5754- FF 03 00 00
5758- 01 00 24 84 85 87 83 82
5760- 89 86 81 80 7F 7E 7D 7C
5768- 7B 7A 20 20 00 00 00 00
5770- 00 00 00 00 00 00 00 00
5778- 00 00 00 00 00 00 00 00
5780- 00 00 00 00 00 00 00 00
5788- 00 00 00 00 00 00 00 00
5790- 00 00 00 00 00 00 00 00
5798- 00 00 00 00 00 00 00 00
57A0- 00 00 00 00 00 00 00 00
57A8- 00 00 00 00 00 00 00 00
57B0- 00 00 00 00 00 00 00 00
57B8- 00 00 00 00 00 00 00 00
57C0- 00 00 00 00 00 00 00 00
57C8- 00 00 00 00 00 00 00 00
57D0- 00 00 00 00 00 00 00 00
57D8- 00 00 00 00 00 00 00 00
57E0- 00 00 00 00 00 00
```

5721 : CLR-CSTK 0 OVER ! 0 OVER LIT 0004 + ! 0 SWAP 2+ ! ;S

5713 : TOS ´TOS C@ ;S

56FA : ´TOS DUP ´TOS-BLK C@ BLOCK SWAP @ + ;S

56E6 : TOS-BLK (MACRO) ´TOS-BLK C@ ;S

56C9 : ´TOS-BLK LIT 0004 + DUP @ + 1+ ;S

56B8 : #RES (MACRO) 2+ @ ;S

56A8 : ´#RES (MACRO) 2+ ;S

568F : EMPTY? (MACRO) LIT 0004 + @ 0= ;S

5679 : #BLKS (MACRO) LIT 0004 + @ ;S

5664 : ´#BLKS (MACRO) LIT 0004 + ;S

```
564F : #CHARS B/BUF SWAP @ - ;S

563F : #FREE (MACRO) @ ;S

5630 : ´#FREE (MACRO) ;S

560F : CSTACK <BUILDS 0 , 0 , 0 , B/DSK ALLOT
DOES> ;S

5604 : "ESC 0F05         \ CONSTANT $001B
55F4 : BACKSLASH 0F05  \ CONSTANT $005C
55EA : "-> 0F05         \ CONSTANT $0015   (CTRL-
U)
55E0 : "<- 0F05         \ CONSTANT $0008   (CTRL-
H)

55CB : TYPE-SP 13DA    \ DOES> 550C = CTABLE

55D7- 0C
55D8- 55 22 55 00 80 90 A0 F0

55BB : WORD1-BIT 0F05  \ CONSTANT $0008
55AD : HI-BITS 0F05    \ CONSTANT $000F
559E : LOW-BITS 0F05   \ CONSTANT $000F
558F : END-MARK 0F05   \ CONSTANT $00F0
5580 : CUT-MARK 0F05   \ CONSTANT $00E0
5571 : PARAMARK 0F05   \ CONSTANT $00A0
5562 : SENTMARK 0F05   \ CONSTANT $0090
5555 : SPACER 0F05     \ CONSTANT $0080
5548 : MIN-SP 0F05     \ CONSTANT $0080
553D : BLKN 0F05       \ CONSTANT $008B
5532 : BLK1 0F05       \ CONSTANT $0024
5527 : INDX 0F05       \ CONSTANT = 35 (BLOCK
NUMBER OF INDEX OF DOCUMENT?)
```

```
551C : NOP 5524
5524-   4C B8 08    JMP   $08B8


54F9 : CTABLE <BUILDS CFA , DOES> SWAP OVER @
EXECUTE + 2+ C@ ;S

54A3 : NCOPIES >R SWAP R> OVER - >R R ROT ROT R>
0< 0BRANCH 000A SWAP 1+ BRANCH
0006 1 - SWAP (DO) I OVER I + UNCLOG OVER .
(COPY) DUP SIGNUM MINUS (+LOOP) FFE8
DROP FLUSH ;S

5476 : SIGNUM DUP 0< 0BRANCH 000C DROP LIT FFFF
BRANCH 0010 0= 0BRANCH 0008 0 BR
ANCH 0004 1 ;S


5457 : NWIPES 1+ SWAP (DO) I UNCLOG (WIPE)
(LOOP) FFF8 FLUSH ;S


5438 : UNCLOG 32K-1 LOOK-RES? 0BRANCH 0008 DROP
BRANCH 0006 DROP FLUSH ;S


5428 : 1WIPE (WIPE) FLUSH ;S


53F9 : (WIPE) B/SCR * DUP B/SCR + SWAP (DO) I
BLOCK LIT 0400 LIT 0020 FILL UPDAT


53F9 : (WIPE) B/SCR * DUP B/SCR + SWAP (DO) I
BLOCK LIT 0400 LIT 0020 FILL UPDAT
E (LOOP) FFEE ;S


53E9 : 1COPY (COPY) WRITE-ALL ;S


53B4 : (COPY) B/SCR * OFFSET @ + SWAP B/SCR *
```

```
DUP B/SCR + SWAP (DO) DUP I REASSI
GN 1+ (LOOP) FFF6 DROP ;S


537A : WRITE-ALL LIMIT @ FIRST @ (DO) I @ DUP
32K-1 - 0BRANCH 000A UNSIGN WRITE-
ONE BRANCH 0004 DROP LIT 0404 (+LOOP) FFE2 ;S


5364 : FLUSH-ONE DUP WRITE-ONE EMPTY-BUFFER ;S


534A : FREE-BUFFER RESIDENT? 0BRANCH 0004
CHUCK ;S


5327 : EMPTY-BUFFER RESIDENT? 0BRANCH 000C DUP
LIT 0400 ERASE CHUCK ;S


52F5 : WRITE-ONE UPDATED? 0BRANCH 001C DUP 2 -
DUP @ UNSIGN DUP ROT ! 0 &R/W BRA
NCH 0004 DROP ;S


52DA : UPDATED? BLOCK DUP 2 - @ 0< ;S


52C3 : >BLK LIT 0404 * FIRST @ + ;S


5283 : RLIST LIMIT @ FIRST @ (DO) I @ 32K-1 -
0BRANCH 0018 I @ 0< 0BRANCH 0006 (
.") 01 *" I @ UNSIGN . LIT 0404 (+LOOP) FFD8 ;S


523C : BLK> DUP DUP FIRST @ LIT 0404 - U< BLK?
LIMIT @ OVER U< BLK? FIRST @ LIT
0404 - - 0 LIT 0404 U/ ROT ROT BLK? DROP 1 - ;S


5219 : BLK? 0BRANCH 0016 U. (.") 0D
=BLOCK.ADR-2?" QUIT ;S
```

\ THROW OUT A BUFFER BY RESETTING ITS ADDRESS TO
$7FFF?
5203 : CHUCK 2 - 32K-1 SWAP ! ;S

51E2 : REASSIGN BLOCK 2 - 2DUP ! SWAP BLK-TAB !
UPDATE ;S

51BB : BUFFER
DUP RESIDENT? 0BRANCH 000A
SWAP DROP BRANCH 000C
OFFSET @ + BUFFER NOTE-RES
;S

519B : BLOCK DUP RESIDENT? 0BRANCH 000A SWAP
DROP BRANCH 0006 BLOCK NOTE-RES ;S

517C : NOTE-RES DUP 2 - DUP @ UNSIGN BLK-
TAB ! ;S

5160 : #BUFS LIMIT @ FIRST @ - LIT 0404 / ;S

50FC : RESIDENT?
OFFSET @ + DUP ?BLK BLK-TAB 2DUP @ @ UNSIGN =
0BRANCH 000E
SWAP DROP @ 1 BRANCH 001C
SWAP LOOK-RES? 0BRANCH 000E
DUP ROT ! 1 BRANCH 0008
DROP DROP 0 0BRANCH 0010
DUP PREV ! 2+ 1 BRANCH 0004
0
;S

50CA : ?BLK
DUP 0 < OVER DISKMAX @ > OR 0BRANCH 0015

```
. (.") 0C DISK BLOCK? "
QUIT
;S


4E8C : BLK-TAB 13DA  \ DOES> 4E11 = ARRAY

4E9A-       30 B0 2C AC 28 A8
4EA0- 24 A4 20 A0 1C 9C 18 98
4EA8- 14 94 10 90 0C 8C 08 88
4EB0- 04 84 30 B0 2C AC 28 A8
4EB8- 24 A4 20 A0 1C 9C 18 98
4EC0- 14 94 10 90 0C 8C 08 88
4EC8- 04 84 30 B0 2C AC 28 A8
4ED0- 24 A4 20 A0 1C 9C 18 98
4ED8- 14 94 10 90 0C 8C 08 88
4EE0- 28 A8 30 B0 2C AC 28 A8
4EE8- 24 A4 20 A0 1C 9C 18 98
4EF0- 14 94 10 90 0C 8C 08 88
4EF8- 04 84 30 B0 2C AC 28 A8
4F00- 24 A4 20 A0 1C 9C 18 98
4F08- 14 94 10 90 0C 8C 08 88
4F10- 04 84 30 B0 2C AC 28 A8
4F18- 24 A4 20 A0 1C 9C 18 98
4F20- 14 94 10 90 0C 8C 08 88
4F28- 04 84 30 B0 2C AC 28 A8
4F30- 24 A4 20 A0 1C 9C 18 98
4F38- 14 94 10 90 0C 8C 08 88
4F40- 04 84 30 B0 2C AC 28 A8
4F48- 24 A4 20 A0 1C 9C 18 98
4F50- 14 94 10 90 0C 8C 08 88
4F58- 04 84 30 B0 2C AC 28 A8
4F60- 24 A4 20 A0 1C 9C 18 98
4F68- 14 94 10 90 0C 8C 08 88
4F70- 04 84 30 B0 2C AC 28 A8
4F78- 24 A4 20 A0 1C 9C 18 98
4F80- 14 94 10 90 0C 8C 08 88
4F88- 04 84 30 B0 2C AC 28 A8
4F90- 24 A4 20 A0 1C 9C 18 98
4F98- 14 94 10 90 0C 8C 08 88
4FA0- 04 84 30 B0 2C AC 28 A8
4FA8- 24 A4 20 A0 1C 9C 18 98
4FB0- 14 94 30 B0 2C AC 28 A8
4FB8- 24 A4 20 A0 1C 9C 18 98
4FC0- 14 94 10 90 0C 8C 08 88
4FC8- 04 84 30 B0 2C AC 28 A8
4FD0- 24 A4 20 A0 1C 9C 18 98
4FD8- 14 94 10 90 0C 8C 08 88
4FE0- 04 84 30 B0 2C AC 28 A8
```

```
4FE8- 24 A4 20 A0 1C 9C 18 98
4FF0- 14 94 10 90 0C 8C 08 88
4FF8- 04 84 30 B0 2C AC 28 A8
5000- 24 A4 20 A0 1C 9C 18 98
5008- 14 94 10 90 0C 8C 08 88
5010- 04 84 30 B0 2C AC 28 A8
5018- 24 A4 20 A0 1C 9C 18 98
5020- 14 94 10 90 0C 8C 08 88
5028- 04 84 30 B0 2C AC 28 A8
5030- 24 A4 20 A0 1C 9C 18 98
5038- 14 94 10 90 0C 8C 08 88
5040- 04 84 30 B0 2C AC 28 A8
5048- 24 A4 20 A0 1C 9C 18 98
5050- 14 94 10 90 0C 8C 08 88
5058- 04 84 30 B0 2C AC 28 A8
5060- 24 A4 20 A0 1C 9C 18 98
5068- 14 94 10 90 0C 8C 08 88
5070- 04 84 30 B0 2C AC 28 A8
5078- 24 A4 20 A0 1C 9C 18 98
5080- 14 94 10 90 0C 8C 08 88
5088- 04 84 30 B0 2C AC 28 A8
5090- 24 A4 20 A0 1C 9C 18 98
5098- 14 94 10 90 0C 8C 08 88
50A0- 04 84 30 B0 2C AC 28 A8
50A8- 24 A4 20 A0 1C 9C 18 98
50B0- 14 94 10 90 0C 8C 08 88
50B8- 04 84 30 B0 2C AC 28 A8
50C0- 24 A4 20 A0 1C 9C 18 98
50C8- 14 94
```

4E77 : CARRAY <BUILDS ALLOT DOES> + ;S

4E62 : STUFFS (´) ROT ROT (STUFFS) ;S

4E3F : (STUFFS) 1+ SWAP (DO) I OVER (STUFF) 2
(+LOOP) FFF6 DROP ;S

4E2F : STUFF (´) (STUFF) ;S

4E19 : (STUFF) 2 - SWAP ! ;S

4DFF : ARRAY <BUILDS 2* ALLOT DOES> SWAP 2* + ;S

```
4DF0 : 2* (MACRO) DUP + ;S

4DDC : MACRO ?COMP IMMEDIATE COMPILE (MACRO) ;S

4D8C : (MACRO)
STATE @ 0BRANCH 003C
GRAB 2+ DUP LITW 0C39 - 0BRANCH 0026
DUP CFA ,
DUP LITW 08A0 =
SWAP LITW 4386 = OR 0BRANCH 0006
GRAB , BRANCH FFCE
DROP R> DROP
;S

4D70 : CGRAB R> R C@ R> 1+ >R SWAP >R ;S

4D55 : GRAB R> R @ R> 2+ >R SWAP >R ;S


4D40 : J 4D46

4D46-    86 E0        STX    $E0
4D48-    BA           TSX
4D49-    BD 05 01     LDA    $0105,X
4D4C-    48           PHA
4D4D-    BD 06 01     LDA    $0106,X
4D50-    A6 E0        LDX    $E0
4D52-    4C B1 08     JMP    $08B1

4D2A : I´ 4D31
4D31-    86 E0        STX    $E0
4D33-    BA           TSX
4D34-    BD 03 01     LDA    $0103,X
4D37-    48           PHA
4D38-    BD 04 01     LDA    $0104,X
4D3B-    A6 E0        LDX    $E0
4D3D-    4C B1 08     JMP    $08B1


4CAE : LOOK-RES? 0 LIMIT @ FIRST @ (DO) OVER I @
UNSIGN = 0BRANCH 000E 2DROP I 1
```

```
  LEAVE BRANCH 0006 I NOTE-IF-FREE B/BUF LIT 0004
+ (+LOOP) FFD8 ;S

4C7D : NOTE-IF-FREE DUP @ 32K-1 = 0BRANCH 0012 -
BUF DUP USE ! PREV ! BRANCH 0004
 DROP ;S

4C5A : -BUF DUP FIRST @ = 0BRANCH 0008 DROP
LIMIT @ LIT 0404 - ;S

4C49 : UNSIGN 32K-1 AND ;S

4C3D : 32K-1 0F05  \ CONSTANT $7FFF

4A97 : EDIT: LOOKUP EDIT ;S

4A78 : EDIT QUIT ED-SCR ! 0 ED-CV ! 0 ED-CH !
RE ;S

4A6B : RE ?STACK EDIT-LOOP ;S

4881 : INCLUDE TASTE 0BRANCH 000A BL WORD BRANCH
0006 LOOKUP LOAD ;S

485C : LOOKUP LOOKUP? 0= 0BRANCH 0012 CR HERE
COUNT TYPE (.") 03 ?!?" QUIT ;S

47F6 : LOOKUP? BL WORD BL APPEND-CHAR OFFSET @
>R BLK @ B/DSK / B/DSK * OFFSET!
BASE @ >R DECIMAL (LOOKUP?) 0BRANCH 0008 1
BRANCH 0006 SUMMARIZE (LOOKUP?) R> BA
SE ! OFFSET @ R - SWAP 0BRANCH 000A + 1 BRANCH
0006 DROP 0 R> OFFSET! ;S
```

47D2 : APPEND-CHAR HERE C@ 1+ DUP HERE C! HERE +
C! ;S

477A : (LOOKUP?) 0 LOOK1 DUP LOOKS + SWAP (DO) I
IN-INDEX 0BRANCH 000A ROT DROP
1 LEAVE (LOOP) FFEE 0BRANCH 0022 OVER BLOCK LIT
0024 SWAP -TEXT 0= 0BRANCH 0008
1 BRANCH 0006 DROP 0 BRANCH 0004 0 ;S

470B : IN-INDEX BLOCK 0 OVER LIT 0017 LIT 0028 *
+ ROT LIT 0050 + (DO) I LIT 000
4 + LOOKPTR ! IN-LIST 0BRANCH 000A DROP I 1
LEAVE LIT 0028 (+LOOP) FFE0 0BRANCH
001E DUP C@ BL = 0BRANCH 0008 1+ BRANCH FFF0 -
NUMBER 1+ 1 BRANCH 0004 0 ;S

46E9 : -NUMBER LIT 0000 LIT 0000 ROT 1 -
(NUMBER) SWAP DROP ;S

46B5 : IN-LIST 0 LPAR SAME-WORD 0BRANCH 001E -BL
RPAR SAME-WORD 0= 0BRANCH 0012
HERE SAME-WORD 0BRANCH 0006 DROP 1 BRANCH
FFE6 ;S

46A7 : RPAR 13DA \ DOES> 451E = :"

46B2- 02 29 20

4699 : LPAR 13DA \ DOES> 451E = :"

46A4- 02 28 20

467B : -BL NEXTCHAR BL = 0BRANCH FFF8 NEXTCHAR
BL - 0BRANCH FFF8 ;S

4661 : SAME-WORD COUNT LOOKPTR @ -TEXT 0= ;S

```
4646 : NEXTCHAR LOOKPTR 1 OVER +! @ C@ ;S

4638 : LOOKPTR 0F21    \ variable $E3, $9E

4625 : I6 LOOK1 LIT 0005 + L ;S

4616 : I3 LOOK1 2+ L ;S

4603 : I5 LOOK1 LIT 0004 + L ;S

45F4 : I2 LOOK1 1+ L ;S

45E3 : I4 LOOK1 3 + L ;S

45D6 : I1 LOOK1 L ;S

45B6 : SUMMARIZE
LOOKS 0 (DO) I 1+ SUM (LOOP) FFF8
;S

4594 : SUM 1 – DUP LOOK1 + SWAP 2 * SEEN + @
(SUM) ;S

454D : (SUM)
DUP LIT 0014 +
HOME (.") 03 ("
OVER . DUP . (.") 0A INDEX);S"
INDEX CV C@ LIT 0016 < 0BRANCH 0004
QUIT
LOAD–BUFFER
UPDATE
;S

4538 : SEEN 0F21   \ VARIABLE
```

```
4541- 24 00 33 00 42 00 57
4548- 00 67 00 77 00


452C : LOOKS 0F05  \ CONSTANT $0006


4520 : LOOK1 0F05  \ CONSTANT $0054


4505 : :" <BUILDS LIT 0022 WORD HERE C@ 1+ ALLOT
DOES> ;S


44E7 : CTRL- INPTR C@ LIT 0040 - 1 IN +!
LITERAL ;S


44D3 : " INPTR C@ 1 IN +! LITERAL ;S


44AD : INPTR BLK @ -DUP 0BRANCH 0008 BLOCK
BRANCH 0006 TIB @ IN @ + ;S


446F : FORGET TASTE 0BRANCH 000D (.") 02 - "
FORGET BRANCH 0022 BL WORD BLK @ 0=
 0BRANCH 0014 (.") 01  " HERE COUNT TYPE (.")
03  ? " KEY ;S


4457 : TASTE IN @ EXISTS SWAP IN ! ;S


4438 : EXISTS -FIND 0BRANCH 000C DROP DROP 1
BRANCH 0004 0 ;S


4424 : --> ?TERMINAL 0BRANCH 0004 QUIT --> ;S


43F4 : LOAD
>R ?STACK R> 1 WARNING !
?TERMINAL 0BRANCH 0004
QUIT (.") 01 ["
LOAD
```

```
        LIT 0008 EMIT
        (.") 02 ] "
        ;S


43EB  :  S0 0FA2      \ USER VAR $0006


43DF  :  ´ (´) LITERALW ;S


43CB  :  (´) −FIND 0= 0 ?ERROR DROP ;S


43BC  :  >V CONTEXT ! DEFINITIONS ;S


43AF  :  V> CURRENT @ ;S


4392  :  LITERALW STATE @ 0BRANCH 0008 COMPILE
        LITW , ;S


437D  :  LITW R @ R> 2+ >R ;S


436F  :  #2! B/DSK OFFSET! ;S


4361  :  #1! 0 OFFSET! ;S


4341  :  OFFSET! OFFSET @ − −DUP 0BRANCH 0008
        FLUSH OFFSET +! ;S


4334  :  #2 B/DSK + ;S


4328  :  B/DSK 0F05  \ CONSTANT $008C (140 1K
        BLOCKS PER DISK)


3D39  :  TASK ;S


3D00  :  SEARCH 1+ SWAP (DO) I DUP SCOPY SRCH EFL
```

```
@ 0BRANCH 000A EDIT LEAVE BRANCH
 0004 DROP (LOOP) FFE4 LIT 0017 0 VHTAB ;S


3CA1 : SRCH 0 EFL ! LIT 0018 0 (DO) I DUP BCALC
LIT 0028 0 (DO) I OVER + #CHRS @
 SLINE -TEXT 0= 0BRANCH 001A OVER I VHTAB KEY
LIT 0045 = 0BRANCH 0008 1 EFL ! (L
OOP) FFD2 DROP DROP (LOOP) FFBC ;S


3C90 : ST SLINE #CHRS @ TYPE ;S


3C73 : SW CR (.") 05 WORD?" SLINE LIT 0028
EXPECT COUNT-CHRS ;S


3C38 : COUNT-CHRS 0 #CHRS ! SLINE DUP C@ 0BRANCH
001C DUP C@ LIT 0080 OR OVER C!
 1+ 1 #CHRS +! BRANCH FFE0 ;S


3C2E : EFL 0F21    \ VARIABLE $00,$00


3C22 : #CHRS 0F21  \ VARIABLE $03,$00


3BEE : SLINE 0F21

3BF8- C3 CF CC 00 00 D2 00 00
3C00- 20 20 20 20 20 20 20 20
3C08- 20 20 20 20 20 20 20 20
3C10- 20 20 20 20 20 20 20 20
3C18- 20 20 20 20 20 20 20 20
3C20- 20 20


3BA3 : SCAN
CR LIT 0020 0 (DO)
  LIT 0007 SPACES I DUP LIT 0040 + EMIT
  LIT 0007 SPACES 2 * CTRL + @ 2+ NFA ID.
  CR ?TERMINAL 0BRANCH 0004
  LEAVE
```

```
(LOOP) FFCC
;S

\ ^^^ IS THIS THE START OF JOT DEFINITIONS????

3B96 : EDIT EDIT ;S

342A : EDITOR 13DA      \ DOES> 197E = VOCABULARY

341A : MON LIT FF69 CALL ;S

3407 : DEMO EMPTY-BUFFERS LIT 0070 LOAD ;S

\ WORD = "P"? 81 90 - looks like printer logic
33A7 :  LIT 0016 0 VHTAB
SLOT @ PR CR
LIT 7FFF BUFFER DUP LIT 0018 0 (DO)
  DUP I BSTR LIT 0028 +
(LOOP) FFF2
DROP LIT 0018 0 (DO)
  CR DUP LIT 0028 -TRAILING TYPE
  LIT 0028 +
(LOOP) FFEC
DROP CR 0 PR
;S

337C : LS
1+ SWAP (DO)
  CR I LIST
  I 2 MOD 0BRANCH 0008
  LIT 000C EMIT
(LOOP) FFE8
CR
;S
```

```
3362 : VLINE 336C
336C-   B5 02       LDA     $02,X
336E-   85 2D       STA     $2D
3370-   B5 04       LDA     $04,X
3372-   B4 00       LDY     $00,X
3374-   20 28 F8    JSR     $F828
3377-   E8          INX
3378-   E8          INX
3379-   4C C8 09    JMP     $09C8


3348 : HLINE 3352
3352-   B5 02       LDA     $02,X
3354-   85 2C       STA     $2C
3356-   B4 04       LDY     $04,X
3358-   B5 00       LDA     $00,X
335A-   20 19 F8    JSR     $F819
335D-   E8          INX
335E-   E8          INX
335F-   4C C8 09    JMP     $09C8


332F : SCRN 3338
3338-   B4 02       LDY     $02,X
333A-   B5 00       LDA     $00,X
333C-   20 71 F8    JSR     $F871
333F-   95 02       STA     $02,X
3341-   A9 00       LDA     #$00
3343-   95 03       STA     $03,X
3345-   4C CA 09    JMP     $09CA


331C : PLOT 3325
3325-   B4 02       LDY     $02,X
3327-   B5 00       LDA     $00,X
3329-   20 00 F8    JSR     $F800
332C-   4C C8 09    JMP     $09C8


330A : COLOR 3314
3314-   B5 00       LDA     $00,X
3316-   20 64 F8    JSR     $F864
3319-   4C CA 09    JMP     $09CA


32DD : TEXT
LIT 0017 LIT 0025 C!
LIT 1800 LIT 0022 !
```

```
LIT 2800 LIT 0020 !
(TXT)
CR
;S


32B6 : GR (GR) LIT C053 C@ LIT C056 C@ LIT 0014
LIT 0022 C! DROP DROP CLEAR ;S


3294 : CLEAR LIT 0014 0 (DO) I BCALC LIT 0028
ERASE (LOOP) FFF4 ;S


3278 : (TXT)
LIT C051 C@
LIT C054 C@
DROP DROP
;S


3259 : (GR) LIT C050 C@ DROP LIT 0017 LIT 0025
C! CR ;S


323F : L DUP SCR ! SCOPY LIT 0016 0 VHTAB
QUIT ;S


3213 : SCOPY BLOCK DUP LIT 0018 0 (DO) I SBTR
LIT 0028 + DUP (LOOP) FFF2 DROP DR
OP ;S


31EE : BSTR 31F7
31F7-   B5 00       LDA   $00,X
31F9-   20 C1 FB    JSR   $FBC1
31FC-   B5 02       LDA   $02,X
31FE-   85 D1       STA   $D1
3200-   B5 03       LDA   $03,X
3202-   85 D2       STA   $D2
3204-   A0 28       LDY   #$28
3206-   88          DEY
3207-   B1 28       LDA   ($28),Y
```

```
3209-   49 80      EOR   #$80
320B-   91 D1      STA   ($D1),Y
320D-   98         TYA
320E-   D0 F6      BNE   $3206
3210-   4C C8 09   JMP   $09C8


31C9 : SBTR 31D2
31D2-   B5 00      LDA   $00,X
31D4-   20 C1 FB   JSR   $FBC1
31D7-   B5 02      LDA   $02,X
31D9-   85 D1      STA   $D1
31DB-   B5 03      LDA   $03,X
31DD-   85 D2      STA   $D2
31DF-   A0 28      LDY   #$28
31E1-   88         DEY
31E2-   B1 D1      LDA   ($D1),Y
31E4-   49 80      EOR   #$80
31E6-   91 28      STA   ($28),Y
31E8-   98         TYA
31E9-   D0 F6      BNE   $31E1
31EB-   4C C8 09   JMP   $09C8
```

3169 : CODE ?EXEC CREATE SMUDGE ASSEMBLER MEM !
CSP LATEST PFA DUP 2 - ! ;S

2B78 : ASSEMBLER 13DA   \ DOES> 197E =
VOCABULARY

2B65 : RAND URAND U* SWAP DROP ;S

2B3F : URAND RSEED @ LIT 2725 U* LIT 3947 S->D
D+ DROP DUP RSEED ! ;S

2B33 : RSEED 0F21 \ variable $1001

2AC9 : BUFFERS FLUSH LIMIT @ HERE LIT 0200 + -
LIT 0404 / MIN 1 MAX LIT 0404 * L
IMIT @ SWAP - FIRST ! FIRST @ DUP USE ! DUP
PREV ! DUP LIT 0022 +ORIGIN ! DUP LI

```
T 0026 +ORIGIN ! LIT 0028 +ORIGIN ! EMPTY-
BUFFERS ;S

2A75 : BACKUP OVER OVER SWAP - LIT 0404 * FIRST
@ + LIMIT @ U< 0= 0BRANCH 0015 C
R (.") 08 TOO MANY" DROP DROP QUIT EMPTY-BUFFERS
1+ SWAP (DO) I BLOCK UPDATE DRO
P (LOOP) FFF6 ;S

2A40 : DUMP BASE C@ >R HEX OVER + SWAP (DO)
I .ROW ?TERMINAL 0BRANCH 0004 LEAVE
LIT 0008 (+LOOP) FFEE R> BASE C! ;S

2A2D : .ROW CR .ADDRESS .VALUES .ASCII ;S

29F8 : .ASCII DUP LIT 0008 + SWAP (DO) I C@ DUP
LIT 0021 < 0BRANCH 0008 DROP LIT
 002E EMIT (LOOP) FFE6 ;S

29CE : .VALUES DUP LIT 0008 + OVER (DO) I C@
3 .R (LOOP) FFF6 SPACE SPACE ;S

29B7 : .ADDRESS DUP LIT 0005 U.R ;S

2939 : SAVETURNKEY
Y/NQUERY LIT 14C1 LFA DUP @ 0BRANCH 0016
DUP @ PFA LFA SWAP 0 SWAP ! BRANCH FFE6
LIT 19F8 LIT 0021 + LATEST PFA CFA OVER ! LIT
0915 CFA
OVER 2+ ! LIT FFFC SWAP LIT 0004 + !
CR (.") 0B INSERT DISK"
KEY DROP
SAVESYSTEM BRANCH FFE8
;S
```

```
2927 : &KA 0F05     \ constant $000A


290F : &VRD 2918
2918-   AD E9 B7     LDA    $B7E9
291B-   AC EA B7     LDY    $B7EA
291E-   8D EA B7     STA    $B7EA
2921-   8C E9 B7     STY    $B7E9
2924-   4C B8 08     JMP    $08B8


28D2 : INITIALIZEDISK Y/NQUERY &RWTS-FMT LIT
7FFF BUFFER DUP LIT 0400 BLANKS LIT
 008C 0 (DO) DUP I 0 &R/W (LOOP) FFF6 DROP ;S


28B5 : SAVESYSTEM FORTH DEFINITIONS REBOOT &SIZE
&DUMP-RWTS &DUMP-FORTH ;S


288F : &SIZE PAD 0 +ORIGIN - LIT 0100 /MOD SWAP
0BRANCH 0004 1+ SECTORS C! ;S


286F : &DUMP-FORTH SECTORS C@ 0 +ORIGIN 0 &KA
&DISK-DUMP ;S


2850 : &DUMP-RWTS LIT 000A LIT B600 0 0 &DISK-
DUMP ;S


27CB : &DISK-DUMP
0 &DRV DROP LIT B7ED C! LIT B7EC C! LIT B7F0 ! 2
LIT B7F4 C!
&RWTS -DUP 0BRANCH 0004
ERRMSG LIT B7F1 C@ 1+ LIT B7F1 C! LIT B7ED C@
1+ DUP LIT 0010 = 0BRANCH 0014
LIT B7EC C@ 1+ LIT B7EC C!
DROP 0 LIT B7ED C! 1 -
DUP 0 = 0BRANCH FFB0
DROP
```

;S

2746 : &RWTS-FMT 0 &DRV DROP 1 LIT B7EB C! LIT
0004 LIT B7F4 C! CR CR (.") 0D FO
RMATTING..." CR CR &RWTS 0BRANCH 002D LIT FE80
CALL LIT 0087 EMIT (.") 10 FORMAT
RMATTING..." CR CR &RWTS 0BRANCH 002D LIT FE80
CALL LIT 0087 EMIT (.") 10 FORMAT
TING ERROR" LIT FE84 CALL QUIT BRANCH 0016 (.")
0F INITIALIZING..." CR ;S

2738 : SECTORS 0F05   \constant $E0 = 224, $B7
= 183

2726 : GET EMPTY-BUFFERS LIT 0020 LOAD ;S

2715 : LOAD DUP . LOAD ;S

2700 : LK ´ + @ 2+ NFA ID. ;S

26DB : JOIN ´ ´ OVER OVER > 0BRANCH 0004 SWAP
LFA SWAP NFA SWAP ! ;S

266B : VLIST QUIT OUT ! CONTEXT @ @ DUP C@ LIT
0020 AND 0= 0BRANCH 0032 DUP C@
LIT 001F AND LIT 0004 + OUT @ + C/L @ > 0BRANCH
000A CR 0 OUT ! DUP ID. SPACE SP
ACE PFA LFA @ DUP 0= ?TERMINAL OR 0BRANCH FFB0
DROP CR ;S

263B : INDEX CR 1+ SWAP (DO) CR I 3 .R SPACE 0
I .LINE ?TERMINAL 0BRANCH 0004 LE
AVE (LOOP) FFE6 ;S

```
25D9 : LIST CR DUP SCR ! (.") 06 SCR # " . CR C/
L @ LIT 0028 = 0BRANCH 000A LIT
0018 BRANCH 0006 LIT 0010 0 (DO) CR C/L @ LIT
0028 - 0BRANCH 000A I 3 .R SPACE I
 SCR @ .LINE (LOOP) FFDE ;S

25A7 : VHTAB LIT 0027 MIN 0 MAX LIT 0024 C! LIT
0017 MIN 0 MAX LIT 0025 C! LIT F
C22 CALL ;S

2560 : Y/NQUERY CR (.") 14 ARE YOU SURE? (Y/N):"
KEY DUP EMIT LIT 0059 = 0= 0BRA
NCH 000F (.") 08  ABORTED" QUIT ;S

2507 : WHERE DUP B/SCR / DUP SCR ! (.") 06 SCR #
" . SWAP C/L @ /MOD C/L @ * ROT
 BLOCK + CR C/L @ 1 - TYPE CR HERE C@ - SPACES
LIT 005E EMIT 0 0 QUIT ;S

24D9 : IND DUP 0BRANCH 0014 LIT 00C0 + LIT 0100
* ?CARD BRANCH 0008 DROP LIT FD1
B LIT 0038 ! ;S

24AC : PR DUP 0BRANCH 0014 LIT 00C0 + LIT 0100
* ?CARD BRANCH 0008 DROP LIT FDF0
 LIT 0036 ! ;S

2484 : ?CARD DUP @ OVER @ - 0BRANCH 0010 CR (.")
07 NO CARD" QUIT ;S

2477 : D= D- D0= ;S

2469 : D0= OR 0= ;S
```

```
245C : D? 2@ D. ;S

2443 : DMAX 2OVER 2OVER D< 0BRANCH 0004 2SWAP
2DROP ;S

242A : DMIN 2OVER 2OVER D> 0BRANCH 0004 2SWAP
2DROP ;S

241D : D> 2SWAP D< ;S

240C : D< D- 0< SWAP DROP ;S

23FF : D- DMINUS D+ ;S

23E8 : 2ROT LIT 0006 ROLL LIT 0006 ROLL ;S

23D0 : 2SWAP LIT 0004 ROLL LIT 0004 ROLL ;S

23C1 : 2DUP OVER OVER ;S

23A9 : 2OVER LIT 0004 PICK LIT 0004 PICK ;S

2399 : 2DROP DROP DROP ;S

2373 : --> ?LOADING 0 IN ! B/SCR BLK @ OVER MOD
- BLK +! BLK ? ;S

2367 : ? @ . ;S

235B : . S->D D. ;S

234A : .R >R S->D R> D.R ;S

233D : U. 0 D. ;S
```

232D : U.R 0 SWAP D.R ;S

231E : D. 0 D.R SPACE ;S

22FA : D.R >R SWAP OVER DABS <# #S SIGN #> R>
OVER - SPACES TYPE ;S

22E3 : #S # OVER OVER OR 0= 0BRANCH FFF4 ;S

22B9 : # BASE @ M/MOD ROT LIT 0009 OVER <
0BRANCH 0008 LIT 0007 + LIT 0030 + HOL
D ;S

22A0 : SIGN ROT 0< 0BRANCH 0008 LIT 002D HOLD ;S

2289 : #> DROP DROP HLD @ PAD OVER - ;S

227A : <# PAD HLD ! ;S

2259 : SPACES 0 MAX -DUP 0BRANCH 000C 0 (DO)
SPACE (LOOP) FFFC ;S

221A : &R/WSECT MINUS 2+ LIT B7F4 ! DUP LIT 022F
> 0BRANCH 0014 LIT 008C &DRV DR
OP LIT 0230 - BRANCH 0008 0 &DRV DROP &I/O ;S

21AB : FORGET ´ NFA DUP FENCE @ U< LIT 0015 ?
ERROR >R VOC-LINK @ R OVER U< 0BRAN
CH 0012 FORTH DEFINITIONS @ DUP VOC-LINK !
BRANCH FFE8 DUP LIT 0004 - PFA LFA @
DUP R U< 0BRANCH FFF2 OVER 2 - ! @ -DUP 0=
0BRANCH FFD8 R> DP ! ;S

```
2197 : ´ -FIND 0= 0 ?ERROR DROP LITERAL ;S

2187 : WHILE IF 2+ ;S

2166 : ELSE 2 ?PAIRS COMPILE BRANCH HERE 0 ,
SWAP 2 ENDIF 2 ;S

2151 : IF COMPILE 0BRANCH HERE 0 , 2 ;S

2134 : REPEAT >R >R AGAIN R> R> 2 - ENDIF ;S

211E : AGAIN 1 ?PAIRS COMPILE BRANCH BACK ;S

2112 : END UNTIL ;S

20FC : UNTIL 1 ?PAIRS COMPILE 0BRANCH BACK ;S

20E6 : +LOOP 3 ?PAIRS COMPILE (+LOOP) BACK ;S

20D1 : LOOP 3 ?PAIRS COMPILE (LOOP) BACK ;S

20C0 : DO COMPILE (DO) HERE 3 ;S

20B3 : THEN ENDIF ;S

2097 : ENDIF ?COMP 2 ?PAIRS HERE OVER -
SWAP ! ;S

2085 : BEGIN ?COMP HERE 1 ;S

2074 : BACK HERE - , ;S

205F : MYSELF LATEST PFA CFA , ;S
```

2032 : REBOOT VOC-LINK @ LIT 0020 +ORIGIN ! HERE
LIT 001E +ORIGIN ! LATEST LIT 0
00C +ORIGIN ! ;S

201E : <<COMPILE>> [COMPILE] ;S

2000 : [COMPILE] -FIND 0= 0 ?ERROR DROP CFA , ;S

1F70 : &R/W MINUS 2+ LIT B7F4 C! DUP DISKMAX @ >
OVER 0< OR 0BRANCH 001E CR (.")
 11 DISK RANGE ERROR " . DROP QUIT &DRV CLIT 04
* OVER OVER &I/O OVER LIT 0100 +
 OVER 1+ &I/O OVER LIT 0200 + OVER 2+ &I/O SWAP
LIT 0300 + SWAP 3 + &I/O ;S

1F3E : &I/O SWAP LIT B7F0 ! CLIT 10 0 SWAP U/
LIT B7EC C! LIT B7ED C! &RWTS -DUP
 0BRANCH 0004 ERRMSG ;S

1F0A : &DRV DUP LIT 008B > 0BRANCH 000E LIT 008C
- DRIVE2 BRANCH 0004 DRIVE1 @ L
IT B7E9 ! &VRD ;S

1EFD : DRIVE2 0F21   \ variable $02, $60 (slot
6 drive 2)

1EF0 : DRIVE1 0F21   \ variable $01, $60 (slot
6 drive 1)

1EA4 : ERRMSG CR CLIT 87 EMIT CLIT 10 = 0BRANCH
001C (.") 13 WRITE PROTECT ERROR
" BRANCH 0013 (.") 0E DISK I/O ERROR" CR QUIT ;S

1E81 : CALL 1E8A
1E8A- B5 00   LDA $00,X

```
1E8C–    8D 9B 1E    STA    $1E9B
1E8F–    B5 01       LDA    $01,X
1E91–    8D 9C 1E    STA    $1E9C
1E94–    E8          INX
1E95–    E8          INX
1E96–    8A          TXA
1E97–    48          PHA
1E98–    98          TYA
1E99–    48          PHA
1E9A–    20 69 FF    JSR    $FF69
1E9D–    68          PLA
1E9E–    A8          TAY
1E9F–    68          PLA
1EA0–    AA          TAX
1EA1–    4C B8 08    JMP    $08B8


1E62 : &RWTS 1E6C
1E6C–    8A          TXA
1E6D–    48          PHA
1E6E–    A9 B7       LDA    #$B7
1E70–    A0 E8       LDY    #$E8
1E72–    20 00 BD    JSR    $BD00
1E75–    68          PLA
1E76–    AA          TAX
1E77–    A9 00       LDA    #$00
1E79–    90 03       BCC    $1E7E
1E7B–    AD F5 B7    LDA    $B7F5
1E7E–    4C 07 0C    JMP    $0C07
```

\ load a forth screen number from disk (nn —)
1DE1 : LOAD
BLK @ >R
IN @ >R
0 IN !
B/SCR * BLK !
INTERPRET
R> IN !
R> BLK !
;S

1D8B : MESSAGE WARNING @ 0BRANCH 0025 –DUP
0BRANCH 001B DUP 1 – CLIT 17 / + CLIT
 18 /MOD CLIT 8B + .LINE BRANCH 001F –DUP

```
0BRANCH 0019 (.") 06 MSG # " BASE @ DE
CIMAL SWAP . BASE ! ;S


1D79 : .LINE (LINE) -TRAILING TYPE ;S


1D52 : (LINE) >R C/L @ B/BUF */MOD R> B/SCR * +
BLOCK + C/L @ ;S


1CEE : BLOCK OFFSET @ + >R PREV @ DUP @ LIT 7FFF
AND R - 0BRANCH 6836  0= 0BRANC
H 0014 DROP R BUFFER DUP R 1 &R/W 2 - DUP @ LIT
7FFF AND R - 0= 0BRANCH FFD4 DUP
 PREV ! R> DROP 2+ ;S


1CCA : EMPTY-BUFFERS
FIRST @ LIMIT @ OVER - ERASE FLUSH
;S


1CA2 : FLUSH
PREV @ DUP USE !
2+ LIT 7FFF BUFFER
OVER = 0BRANCH FFF4
DROP
;S


1C53 : BUFFER
USE @ +BUF  0= 0BRANCH 9306
DROP DUP >R USE ! R @ 0< 0BRANCH 0014
R 2+ R @ LIT 7FFF AND 0 &R/W R ! R PREV ! R> 2+
;S


1C43 : DR0 0 OFFSET ! ;S


1C24 : UPDATE PREV @ @ LIT 8000 OR PREV @ ! ;S
```

```
1BF8 : +BUF
LIT 0404 + DUP
LIMIT @ = 0BRANCH 0008
DROP FIRST @ DUP PREV @ -
;S

1BDA : M/MOD >R 0 R U/ R> SWAP >R U/ R> ;S

1BCB : */ */MOD SWAP DROP ;S

1BB7 : */MOD >R M* R> M/ ;S

1BA9 : MOD /MOD DROP ;S

1B9B : / /MOD SWAP DROP ;S

1B9B : / /MOD SWAP DROP ;S

1B88 : /MOD >R S->D R> M/ ;S

1B7C : * U* DROP ;S

1B55 : M/ OVER >R >R DABS R ABS U/ R> R XOR +-
SWAP R> +- SWAP ;S

1B38 : M* OVER OVER XOR >R ABS SWAP ABS U* R>
D+- ;S

1B20 : MAX OVER OVER < 0BRANCH 0004 SWAP DROP ;S

1B08 : MIN OVER OVER > 0BRANCH 0004 SWAP DROP ;S

1AF9 : DABS DUP D+- ;S
```

```
1AEB : ABS DUP +- ;S


1AD9 : D+- 0< 0BRANCH 0004 DMINUS ;S
1AC8 : +- 0< 0BRANCH 0004 MINUS ;S


1AB7 : S->D DUP 0< MINUS ;S


1A71 : COLD 1A7A
1A7A-   AD 0C 08    LDA   $080C
1A7D-   8D 94 19    STA   $1994
1A80-   AD 0D 08    LDA   $080D
1A83-   8D 95 19    STA   $1995
1A86-   A0 23       LDY   #$23
1A88-   A9 1A       LDA   #$1A
1A8A-   85 DA       STA   $DA
1A8C-   A9 61       LDA   #$61
1A8E-   85 D9       STA   $D9
1A90-   AD 10 08    LDA   $0810
1A93-   85 DE       STA   $DE
1A95-   AD 11 08    LDA   $0811
1A98-   85 DF       STA   $DF
1A9A-   B9 0C 08    LDA   $080C,Y
1A9D-   91 DE       STA   ($DE),Y
1A9F-   88          DEY
1AA0-   10 F8       BPL   $1A9A
1AA2-   D8          CLD
1AA3-   A9 6C       LDA   #$6C
1AA5-   85 DB       STA   $DB
1AA7-   4C 25 0C    JMP   $0C25

1AAA-   A0 0F       LDY   #$0F
1AAC-   A9 19       LDA   #$19
1AAE-   85 DA       STA   $DA
1AB0-   A9 F8       LDA   #$F8
1AB2-   85 D9       STA   $D9
1AB4-   4C 90 1A    JMP   $1A90


1A57 : COLD1 SP! EMPTY-BUFFERS 1 SLOT ! HOME
ABORT ;S


1A48 : HOME 1A51
1A51-   20 58 FC    JSR   $FC58
1A54-   4C B8 08    JMP   $08B8
```

```
19EE : ABORT SP! DROP 0 DECIMAL DR0 FORTH
DEFINITIONS LIT 0804 LIT 03F2 ! CLIT A
D LIT 03F4 C! JOT BRANCH FFFC ;S

*1A1F:41 50
*19F4:BF 19
*8702:BF
*8706:19
*1938:37 0C
*8700G

19BF : QUIT 0 BLK ! [ RP! CR QUERY INTERPRET
STATE @ 0= 0BRANCH 0008 (.") 03  OK
" BRANCH FFE6 ;S

19B2 : ( CLIT 29 WORD ;S

1998 : DEFINITIONS CONTEXT @ CURRENT ! ;S

1990- 7E 19 81 A0 18 81 00 00

1986 : FORTH 13DA      \ DOES> 197E = VOCABULARY

1951 : VOCABULARY <BUILDS LIT A081 , CURRENT @
CFA , HERE VOC-LINK @ , VOC-LINK
! DOES> 2+ CONTEXT ! ;S

193A : IMMEDIATE LATEST CLIT 40 TOGGLE ;S

18EA : INTERPRET -FIND 0BRANCH 001E STATE @ <
0BRANCH 000A CFA , BRANCH 0006 CFA
 EXECUTE ?STACK BRANCH 001C HERE NUMBER DPL @ 1+
0BRANCH 0008 DLITERAL BRANCH 00
```

```
06 DROP LITERAL ?STACK BRANCH FFC2 ;S

18B0 : ?STACK CLIT BB SP@ < 0BRANCH 0018 (.") 0B
EMPTY STACK" SP! DROP 0 QUIT SP
@ CLIT 50 < CLIT 07 ?ERROR ;S

1893 : DLITERAL STATE @ 0BRANCH 0008 SWAP
LITERAL LITERAL ;S

1877 : LITERAL STATE @ 0BRANCH 0008 COMPILE
LIT , ;S

17DB : CREATE FIRST @ HERE CLIT A0 + U< 2 ?ERROR
-FIND 0BRANCH 002E DROP WARNING
 @ LIT FFFF = 0BRANCH 0008 DROP BRANCH 0018 NFA
ID. (.") 0F ISN´T UNIQUE    " HER
E DUP C@ DUP 0= CLIT 09 ?ERROR WIDTH @ MIN 1+
ALLOT DP C@ CLIT FD = 0BRANCH 0006
 BL C, DUP CLIT 80 TOGGLE HERE 1 - CLIT 80
TOGGLE LATEST , CURRENT @ ! LIT 0F21 , ;S

17AA : ID. PAD CLIT 20 CLIT 5F FILL DUP PFA LFA
OVER - PAD SWAP CMOVE  PAD COUNT
 CLIT 1F AND TYPE SPACE ;S

176F : ERROR WARNING @ 0< 0BRANCH 0008 DROP
BRANCH 0021 HERE COUNT TYPE (.") 04
  ? " MESSAGE SP! DROP DROP IN @ BLK @ QUIT ;S

175F : (ABORT) ABORT ;S

171B : -FIND BL WORD BL HERE COUNT + C! HERE
CONTEXT @ @ (FIND) DUP 0= 0BRANCH 0
01A CONTEXT @ @ LATEST = 0= 0BRANCH 000A DROP
```

```
HERE LATEST (FIND) ;S

16C4 : NUMBER 0 0 ROT DUP 1+ C@ CLIT 2D = DUP >R
+ LIT FFFF DPL ! (NUMBER) DUP C
@ BL - 0BRANCH 0015 DUP C@ CLIT 2E - 0 ?ERROR 0
BRANCH FFDD DROP R> 0BRANCH 0004
DMINUS ;S

1677 : (NUMBER) 1+ DUP >R C@ BASE @ DIGIT
0BRANCH 002C SWAP BASE @ U* DROP ROT B
ASE @ U* D+ DPL @ 1+ 0BRANCH 0008 1 DPL +! R>
BRANCH FFC6 R> ;S

1629 : WORD BLK @ 0BRANCH 000C BLK @ BLOCK
BRANCH 0006 TIB @ IN @ + SWAP ENCLOSE
HERECLIT22BLANKSIN+!OVER->RRHEREC!
+HERE1+R>1+CMOVE ;S

1618 : PAD HERE CLIT 44 + ;S

15FF : HOLD LIT FFFF HLD +! HLD @ C! ;S

15EE : BLANKS BL FILL ;S

15DE : ERASE 0 FILL ;S

\ WORD NAME = 1 SPACE.  HIDDEN?
15C2 :    BLK @ 0BRANCH 000A
0 IN ! ?EXEC
R> DROP
;S

15A7 : QUERY TIB @ CLIT 50 EXPECT 0 IN ! ;S

14B6 : EXPECT
```

```
OVER + OVER (DO)
  KEYESC[ DUP CLIT 15 = 0BRANCH 003D
  DROP CH C@ CV C@ BCALC + C@ CLIT 3F AND
  DUP CLIT 1D < 0BRANCH 0007
  CLIT 40 OR LIT FBF4 CALL
  I C! 0 I 1+ ! BRANCH 0090
  DUP CLIT 08 = 0BRANCH 002B
  DROP CLIT 08 OVER I = DUP 0BRANCH 0008
  0 I ! DUP R> 2 – + >R – BRANCH 005A
  DUP CLIT 0D = 0BRANCH 0013
  0 I ! DROP CLIT 20 LEAVE
  BRANCH 003E
  DUP CLIT 18 = 0BRANCH 0025
  DROP 0 OVER C! 0 OVER 1+ C!
  CLIT 58 EMIT CLIT 58 EMIT
  CLIT 58 LEAVE
  BRANCH 0010
  DUP I C! 0 I 1+ ! EMIT
(LOOP) FF28
DROP
;S

1488 : ."
CLIT 22 STATE @ 0BRANCH 0014
COMPILE (.")
WORD HERE C@ 1+ ALLOT
BRANCH 000A
WORD HERE COUNT TYPE
;S

146D : (.")
R COUNT DUP 1+ R> + >R TYPE
;S
```

```
1435 : -TRAILING
DUP
0 (DO)
  OVER OVER + 1 - C@ BL -
  0BRANCH 0008
  LEAVE BRANCH 0006
  1 -
(LOOP)
FFE0
;S


140C : TYPE
-DUP 0BRANCH 0018
OVER + SWAP (DO)
  I C@ EMIT
(LOOP) FFF8
BRANCH 0004
DROP
;S


13F8 : COUNT DUP 1+ SWAP C@ ;S


13C6 : DOES> R> LATEST PFA ! (;CODE)

13DA-   A5 DA      LDA    $DA
13DC-   48         PHA
13DD-   A5 D9      LDA    $D9
13DF-   48         PHA
13E0-   A0 02      LDY    #$02
13E2-   B1 DC      LDA    ($DC),Y
13E4-   85 D9      STA    $D9
13E6-   C8         INY
13E7-   B1 DC      LDA    ($DC),Y
13E9-   85 DA      STA    $DA
13EB-   18         CLC
13EC-   A5 DC      LDA    $DC
13EE-   69 04      ADC    #$04
13F0-   48         PHA
13F1-   A5 DD      LDA    $DD
13F3-   69 00      ADC    #$00
```

```
13F5-  4C B1 08    JMP   $08B1
```

13B4 : <BUILDS 0 CONSTANT ;S

139E : ;CODE ?CSP COMPILE (;CODE) [ASSEMBLER ;S

1386 : (;CODE) R> LATEST PFA CFA ! ;S

1371 : DECIMAL CLIT 0A BASE ! ;S

1360 : HEX CLIT 10 BASE ! ;S

134C : SMUDGE LATEST CLIT 20 TOGGLE ;S

133D :] CLIT C0 STATE ! ;S

132F : [0 STATE ! ;S

1313 : COMPILE ?COMP R> DUP 2+ >R @ , ;S

12F9 : ?LOADING BLK @ 0= CLIT 16 ?ERROR ;S

12E1 : ?CSP SP@ CSP @ - CLIT 14 ?ERROR ;S

12CD : ?PAIRS - CLIT 13 ?ERROR ;S

12B8 : ?EXEC STATE @ CLIT 12 ?ERROR ;S

12A1 : ?COMP STATE @ 0= CLIT 11 ?ERROR ;S

1286 : ?ERROR SWAP 0BRANCH 0008 ERROR BRANCH
0004 DROP ;S

1275 : !CSP SP@ CSP ! ;S

```
1262 : PFA 1 TRAVERSE CLIT 05 + ;S

124D : NFA CLIT 05 - LIT FFFF TRAVERSE ;S

123F : CFA 2 - ;S

1230 : LFA CLIT 04 - ;S

121D : LATEST CURRENT @ @ ;S

11F7 : TRAVERSE    \ SKIP OVER NAME OF WORD
SWAP
OVER +
CLIT 7F OVER
C@ < 0BRANCH FFF1
SWAP
DROP
;S

11DC : U< >R 0 R> 0 DMINUS D+ SWAP DROP 0< ;S

11C9 : -DUP DUP 0BRANCH 0004 DUP ;S

11B9 : SPACE BL EMIT ;S

11AB : ROT 3 ROLL ;S

119F : > SWAP < ;S

1193 : = - 0= ;S

1187 : - MINUS + ;S

1176 : C, HERE C! 1 ALLOT ;S
```

```
1166 : , HERE ! 2 ALLOT ;S

1156 : ALLOT DP +! ;S

1147 : HERE DP @ ;S

113A : 2+ 2 + ;S

113A : 2+ 2 + ;S

112D : 1+ 1 + ;S

1120 : DISKMAX 0FA2    \ USER VAR $42 = $2032 =
REBOOT
1116 : SLOT 0FA2       \ USER VAR $40 = $205B
110D : HLD 0FA2        \ USER VAR $3E = $2021
1105 : R# 0FA2         \ USER VAR $3C = $204C
10FC : CSP 0FA2        \ USER VAR $3A = $4152
10F3 : FLD 0FA2        \ USER VAR $38 = $4554
10EA : DPL 0FA2        \ USER VAR $36 = $494C
10E0 : BASE 0FA2       \ USER VAR $34 = $2054
10D5 : STATE 0FA2      \ USER VAR $32 = $4F4F
10C8 : CURRENT 0FA2    \ USER VAR $30 = $4241
10BB : CONTEXT 0FA2    \ USER VAR $2E = $2021
10AF : OFFSET 0FA2     \ USER VAR $2C = $2020
10A6 : SCR 0FA2        \ USER VAR $2A = $202B
109D : OUT 0FA2        \ USER VAR $28 = $3220
1095 : IN 0FA2         \ USER VAR $26 = $2120
108C : BLK 0FA2        \ USER VAR $24 = $5245
1083 : C/L 0FA2        \ USER VAR $1E = $0003
1079 : PREV 0FA2       \ USER VAR $1C = $0000
1070 : USE 0FA2        \ USER VAR $1A = $0000
1065 : LIMIT 0FA2      \ USER VAR $18 = $0000
105A : FIRST 0FA2      \ USER VAR $16 = $0028
```

```
104C : VOC-LINK 0FA2    \ USER VAR $14 = $8404
1044 : DP 0FA2          \ USER VAR $12 = $9414
1039 : FENCE 0FA2       \ USER VAR $10 = $B434
102C : WARNING 0FA2     \ USER VAR $0E = $8404
1021 : WIDTH 0FA2       \ USER VAR $0C = $60F2
1018 : TIB 0FA2         \ USER VAR $0A = $819B

TIB: $830 + (($A-1) * 2) = $842 WHICH HAS $9B $81

0830- 18 81 08 00 30 08 BD 00
0838- FF 01 00 01 1F 00 00 00
0840- 38 27 9B 81 F2 60 04 84
0848- 34 B4 14 94 04 84 28 00
0850- 00 00 00 00 00 00 03 00
0858- C4 9A 23 00 00 00 94 19
0860- 94 19 00 00 0A 00 FF FF
0868- 52 47 B1 00 20 40 DD 81
0870- 01 00 17 01 4F 56 45 52
0878- 20 21 20 32 2B 20 20 20
0880- 21 20 41 42 4F 4F 54 20
0888- 4C 49 54 45 52 41 4C 20
0890- 21 20 5B 20 32 20 43 53

*819B.81CF

819B- 03 4D 4F 4E 20              \ "MON" = LAST COMMAND TYPED IN
FORTH
81A0- 20 20 20 20 20 20 20 20
81A8- 20 20 20 20 20 20 20 20
81B0- 20 20 20 20 20 20 20 20
81B8- 20 20 20 20 20 20 20 20
81C0- 20 20 20 20 20 20 20 20
81C8- 20 20 20 20 20 20 20 20


100F : CV 0F05      \ CONSTANT $0025 = ADDRESS 37
1006 : CH 0F05      \ CONSTANT $0024 = ADDRESS 36


0FF2 : +ORIGIN LIT 0800 + ;S


0FE6 : B/SCR 0F05  \ CONSTANT 1 = buffers per
screen
0FDA : B/BUF 0F05  \ CONSTANT $0400 = bytes per
buffer
```

```
0FD1 : BL 0F05        \ CONSTANT $20
0FC9 : 3 0F05         \ CONSTANT 3
0FC1 : 2 0F05         \ CONSTANT 2
0FB9 : 1 0F05         \ CONSTANT 1
0FB1 : 0 0F05         \ CONSTANT 0


0F95 : USER CONSTANT (;CODE)
0FA2-   A0 02       LDY   #$02
0FA4-   18          CLC
0FA5-   B1 DC       LDA   ($DC),Y
0FA7-   65 DE       ADC   $DE
0FA9-   48          PHA
0FAA-   A9 00       LDA   #$00
0FAC-   65 DF       ADC   $DF
0FAE-   4C B1 08    JMP   $08B1

00DC- 88 1E 30 08


0F73 : 2CONSTANT 2VARIABLE (;CODE)
0F85-   18          CLC
0F86-   A5 DC       LDA   $DC
0F88-   69 02       ADC   #$02
0F8A-   85 D1       STA   $D1
0F8C-   A5 DD       LDA   $DD
0F8E-   69 00       ADC   #$00
0F90-   85 D2       STA   $D2
0F92-   4C 39 0F    JMP   $0F39


0F5F : 2VARIABLE VARIABLE , ;S


0F46 : 2! 0F4D
0F4D-   A9 01       LDA   #$01
0F4F-   20 E0 08    JSR   $08E0
0F52-   B5 00       LDA   $00,X
0F54-   91 D1       STA   ($D1),Y
0F56-   E8          INX
0F57-   C8          INY
0F58-   C0 04       CPY   #$04
0F5A-   D0 F6       BNE   $0F52
0F5C-   4C B8 08    JMP   $08B8


0F2D : 2@ 0F34
0F34-   A9 01       LDA   #$01
0F36-   20 E0 08    JSR   $08E0
```

```
0F39-   A0 03        LDY    #$03
0F3B-   CA           DEX
0F3C-   B1 D1        LDA    ($D1),Y
0F3E-   95 00        STA    $00,X
0F40-   88           DEY
0F41-   10 F8        BPL    $0F3B
0F43-   4C B8 08     JMP    $08B8


0F10 : VARIABLE CONSTANT (;CODE)
0F21-   18           CLC
0F22-   A5 DC        LDA    $DC
0F24-   69 02        ADC    #$02
0F26-   48           PHA
0F27-   98           TYA
0F28-   65 DD        ADC    $DD
0F2A-   4C B1 08     JMP    $08B1


0EF2 : CONSTANT CREATE , (;CODE)
0F05-   A0 02        LDY    #$02
0F07-   B1 DC        LDA    ($DC),Y
0F09-   48           PHA
0F0A-   C8           INY
0F0B-   B1 DC        LDA    ($DC),Y
0F0D-   4C B1 08     JMP    $08B1


0EE5 : EMIT (EMIT) ;S


0ED3 : ; ?CSP COMPILE ;S SMUDGE [ ;S


0EA4 : : ?EXEC !CSP CURRENT @ CONTEXT ! CREATE
SMUDGE ] (;CODE)
0EBC-   90 13        BCC    $0ED1
0EBE-   A5 DA        LDA    $DA
0EC0-   48           PHA
0EC1-   A5 D9        LDA    $D9
0EC3-   48           PHA
0EC4-   18           CLC
0EC5-   A5 DC        LDA    $DC
0EC7-   69 02        ADC    #$02
0EC9-   85 D9        STA    $D9
0ECB-   98           TYA
0ECC-   65 DD        ADC    $DD
0ECE-   85 DA        STA    $DA
0ED0-   4C B8 08     JMP    $08B8
```

```
0E7E : BCALC 0E88
0E88-   B5 00        LDA   $00,X
0E8A-   4A           LSR
0E8B-   29 03        AND   #$03
0E8D-   09 04        ORA   #$04
0E8F-   95 01        STA   $01,X
0E91-   B5 00        LDA   $00,X
0E93-   29 18        AND   #$18
0E95-   90 02        BCC   $0E99
0E97-   69 7F        ADC   #$7F
0E99-   95 00        STA   $00,X
0E9B-   0A           ASL
0E9C-   0A           ASL
0E9D-   15 00        ORA   $00,X
0E9F-   95 00        STA   $00,X
0EA1-   4C B8 08     JMP   $08B8


0E4D : -TEXT 0E57
0E57-   A9 03        LDA   #$03
0E59-   20 E0 08     JSR   $08E0
0E5C-   84 D4        STY   $D4
0E5E-   A4 D3        LDY   $D3
0E60-   38           SEC
0E61-   88           DEY
0E62-   30 0B        BMI   $0E6F
0E64-   B1 D5        LDA   ($D5),Y
0E66-   F1 D1        SBC   ($D1),Y
0E68-   05 D4        ORA   $D4
0E6A-   85 D4        STA   $D4
0E6C-   4C 61 0E     JMP   $0E61
0E6F-   98           TYA
0E70-   90 07        BCC   $0E79
0E72-   C8           INY
0E73-   A5 D4        LDA   $D4
0E75-   F0 02        BEQ   $0E79
0E77-   A9 01        LDA   #$01
0E79-   48           PHA
0E7A-   98           TYA
0E7B-   4C B1 08     JMP   $08B1


0E25 : ROLL 0E2E
0E2E-   20 06 0E     JSR   $0E06
0E31-   E4 E0        CPX   $E0
0E33-   30 02        BMI   $0E37
0E35-   D0 05        BNE   $0E3C
0E37-   A6 E0        LDX   $E0
0E39-   4C CA 09     JMP   $09CA
0E3C-   48           PHA
```

```
0E3D-    B5 01        LDA    $01,X
0E3F-    B4 FF        LDY    $FF,X
0E41-    94 01        STY    $01,X
0E43-    CA           DEX
0E44-    E4 E0        CPX    $E0
0E46-    D0 F7        BNE    $0E3F
0E48-    E8           INX
0E49-    E8           INX
0E4A-    4C B3 08     JMP    $08B3


0E11 : PICK 0E1A
0E1A-    20 06 0E     JSR    $0E06
0E1D-    48           PHA
0E1E-    B5 01        LDA    $01,X
0E20-    A6 E0        LDX    $E0
0E22-    4C B3 08     JMP    $08B3


\ SUBROUTINE -
0E06-    86 E0        STX    $E0
0E08-    B5 00        LDA    $00,X
0E0A-    0A           ASL
0E0B-    65 E0        ADC    $E0
0E0D-    AA           TAX
0E0E-    B5 00        LDA    $00,X
0E10-    60           RTS



0DF8 : C! 0DFF
0DFF-    B5 02        LDA    $02,X
0E01-    81 00        STA    ($00,X)
0E03-    4C C8 09     JMP    $09C8


0DE1 : ! 0DE7
0DE7-    B5 02        LDA    $02,X
0DE9-    81 00        STA    ($00,X)
0DEB-    F6 00        INC    $00,X
0DED-    D0 02        BNE    $0DF1
0DEF-    F6 01        INC    $01,X
0DF1-    B5 03        LDA    $03,X
0DF3-    81 00        STA    ($00,X)
0DF5-    4C C8 09     JMP    $09C8


0DD1 : C@ 0DD8
0DD8-    A1 00        LDA    ($00,X)
0DDA-    95 00        STA    $00,X
0DDC-    94 01        STY    $01,X
0DDE-    4C B8 08     JMP    $08B8
```

```
0DBD : @ 0DC3
0DC3-   A1 00        LDA   ($00,X)
0DC5-   48           PHA
0DC6-   F6 00        INC   $00,X
0DC8-   D0 02        BNE   $0DCC
0DCA-   F6 01        INC   $01,X
0DCC-   A1 00        LDA   ($00,X)
0DCE-   4C B3 08     JMP   $08B3


0DA9 : TOGGLE 0DB4             \ APPLY A BIT MASK
0DB4-   A1 02        LDA   ($02,X)
0DB6-   55 00        EOR   $00,X
0DB8-   81 02        STA   ($02,X)
0DBA-   4C C8 09     JMP   $09C8


0D8C : +! 0D93
0D93-   18           CLC
0D94-   A1 00        LDA   ($00,X)
0D96-   75 02        ADC   $02,X
0D98-   81 00        STA   ($00,X)
0D9A-   F6 00        INC   $00,X
0D9C-   D0 02        BNE   $0DA0
0D9E-   F6 01        INC   $01,X
0DA0-   A1 00        LDA   ($00,X)
0DA2-   75 03        ADC   $03,X
0DA4-   81 00        STA   ($00,X)
0DA6-   4C C8 09     JMP   $09C8


0D7C : DUP 0D84
0D84-   B5 00        LDA   $00,X
0D86-   48           PHA
0D87-   B5 01        LDA   $01,X
0D89-   4C B1 08     JMP   $08B1


0D63 : SWAP 0D6C
0D6C-   B5 02        LDA   $02,X
0D6E-   48           PHA
0D6F-   B5 00        LDA   $00,X
0D71-   95 02        STA   $02,X
0D73-   B5 03        LDA   $03,X
0D75-   B4 01        LDY   $01,X
0D77-   94 03        STY   $03,X
0D79-   4C B3 08     JMP   $08B3
```

```
0D5A : DROP 09CA
09CA-   E8              INX
09CB-   E8              INX
09CC-   4C B8 08    JMP    $08B8


0D49 : OVER 0D52
0D52-   B5 02       LDA    $02,X
0D54-   48              PHA
0D55-   B5 03       LDA    $03,X
0D57-   4C B1 08    JMP    $08B1


0D30 : DMINUS 0D3B
0D3B-   38              SEC
0D3C-   98              TYA
0D3D-   F5 02       SBC    $02,X
0D3F-   95 02       STA    $02,X
0D41-   98              TYA
0D42-   F5 03       SBC    $03,X
0D44-   95 03       STA    $03,X
0D46-   4C 23 0D    JMP    $0D23


0D18 : MINUS 0D22
0D22-   38              SEC
0D23-   98              TYA
0D24-   F5 00       SBC    $00,X
0D26-   95 00       STA    $00,X
0D28-   98              TYA
0D29-   F5 01       SBC    $01,X
0D2B-   95 01       STA    $01,X
0D2D-   4C B8 08    JMP    $08B8


0CF5 : D+ 0CFC
0CFC-   18              CLC
0CFD-   B5 02       LDA    $02,X
0CFF-   75 06       ADC    $06,X
0D01-   95 06       STA    $06,X
0D03-   B5 03       LDA    $03,X
0D05-   75 07       ADC    $07,X
0D07-   95 07       STA    $07,X
0D09-   B5 00       LDA    $00,X
0D0B-   75 04       ADC    $04,X
0D0D-   95 04       STA    $04,X
0D0F-   B5 01       LDA    $01,X
0D11-   75 05       ADC    $05,X
0D13-   95 05       STA    $05,X
0D15-   4C C8 09    JMP    $09C8
```

```
0CDD : + 0CE3

0CE3-    18           CLC
0CE4-    B5 00        LDA    $00,X
0CE6-    75 02        ADC    $02,X
0CE8-    95 02        STA    $02,X
0CEA-    B5 01        LDA    $01,X
0CEC-    75 03        ADC    $03,X
0CEE-    95 03        STA    $03,X
0CF0-    E8           INX
0CF1-    E8           INX
0CF2-    4C B8 08     JMP    $08B8


0CC0 : < 0CC6
0CC6-    38           SEC
0CC7-    B5 02        LDA    $02,X
0CC9-    F5 00        SBC    $00,X
0CCB-    B5 03        LDA    $03,X
0CCD-    F5 01        SBC    $01,X
0CCF-    94 03        STY    $03,X
0CD1-    50 02        BVC    $0CD5
0CD3-    49 80        EOR    #$80
0CD5-    10 01        BPL    $0CD8
0CD7-    C8           INY
0CD8-    94 02        STY    $02,X
0CDA-    4C CA 09     JMP    $09CA


0CAE : 0< 0CB5
0CB5-    16 01        ASL    $01,X
0CB7-    98           TYA
0CB8-    2A           ROL
0CB9-    94 01        STY    $01,X
0CBB-    95 00        STA    $00,X
0CBD-    4C B8 08     JMP    $08B8


0C99 : 0= 0CA0
0CA0-    B5 00        LDA    $00,X
0CA2-    15 01        ORA    $01,X
0CA4-    94 01        STY    $01,X
0CA6-    D0 01        BNE    $0CA9
0CA8-    C8           INY
0CA9-    94 00        STY    $00,X
0CAB-    4C B8 08     JMP    $08B8


0C84 : R 0C8A
```

```
0C8A-    86 E0        STX    $E0
0C8C-    BA           TSX
0C8D-    BD 01 01     LDA    $0101,X
0C90-    48           PHA
0C91-    BD 02 01     LDA    $0102,X
0C94-    A6 E0        LDX    $E0
0C96-    4C B1 08     JMP    $08B1


0C72 : R> 0C79
0C79-    CA           DEX
0C7A-    CA           DEX
0C7B-    68           PLA
0C7C-    95 00        STA    $00,X
0C7E-    68           PLA
0C7F-    95 01        STA    $01,X
0C81-    4C B8 08     JMP    $08B8


0C60 : >R 0C67
0C67-    B5 01        LDA    $01,X
0C69-    48           PHA
0C6A-    B5 00        LDA    $00,X
0C6C-    48           PHA
0C6D-    E8           INX
0C6E-    E8           INX
0C6F-    4C B8 08     JMP    $08B8


0C42 : LEAVE 0C4C
0C4C-    86 E0        STX    $E0
0C4E-    BA           TSX
0C4F-    BD 01 01     LDA    $0101,X
0C52-    9D 03 01     STA    $0103,X
0C55-    BD 02 01     LDA    $0102,X
0C58-    9D 04 01     STA    $0104,X
0C5B-    A6 E0        LDX    $E0
0C5D-    4C B8 08     JMP    $08B8


0C32 : ;S 0C39
0C39-    68           PLA
0C3A-    85 D9        STA    $D9
0C3C-    68           PLA
0C3D-    85 DA        STA    $DA
0C3F-    4C B8 08     JMP    $08B8


0C1D : RP! 0C25
0C25-    86 E0        STX    $E0
0C27-    A0 08        LDY    #$08
```

```
0C29-   B1 DE       LDA     ($DE),Y
0C2B-   AA          TAX
0C2C-   9A          TXS
0C2D-   A6 E0       LDX     $E0
0C2F-   4C B8 08    JMP     $08B8


0C0D : SP! 0C15
0C15-   A0 06       LDY     #$06
0C17-   B1 DE       LDA     ($DE),Y
0C19-   AA          TAX
0C1A-   4C B8 08    JMP     $08B8


0BFE : SP@ 0C06
0C06-   8A          TXA
0C07-   48          PHA
0C08-   A9 00       LDA     #$00
0C0A-   4C B1 08    JMP     $08B1


0BE8 : XOR 0BF0
0BF0-   B5 00       LDA     $00,X
0BF2-   55 02       EOR     $02,X
0BF4-   48          PHA
0BF5-   B5 01       LDA     $01,X
0BF7-   55 03       EOR     $03,X
0BF9-   E8          INX
0BFA-   E8          INX
0BFB-   4C B3 08    JMP     $08B3


0BD3 : OR 0BDA
0BDA-   B5 00       LDA     $00,X
0BDC-   15 02       ORA     $02,X
0BDE-   48          PHA
0BDF-   B5 01       LDA     $01,X
0BE1-   15 03       ORA     $03,X
0BE3-   E8          INX
0BE4-   E8          INX
0BE5-   4C B3 08    JMP     $08B3


0BBD : AND 0BC5
0BC5-   B5 00       LDA     $00,X
0BC7-   35 02       AND     $02,X
0BC9-   48          PHA
0BCA-   B5 01       LDA     $01,X
0BCC-   35 03       AND     $03,X
0BCE-   E8          INX
0BCF-   E8          INX
```

```
0BD0-   4C B3 08     JMP    $08B3


0B81 : U/ 0B88
0B88-   B5 04        LDA    $04,X
0B8A-   B4 02        LDY    $02,X
0B8C-   94 04        STY    $04,X
0B8E-   0A           ASL
0B8F-   95 02        STA    $02,X
0B91-   B5 05        LDA    $05,X
0B93-   B4 03        LDY    $03,X
0B95-   94 05        STY    $05,X
0B97-   2A           ROL
0B98-   95 03        STA    $03,X
0B9A-   A9 10        LDA    #$10
0B9C-   85 D1        STA    $D1
0B9E-   36 04        ROL    $04,X
0BA0-   36 05        ROL    $05,X
0BA2-   38           SEC
0BA3-   B5 04        LDA    $04,X
0BA5-   F5 00        SBC    $00,X
0BA7-   A8           TAY
0BA8-   B5 05        LDA    $05,X
0BAA-   F5 01        SBC    $01,X
0BAC-   90 04        BCC    $0BB2
0BAE-   94 04        STY    $04,X
0BB0-   95 05        STA    $05,X
0BB2-   36 02        ROL    $02,X
0BB4-   36 03        ROL    $03,X
0BB6-   C6 D1        DEC    $D1
0BB8-   D0 E4        BNE    $0B9E
0BBA-   4C CA 09     JMP    $09CA


0B49 : U* 0B50
0B50-   B5 02        LDA    $02,X
0B52-   85 D1        STA    $D1
0B54-   94 02        STY    $02,X
0B56-   B5 03        LDA    $03,X
0B58-   85 D2        STA    $D2
0B5A-   94 03        STY    $03,X
0B5C-   A0 10        LDY    #$10
0B5E-   16 02        ASL    $02,X
0B60-   36 03        ROL    $03,X
0B62-   36 00        ROL    $00,X
0B64-   36 01        ROL    $01,X
0B66-   90 13        BCC    $0B7B
0B68-   18           CLC
0B69-   A5 D1        LDA    $D1
0B6B-   75 02        ADC    $02,X
0B6D-   95 02        STA    $02,X
```

```
0B6F-    A5 D2       LDA    $D2
0B71-    75 03       ADC    $03,X
0B73-    95 03       STA    $03,X
0B75-    A9 00       LDA    #$00
0B77-    75 00       ADC    $00,X
0B79-    95 00       STA    $00,X
0B7B-    88          DEY
0B7C-    D0 E0       BNE    $0B5E
0B7E-    4C B8 08    JMP    $08B8


0B20  :  FILL  0B29
0B29-    A9 03       LDA    #$03
0B2B-    20 E0 08    JSR    $08E0
0B2B-    20 E0 08    JSR    $08E0
0B2E-    A5 D4       LDA    $D4
0B30-    30 0A       BMI    $0B3C
0B32-    A5 D1       LDA    $D1
0B34-    C4 D3       CPY    $D3
0B36-    D0 07       BNE    $0B3F
0B38-    C6 D4       DEC    $D4
0B3A-    10 03       BPL    $0B3F
0B3C-    4C B8 08    JMP    $08B8
0B3F-    91 D5       STA    ($D5),Y
0B41-    C8          INY
0B42-    D0 F0       BNE    $0B34
0B44-    E6 D6       INC    $D6
0B46-    4C 34 0B    JMP    $0B34


0AF7  :  CMOVE   0B02
0B02-    A9 03       LDA    #$03
0B04-    20 E0 08    JSR    $08E0
0B07-    C4 D1       CPY    $D1
0B09-    D0 07       BNE    $0B12
0B0B-    C6 D2       DEC    $D2
0B0D-    10 03       BPL    $0B12
0B0F-    4C B8 08    JMP    $08B8
0B12-    B1 D5       LDA    ($D5),Y
0B14-    91 D3       STA    ($D3),Y
0B16-    C8          INY
0B17-    D0 EE       BNE    $0B07
0B19-    E6 D6       INC    $D6
0B1B-    E6 D4       INC    $D4
0B1D-    4C 07 0B    JMP    $0B07


0AEB  :  KEYESC[  1E54
1E54-    20 35 FD    JSR    $FD35
1E57-    29 7F       AND    #$7F
1E59-    C9 1D       CMP    #$1D
```

```
1E5B-    D0 02        BNE    $1E5F
1E5D-    A9 5B        LDA    #$5B
1E5F-    4C 07 0C     JMP    $0C07


0AE4 : CR 1E4C
1E4C-    A9 8D        LDA    #$8D
1E4E-    20 ED FD     JSR    $FDED
1E51-    4C B8 08     JMP    $08B8


0AD6 : ?TERMINAL 1E3A
1E3A-    2C 00 C0     BIT    $C000
1E3D-    10 09        BPL    $1E48
1E3F-    2C 10 C0     BIT    $C010
1E42-    2C 00 C0     BIT    $C000
1E45-    30 F8        BMI    $1E3F
1E47-    C8           INY
1E48-    98           TYA
1E49-    4C 07 0C     JMP    $0C07


0ACE : KEY 1E32
1E32-    20 0C FD     JSR    $FD0C
1E35-    29 7F        AND    #$7F
1E37-    4C 07 0C     JMP    $0C07


0AC3 : (EMIT) 1E14
1E14-    86 E0        STX    $E0
1E16-    B5 00        LDA    $00,X
1E18-    09 80        ORA    #$80
1E1A-    20 ED FD     JSR    $FDED
1E1D-    A6 E0        LDX    $E0
1E1F-    18           CLC
1E20-    A0 28        LDY    #$28
1E22-    B1 DE        LDA    ($DE),Y
1E24-    69 01        ADC    #$01
1E26-    91 DE        STA    ($DE),Y
1E28-    C8           INY
1E29-    B1 DE        LDA    ($DE),Y
1E2B-    69 00        ADC    #$00
1E2D-    91 DE        STA    ($DE),Y
1E2F-    4C CA 09     JMP    $09CA


0A74 : ENCLOSE 0A80


0A6A-    C8           INY
0A6B-    D0 06        BNE    $0A73
```

```
0A6D-   F6 01        INC   $01,X
0A6F-   F6 03        INC   $03,X
0A71-   E6 D4        INC   $D4
0A73-   60           RTS


0A80-   A9 02        LDA   #$02
0A82-   20 E0 08     JSR   $08E0
0A85-   8A           TXA
0A86-   38           SEC
0A87-   E9 08        SBC   #$08
0A89-   AA           TAX
0A8A-   94 01        STY   $01,X
0A8C-   94 03        STY   $03,X
0A8E-   B1 D3        LDA   ($D3),Y
0A90-   C5 D1        CMP   $D1
0A92-   D0 06        BNE   $0A9A
0A94-   20 6A 0A     JSR   $0A6A
0A97-   4C 8E 0A     JMP   $0A8E
0A9A-   B5 03        LDA   $03,X
0A9C-   95 05        STA   $05,X
0A9E-   94 04        STY   $04,X
0AA0-   B1 D3        LDA   ($D3),Y
0AA2-   D0 07        BNE   $0AAB
0AA4-   94 02        STY   $02,X
0AA6-   94 00        STY   $00,X
0AA8-   4C B8 08     JMP   $08B8
0AAB-   C5 D1        CMP   $D1
0AAD-   F0 06        BEQ   $0AB5
0AAF-   20 6A 0A     JSR   $0A6A
0AB2-   4C A0 0A     JMP   $0AA0
0AB5-   94 02        STY   $02,X
0AB7-   B5 03        LDA   $03,X
0AB9-   20 6A 0A     JSR   $0A6A
0ABC-   95 03        STA   $03,X
0ABE-   94 00        STY   $00,X
0AC0-   4C B8 08     JMP   $08B8


0A05  :  (FIND)  0A10
0A10-   A9 02        LDA   #$02
0A12-   20 E0 08     JSR   $08E0
0A15-   86 E0        STX   $E0
0A17-   A0 00        LDY   #$00
0A19-   B1 D1        LDA   ($D1),Y
0A1B-   51 D3        EOR   ($D3),Y
0A1D-   29 3F        AND   #$3F
0A1F-   D0 2D        BNE   $0A4E
0A21-   C8           INY
0A22-   B1 D1        LDA   ($D1),Y
0A24-   51 D3        EOR   ($D3),Y
```

```
0A26-    0A              ASL
0A27-    D0 23           BNE     $0A4C
0A29-    90 F6           BCC     $0A21
0A2B-    A6 E0           LDX     $E0
0A2D-    CA              DEX
0A2E-    CA              DEX
0A2F-    CA              DEX
0A30-    CA              DEX
0A31-    18              CLC
0A32-    98              TYA
0A33-    69 05           ADC     #$05
0A35-    65 D1           ADC     $D1
0A37-    95 02           STA     $02,X
0A39-    A0 00           LDY     #$00
0A3B-    98              TYA
0A3C-    65 D2           ADC     $D2
0A3E-    95 03           STA     $03,X
0A40-    94 01           STY     $01,X
0A42-    B1 D1           LDA     ($D1),Y
0A44-    95 00           STA     $00,X
0A46-    A9 01           LDA     #$01
0A48-    48              PHA
0A49-    4C B1 08        JMP     $08B1
0A4C-    B0 05           BCS     $0A53
0A4E-    C8              INY
0A4F-    B1 D1           LDA     ($D1),Y
0A51-    10 FB           BPL     $0A4E
0A53-    C8              INY
0A54-    B1 D1           LDA     ($D1),Y
0A56-    AA              TAX
0A57-    C8              INY
0A58-    B1 D1           LDA     ($D1),Y
0A5A-    85 D2           STA     $D2
0A5C-    86 D1           STX     $D1
0A5E-    05 D1           ORA     $D1
0A60-    D0 B5           BNE     $0A17
0A62-    A6 E0           LDX     $E0
0A64-    A9 00           LDA     #$00
0A66-    48              PHA
0A67-    4C B1 08        JMP     $08B1


09D5 : DIGIT 09DF
09DF-    38              SEC
09E0-    B5 02           LDA     $02,X
09E2-    E9 30           SBC     #$30
09E4-    30 18           BMI     $09FE
09E6-    C9 0A           CMP     #$0A
09E8-    30 07           BMI     $09F1
09EA-    38              SEC
09EB-    E9 07           SBC     #$07
```

```
09ED-    C9 0A        CMP    #$0A
09EF-    30 0D        BMI    $09FE
09F1-    D5 00        CMP    $00,X
09F3-    10 09        BPL    $09FE
09F5-    95 02        STA    $02,X
09F7-    A9 01        LDA    #$01
09F9-    48           PHA
09FA-    98           TYA
09FB-    4C B3 08     JMP    $08B3
09FE-    98           TYA
09FF-    48           PHA
0A00-    E8           INX
0A01-    E8           INX
0A02-    4C B3 08     JMP    $08B3
```

09CF : I 0C8A

```
0C8A-    86 E0        STX    $E0
0C8C-    BA           TSX
0C8D-    BD 01 01     LDA    $0101,X
0C90-    48           PHA
0C91-    BD 02 01     LDA    $0102,X
0C94-    A6 E0        LDX    $E0
0C96-    4C B1 08     JMP    $08B1
```

09B3 : (DO) 09BC

```
09BC-    B5 03        LDA    $03,X
09BE-    48           PHA
09BF-    B5 02        LDA    $02,X
09C1-    48           PHA
09C2-    B5 01        LDA    $01,X
09C4-    48           PHA
09C5-    B5 00        LDA    $00,X
09C7-    48           PHA
09C8-    E8           INX
09C9-    E8           INX
\ drop 1 value from stack
09CA-    E8           INX
09CB-    E8           INX
09CC-    4C B8 08     JMP    $08B8
```

0979 : (+LOOP) 0985

```
0985-    E8           INX
0986-    E8           INX
0987-    86 E0        STX    $E0
0989-    B5 FF        LDA    $FF,X
098B-    48           PHA
098C-    48           PHA
098D-    B5 FE        LDA    $FE,X
```

```
098F-   BA            TSX
0990-   E8            INX
0991-   E8            INX
0992-   18            CLC
0993-   7D 01 01      ADC     $0101,X
0996-   9D 01 01      STA     $0101,X
0999-   68            PLA
099A-   7D 02 01      ADC     $0102,X
099D-   9D 02 01      STA     $0102,X
09A0-   68            PLA
09A1-   10 BD         BPL     $0960
09A3-   18            CLC
09A4-   BD 01 01      LDA     $0101,X
09A7-   FD 03 01      SBC     $0103,X
09AA-   BD 02 01      LDA     $0102,X
09AD-   FD 04 01      SBC     $0104,X
09B0-   4C 6D 09      JMP     $096D


094A  :  (LOOP)  0955
0955-   86 E0         STX     $E0
0957-   BA            TSX
0958-   FE 01 01      INC     $0101,X
095B-   D0 03         BNE     $0960
095D-   FE 02 01      INC     $0102,X
0960-   18            CLC
0961-   BD 03 01      LDA     $0103,X
0964-   FD 01 01      SBC     $0101,X
0967-   BD 04 01      LDA     $0104,X
096A-   FD 02 01      SBC     $0102,X
096D-   A6 E0         LDX     $E0
096F-   0A            ASL
0970-   90 A3         BCC     $0915
0972-   68            PLA
0973-   68            PLA
0974-   68            PLA
0975-   68            PLA
0976-   4C 3C 09      JMP     $093C


0928  :  0BRANCH  0934
0934-   E8            INX
0935-   E8            INX
0936-   B5 FE         LDA     $FE,X
0938-   15 FF         ORA     $FF,X
093A-   F0 D9         BEQ     $0915
093C-   18            CLC
093D-   A5 D9         LDA     $D9
093F-   69 02         ADC     #$02
0941-   85 D9         STA     $D9
0943-   90 02         BCC     $0947
```

```
0945-    E6 DA        INC    $DA
0947-    4C B8 08     JMP    $08B8


090A : BRANCH 0915
0915-    18           CLC
0916-    B1 D9        LDA    ($D9),Y
0918-    65 D9        ADC    $D9
091A-    48           PHA
091B-    C8           INY
091C-    B1 D9        LDA    ($D9),Y
091E-    65 DA        ADC    $DA
0920-    85 DA        STA    $DA
0922-    68           PLA
0923-    85 D9        STA    $D9
0925-    4C BA 08     JMP    $08BA


08F1 : EXECUTE 08FD
08FD-    B5 00        LDA    $00,X
08FF-    85 DC        STA    $DC
0901-    B5 01        LDA    $01,X
0903-    85 DD        STA    $DD
0905-    E8           INX
0906-    E8           INX
0907-    4C DB 00     JMP    $00DB

EXAMPLE:
00DB-    6C 88 1E     JMP    ($1E88)


08D1 : CLIT 08DA
08DA-    B1 D9        LDA    ($D9),Y
08DC-    48           PHA
08DD-    98           TYA
08DE-    F0 CB        BEQ    $08AB


\ SUBROUTINE TO READ [ACC] # OF 2-BYTE VALUES FROM STACK
08E0-    0A           ASL
08E1-    85 D0        STA    $D0
08E3-    B5 00        LDA    $00,X
08E5-    99 D1 00     STA    $00D1,Y
08E8-    E8           INX
08E9-    C8           INY
08EA-    C4 D0        CPY    $D0
08EC-    D0 F5        BNE    $08E3
08EE-    A0 00        LDY    #$00
08F0-    60           RTS
```

```
0898 : LIT 08A0
08A0-   B1 D9        LDA   ($D9),Y
08A2-   48           PHA
08A3-   E6 D9        INC   $D9
08A5-   D0 02        BNE   $08A9
08A7-   E6 DA        INC   $DA
08A9-   B1 D9        LDA   ($D9),Y
08AB-   E6 D9        INC   $D9
08AD-   D0 02        BNE   $08B1
08AF-   E6 DA        INC   $DA

\ SUBROUTINE - CONTINUE PROCESSING AND GO ON TO NEXT WORD
08B1-   CA           DEX
08B2-   CA           DEX
\ SUBROUTINE -
08B3-   95 01        STA   $01,X
08B5-   68           PLA
08B6-   95 00        STA   $00,X
08B8-   A0 01        LDY   #$01
08BA-   B1 D9        LDA   ($D9),Y
08BC-   85 DD        STA   $DD
08BE-   88           DEY
08BF-   B1 D9        LDA   ($D9),Y
08C1-   85 DC        STA   $DC
08C3-   18           CLC
08C4-   A5 D9        LDA   $D9
08C6-   69 02        ADC   #$02
08C8-   85 D9        STA   $D9
08CA-   90 02        BCC   $08CE
08CC-   E6 DA        INC   $DA
08CE-   4C DB 00     JMP   $00DB


*1938:39 30      \ UNDO PATCH FOR DISASSEMBLY

*800L

0800-   EA           NOP
0801-   4C 7A 1A     JMP   $1A7A
0804-   EA           NOP
0805-   4C AA 1A     JMP   $1AAA

0808- 00 00 01 00 18 81 08 00     \ 80C,80D = NFA OF TOPMOST WORD
                                    (JOT)
0810- 30 08 BD 00 FF 01 00 01
0818- 1F 00 00 00 38 27 9B 81
0820- F2 60 04 84 34 B4 04 84
0828- 04 84 28 00 00 00 00 00
```

```
ZERO PAGE:

0000- 4C 3C D4 4C 3A DB FF FF
0008- FF FF 4C 99 E1 FF 00 6B
0010- FF 00 FF 04 00 FF FF FF
0018- FF FF FF FF FF FF FF FF
0020- 00 28 00 18 12 17 00 FF
0028- D0 07 D0 07 00 00 00 00
0030- FF 00 FF AA 04 00 F0 FD
0038- 1B FD 47 55 3C 00 B7 00
0040- 00 00 01 70 00 08 00 D8
0048- E8 B7 FF FF FF FF 8F 9C
0050- 00 C0 55 FF 00 FF FF FF
0058- FF FF FF FF FF FF 38 FF
0060- FF FF FF FF FF FF FF 01
0068- 08 03 08 03 08 03 08 00
0070- C0 FF FF 00 C0 FF FF FF
0078- FF FF 00 FF FF 00 08 FF
0080- FF FF FF FF FF FF FF FF
0088- FF 00 FF FF FF FF FF 03
0090- 4C FF 00 FF FF FF FF FF
0098- FF 00 00 00 00 83 00 00
00A0- 00 06 00 01 80 FF 7F DB
00A8- FF 00 00 AE 7B 91 17 20
00B0- 00 22 00 57 08 00 00 00
00B8- 00 FE FF 69 FF 00 00 03
00C0- 00 EF 38 E9 30 38 E9 D0
00C8- 60 80 4F C7 52 FF FF FF
00D0- 04 1A 34 9B 81 00 01 00
00D8- 00 28 34 6C 88 1E 30 08
00E0- BD FF FF FF FF FF FF FF
00E8- FF FF FF FF FF FF FF FF
00F0- FF 01 00 00 FF FF FF FF
00F8- F8 FF FF FF FF FF FF FF
```